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Gamification approach to enhance students' engagement in Online Distance Learning (ODL) Classes

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Abstract: Online Distanced Learning (ODL) is an online learning method that has been used during outspread of the COVID-19 Pandemic. Conducting ODL can be tough. It is especially challenging when it comes to ensuring the active engagement of students. Many business and management disciplines include the so-called dry or uninteresting content that requires intense concentration and undivided attention from students. Hence, it is a must for business management lecturers to ensure active engagement so that they could assess students' understanding of the subject matter delivered throughout the Online Distance Learning (ODL) sessions.Thus, the purpose of this conceptual paper is to propose gamification as an approach in assessing student's understanding. Gamification makes learning more enjoyable experience especially during the pandemic as students undergo ODL lessons at their homes. Theoretically, this paper contributes to the existing literature of gamification in online learning and teaching assessments. Practically, it contributes in increasing the awareness on how the gamification can be used in any subject of business management online classes. Further experimental studies will be conducted to investigate how game-based approach assists in enhancing students' engagement, understanding of business management subject, as well as how gamification can stimulate excitement and communication skills among students.

Keywords: Assessment, Gamification, online learning, student engagement.

INTRODUCTION

The present state of emergency caused by the COVID-19 Pandemic has resulted in many sudden changes in the education system. Business and management students has transitioned from traditional to online learning. However, thanks to technology advancements, lecturers are able to apply various mediums and approaches while carrying out the online learning. Online learning does not only change the teacher's way of teaching but also changes the student's way of learning. In fact, online learning has dramatically changed the way people learn (Sun, 2011). Previous research on online learning were conducted before the pandemic (Rosalina, Nasrullah & Elyani, 2020). Thus, in this research, the focus is on ODL classes during the pandemic, in which the gamification approach is proposed to create a more enjoyable experience in the learning process.

However, a key challenge in teaching a business and management subject is keeping the students actively engaged and motivated in the subject course. Some students do not find the subject attractive. Hence, more often than not, they do not make an effort to pose questions to the lecturer during lectures. During the conduct of teaching and learning activities, the interaction between students and educator is critical.(Jonathan & Recard, 2021). Common issues which regards to learning are the lack of interest to study and the tendency to give up easily. Barrot, Llenares & Del Rosario (2021) revealed that the COVID-19 Pandemic had the greatest impact on he quality of the learning experience and students' mental health. Eventhough, the role of information technology and COVID-19 Pandemic in accelerating current and future online learning is considered a panacea at the time of crisis, the following problems still exist:

i. Students tend to neglect the given traditional revision questions during tutorial class.
ii. Students show lack of enthusiasm in learning business and management subject.
iii. Students have difficulties in understanding the lessons by showing defiant behaviours; e.g. joining online class late, or even skipping classes.

What could be the reasons behind these issues? How to make ODL classes more engaging and motivating during e-learning? What is the effect of gamification techniques on student engagement? The objectives of this research are as follows:

i. To identify a method that makes ODL classes be more engaging and motivating during e-learning.
ii. To examine the effects of gamification techniques on student engagement.

The main objective of the gamification technique is to ensure that students are actively engaged in class by answering the questions and to incorporate fun and play into business and management subject. Gamification was produced to assist students in improving their understanding the subject concepts. It is a solution to boost students' interest in doing revisions via using gamification approach via Quizizz, an application for gamification of learning. Students love to play games, and this is one of the ways in which they learn. By bringing game-based activities into the classroom, it boosts students' learning and their assimilation of new topics. Gamification helps students to learn the concepts better as it students have competitive spirits. In individual activities, , there was an urge in students to outperform each other, which means that the students would make a special effort to get things done. Similarly, group tasks also had a high level of collaboration resulting in effective learning (Raju, Bhat, Bhat, D'Souza & Singh, 2021). Intriguing to identify gamification techniques affecting student engagement, the present study is presented with the conceptual framework, method, concept of online learning, students' engagement, gamification approach and how this approach can help with student assesstments in the ODL process.

CONCEPTUAL FRAMEWORK

The aim of teaching and learning process can be looked in terms of student's gaining a good understanding of the subject matter for a particular class. Thus, the purpose of this article is to suggest gamification as a motivational element for students' participation in any business management subject through ODL lessons. In particular, this study aims to examine the effects of gamification techniques on student engagement. To do this, the study seeks upon two theories, namely Landers' Theory of Gamified Learning

and Behavioral Reasoning Theory (BRT).

Despite the fact that the term "gamification" is relatively new, the theory behind it provides a useful framework for learning design (Broer 2015; Stott & Neustaedter 2013). Theory of Gamified Learning was introduced by Richard N. Landers in 2014. It provides some guidance on how to attain increased learning from gamification. The theory proposes a framework describing types of game features that can improve learning. Besides that, it also highlights on the link between gamification, effort and learning. Landers' Theory of Gamified Learning connects game and gamification by focusing on game qualities and it proposes a psychological theory of gamified learning, but with a focus on behavior change. According to the theory, gamification is defined as the use of game attributes outside the context of a game with the purpose of affecting learning-related behaviors or attitude (Landers 2014).

Behavioral Reasoning Theory (BRT) postulates that behavior (i.e., adoption of ODL) can be predicted by their global motives (Claudy, Garcia & O'Driscoll, 2015). Attitudes, subjective norm, and perceived control are defined as global motives in that they constitute broad substantive factors, which influence behaviors across different domains (Westaby, 2005; Ajzen & Madden, 1986). If students believe that ODL is an acceptable or even desirable act, they will have a stronger intention to employ gamification learning. BRT is a good model to predict student engagement as global motives, intentions, and reasons for engagement have a significant direct effect on engagement (Tani, Gheith & Papaluca, 2021).
Figure 1 provide a conceptual framework for this paper to explain how element in gamified learning and behavioral reasoning theory can influence the student engagement in ODL.

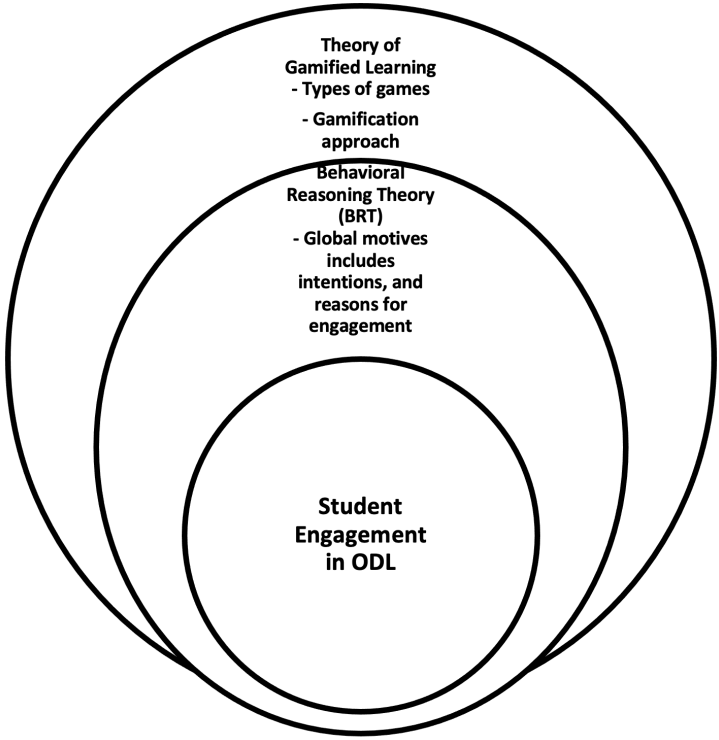

Figure 1 : Conceptual Framework

METHODOLOGY

For the purpose of literature search, the researcher has applied several steps to come out with the literature that suits the proposed framework. Below in Figure 2 are the step by step process on how the researcher did the literature search.

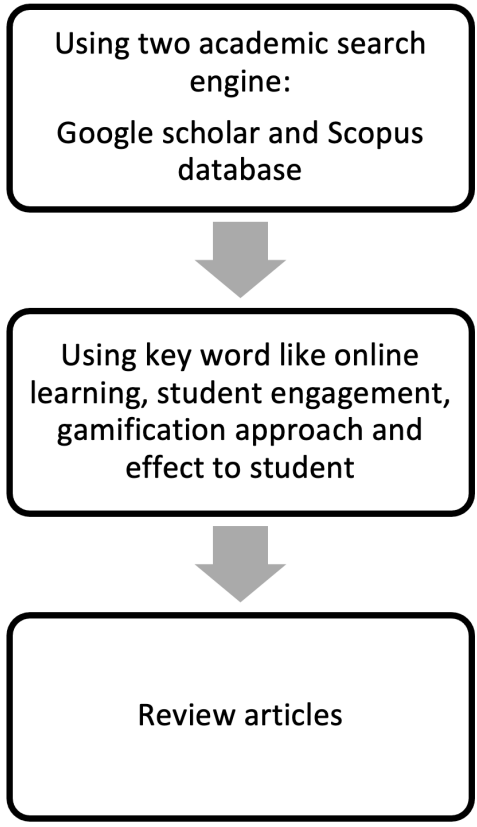

Figure 2: Step by step for literature search

With some modifications, this study adopted the method used by Dalstrom (2003) to conduct the literature search relating to this study. Relevant literature was found through searches in the Scopus database as well as in Google Scholar. These articles generally review the approach for online distance learning and are considered relevant included scientific papers pertaining to:

- Learning difficulties found in the students
- Landers' Theory of Gamified Learning
- Behavioral Reasoning Theory (BRT)
- The concept of online learning
- Students' engagement
- Gamification approach
- How gamification technique affects student engagement

With a few exceptions, the selected papers on the subject of gamification were written as recent as 2021, since recent papers are considered as more reliable papers than papers written around the time of the most intense popularization of gamification. Papers on student engagement, however, were selected based on their importance to the topic at hand, regardless of the year they were published. All the articles collected have then been review discuss in the next section.

ONLINE DISTANCE LEARNING

Since the COVID-19 Pandemic hit the globe in 2020, online learning has become a common practice in the educational settings. Before the pandemic, there was still a blended structure of face-to-face and online learning activities. Online distance learning is a form of delivery of conventional learning which is reflected on digital format through the internet (Imania, 2019). Online distance learning is considered to be the medium for delivering material between teachers and students during pandemic chaos. As everyone is confined at home, classes are now conducted entirely online and students learn directly from their desktop, personal computer, or other devices. Concerns regarding any content of the online course are normally addressed by e-mail with the lecturers resulting in a response time (Zhong, 2020). Conventional classroom socialization is another major gap in online learning. Students only communicate with their classmates digitally. Some

students have also never see them in person. That being said, real-time sharing of ideas, knowledge and information is partially missing from the digital learning world (Britt, 2006).

Nevertheless, the technological advancement has greatly facilitates the diffusion of education to diverse parts of the world. Still, it might be complicated for educators to come up with an effective technique to motivate and engage students in the learning process (Alabbasi, 2017). In line with this, business and management lecturers must develop appropriate ways or tactics to address student motivation and attentiveness during online lessons in order to boost user engagement.

STUDENTS' ENGAGEMENT

The term students' engagement has many definitions in numerous studies. Previous literature defined students' engagement as activites performed either physically or mentally by the students in their pursuit to gain knowledge. There are many definitions that arise from numerous studies regarding the term of students' engagement. Most literature defined students' engagement as activities performed either physically or mentally by the students in their pursuit to gain knowledge (Dixson, 2015; Marx, Simonsen & Kitchel, 2016; Mohd, Hussein, Aluwi & Omar, 2016). On the contrary, Hu, Li, Deng & Guan (2016) describes students' engagement as activities that occur when the students are using the online learning platform in their lessons, as in this context, the learning materials can only be accessed by them.

Nurul and Mohamad (2018) shown how engagement is employed to hold students' attention for a length period of time. Students will not be motivated to complete the work if they are not engaged in the class. Learners are unable to engage with online learning for a variety of reasons, including inability to understand lessons, time constraints, learning materials, inability to complete assessments, lack of encouragement, language barriers, issues with instructor accessibility, passion, peer to peer interaction, interaction with the instructor, comparison of score, and explore learners (Nurul & Mohamad, 2018).

GAMIFICATION

A study done by Jonathan and Recard (2021) highlights many option to the educators to make their online classroom more engaging. One of it is through gamification techniques. Gamifcation refers to the use of game dynamics to engage and drive students to learn (Nurul & Mohamad, 2018). To put it another way, games are now an integral component of a student's everyday routine. They devote a significant amount of time to gaming. Surprisingly, gamification has made its way into the education field. It is to instruct students how to use play to generate an intellectual challenge, recognised procedures, and interactivity (Razali et al., 2020). Ab Rahman, Ahmad & Hashim (2019) also shows the feasibility of the gamification in a higher education teaching and learning process as many options and platforms are available to be utilized.

Sometimes, gamification is defined as a process of improving a service with (motivational) affordances for gameful experiences in order to sustain user's overall value creation (Huotari & Hamari, 2012). This definition reflects the widely held belief that the goal of gamification is to influence user behavior through user motivation. This motivation in turn can be positively influenced by the motivational affordances commonly found in games. This definition displays the extensively held perception that the aim of gamification is to influence user conduct through user motivation and that this motivation may in turn be manipulated by the motivational affordances located in games (Dalstrom, 2003). To determine whether gamification is in fact a useful concept within ODL, it is important to understand how gamification affect student motivation, and wether its implementation reliably lead to increased student engagement.

Hamari, Koivisto and Sarsa (2014) stated that there was a positive relationship between gamification and students' engagement. Seaborn and Fels (2015) inserted that gamification increased levels of motivation and engagement. Razali et al., (2020), showed that students' intrinsic and extrinsic motivation was at a moderate level after applying the gamification approach. In the interaction between students' extrinsic motivation from points, level of difficulty, and avatar construct, the gamification components employed in the Quizizz programme are significant. However, other empirical studies (Leaning, 2015; Berkling & Thomas, 2013) produced

negative or mixed results on the influence of gamification on motivation and engagement.

Francisco-Aparicio, Gutiérrez-Vela, Isla-Montes & Sanchez (2013) argued that higher levels of extrinsic motivation when using of gamification is not sufficient to be considered as its benefits. If no permanent positive behavior change is created in the learners, the long-term effects of gamification cannot be fully evaluated. This can only be done using a longitudinal study that captures the long-term effects of the relationship between gamification and students' motivation and engagement.

Nevertheless, gamification has attracted the attention of researchers and pedagogists as a mean to support students' learning, (Hamari et al., 2015; Kim et al., 2018). The gamification approach, which includes game components and game design methods in a non-game context, was used to stimulate student learning (Siti Nurul Mahfuzah et al., 2017).Korkealehto and & Siklander (2018) promotes the gamification approach as a useful approach that support educational technological and pedagogical possibilities as well as supporting efficient blended learning that suit in higher education. It is proven that gamified elements support student interaction, enabling integration of field-specific topics through versatility in assignments. It also supports contextualised professional language learning, collaboration, authenticity and self-regulated learning.

This study looked at the gamification learning platform that has been deployed in the classroom, i.e., the Quizizz. According to Pitoyo et al., (2020) students prefer to take the test via Quizizz because it allows them to enjoy the test as if it was a game. Furthermore, the game features are critical in this context because they transformed the test into a game with all of the gamification's dynamic and mechanics. Furthermore, Quizizz is being used to help students improve their grammar and understanding through self-assessment (Rahayu & Purnawarman, 2019). Considering all the elements in the online class, this study would like to propose the gamification technique using Quizizz platform to be used in the any subject related to business management.

EFFECT OF GAMIFICATION TECHNIQUE ON STUDENT ENGAGEMENT

Previous studies shown that there is a significant improvement in learners' engagement. In fact, gamification is a technique that can increase students' engagement (Sanmugam, Zaid, Abdullah, Aris, Mohamed & van der Meijden, 2016; Hanus & Fox, 2015; Dixson, 2015). The use of gamification techniques have resulted in a more engaging learning environment (Jonathan & Recard, 2021). Nurul and Mohamad, (2018) found that gamification can be integrated to all platforms and can help to better engage students in their learning. Moreover, gamification applications are generally effective in enhancing students' motivation to learn science, according to the findings by Hursen and Bas, (2019). They received positive feedback regarding the game from the learner. Students require effort-demanding, challenging, sophisticated learning systems that increase competency, enhance recall memory, concentration, attentiveness, commitment, and social interaction. Students also require effort-demanding, challenging, sophisticated learning systems that increase competency, enhance recall memory, concentration, attentiveness, commitment, and social interaction (Alabbasi, 2017).

A study by Sharma et al., (2020) show more than half (53.5%) of the students were satisfied with the online learning, while 29.7% gave neutral views. Other that that, a study by Park and Kim, (2021) notice the used of gamification techniques positively affects the motivation, self-efficacy, self-determination, career motivation, grade motivation, and understanding of learners. This positive impact can be attributed to the method used which offers learning experiences that differ from those of traditional teaching methods. Additionally, Rusmaini et al., (2021) showed that: (1) Online learning assisted gamification learning models have been deemed valid for usage; (2) There is a substantial change in the quality of student learning before and after employing online learning assisted gamification learning models.

CONCLUSION

Gamification is an option to making learning more engaging, entertaining, and effective in the learning process. This strategy isn't just like playing games but it's also about having the correct concept, clear goals, and the ability to engage pupils in learning. Based on the considerations above, it can be stated that gamification tactics utilising Quizizz have a favourable impact on students' engagement and comprehension. In addition, student responses regarding gamification and using explicit instruction has also shown positive results. Thus, this paper propose that gamification can increase student engagement in online class for business management. Furthermore, the results of this study indicate that the Quizizz application can increase the interest of student in class for more interactive lessons when used effectively. In conclusion, gamification is an appropriate technique to be used and may have an impact on students that leaves them more active and motivated to study. This new trend in teaching allows students to be leaders of their own education. Unlike the traditional teaching model, which places lecturers as the 'givers' of knowledge and the students as passive 'receivers', the gamification approach encourages lecturers to take a step back and for students to take responsibility for their own learning. The gamification method Quizizz allows students to measure their own progress and discuss it with their lecturer later. This builds their own self-awareness and lets them to choose their own learning path.

REFERENCES

Ab Rahman, R., Ahmad, S., & Hashim, U. R. (2019). A study on gamification for higher education students' engagement towards education 4.0. In Intelligent and Interactive Computing (pp. 491-502). Springer, Singapore.

Ajzen, I., & Madden, T. J. (1986). Prediction of goal-directed behavior: Attitudes, intentions, and perceived behavioral control. Journal of experimental social psychology, 22(5), 453-474.

Alabbasi, D. (2017). Exploring graduate students' perspectives towards using gamification techniques in online learning. Turkish Online Journal of Distance Education, 18(3), 180–196. https://doi.org/10.17718/tojde.328951

Barrot, J. S., Llenares, I. I., & Del Rosario, L. S. (2021). Students' online learning challenges during the pandemic and how they cope with them: The case of the Philippines. Education and Information Technologies, 1-18.

Berkling, K., & Thomas, C. (2013, September). Gamification of a Software Engineering course and a detailed analysis of the factors that lead to it's failure. In 2013 International Conference on Interactive Collaborative Learning (ICL) (pp. 525-530). IEEE.

Broer, J., & Breiter, A. (2015, September). Potentials of gamification in learning management systems: A qualitative evaluation. In European Conference on Technology Enhanced Learning (pp. 389-394). Springer, Cham.

Claudy, M. C., Garcia, R., & O'Driscoll, A. (2015). Consumer resistance to innovation—a behavioral reasoning perspective. Journal of the Academy of Marketing Science, 43(4), 528-544.

Dalstrom, C. (2003). Impacts of gamification on Intrinsic Motivation. URL: https://www. ntnu. edu/documents/139799/1279149990/04+ Article+ Final_camildah_fors% C3% B8k_2017-12-06-13-53-55_TPD4505.

Camilla. Dahlstr% C3% B8m. pdf/9e48c5f5-0d17-4276-a23e-434abfe65491,[accessed 2003-09-19].

Francisco-Aparicio, A., Gutiérrez-Vela, F. L., Isla-Montes, J. L., & Sanchez, J. L. G. (2013). Gamification: analysis and application. In New trends in interaction, virtual reality and modeling (pp. 113-126). Springer, London.

Hamari, J., Koivisto, J., & Sarsa, H. (2014, January). Does gamification work?--a literature review of empirical studies on gamification. In 2014 47th Hawaii international conference on system sciences (pp. 3025-3034). Ieee.

Huotari, K., & Hamari, J. (2012). Defining gamification: a service marketing perspective. Proceeding of the 16th International Academic MindTrek Conference, 17-22.

Hursen, C., & Bas, C. (2019). Use of gamification applications in science education. International Journal of Emerging Technologies in Learning, 14(1), 4–23. https://doi.org/10.3991/ijet.v14i01.8894

Imania, K.A. N. (2019). Instrument Development DesignLearning Based AssessmentOnline. PETIK Journal, 5, 31-47.

Jonathan, F. C., & Recard, M. (2021). The implementation of gamification concept inside online classroom activities to promote students ' engagement. International Journal of Indonesian Education and Teaching, 5(2), 176–184. https://doi.org/10.24071/ijiet.v5i2.3461

Korkealehto, K., & Siklander, P. (2018). Enhancing engagement, enjoyment and learning experiences through gamification on an English course for health care students. In Seminar. net, 14(1), 13-30).

Landers, R. N. (2014). Developing a theory of gamified learning: Linking serious games and gamification of learning. Simulation & gaming, 45(6), 752-768.

Leaning, M. (2015). A study of the use of games and gamification to enhance student engagement, experience and achievement on a theory-based course of an undergraduate media degree. Journal of Media Practice, 16(2), 155-170.

Nurul, S., & Mohamad, M. (2018). Gamification Approach in Education to Increase Learning Engagement. International Journal of Humanities, Arts and Social Sciences, 4(1), 22–32. https://doi.org/10.20469/ijhss.4.10003-1

Park, S., & Kim, S. (2021). Is sustainable online learning possible with gamification?—the effect of gamified online learning on student learning. Sustainability (Switzerland), 13(8). https://doi.org/10.3390/su13084267

Pitoyo, M. D., Sumardi, & Asib, A. (2020). Gamification-based assessment: The washback effect of quizizz on students' learning in higher education. International Journal of Language Education, 4(1), 1–10. https://doi.org/10.26858/ijole.v4i2.8188

Rahayu, I. S. D., & Purnawarman, P. (2019). The use of quizizz in improving students' grammar understanding through self-assessment. Advances in Social Science, Education and Humanities Research, 254, 102–106. https://doi.org/10.2991/conaplin-18.2019.235

Raju, R., Bhat, S., Bhat, S., D'Souza, R., & Singh, A. B. (2021). Effective Usage of Gamification Techniques to Boost Student Engagement. Journal of Engineering Education Transformations, 34, 713-717.

Razali, N., Nasir, N. A., Ismail, M. E., Sari, N. M., & Salleh, K. M. (2020). Gamification Elements in Quizizz Applications: Evaluating the Impact on Intrinsic and Extrinsic Student's Motivation. IOP Conference Series: Materials Science and Engineering, 917(1). https://doi.org/10.1088/1757-899X/917/1/012024

Rosalina, E., Nasrullah, N., & Elyani, E. P. (2020). Teacher's Challenges towards Online Learning in Pandemic Era. LET: Linguistics, Literature and English Teaching Journal, 10(2), 71-88.

Rusmaini, Sesriyani, L., & Anwar, S. (2021). The development of gamification model assisted by online learning to improve the quality of student learning in economic education at pamulang university. INCEESS 2020. https://doi.org/10.4108/eai.17-7-2020.2302975

Schneider, A., Karapanos, M., Borchert, T., Uhlig, S., & Günther, S. (2018). Online teaching: a behavioral reasoning theory approach. In Edulearn 18. 10th International Conference on Education and New Learning Technology:(Palma, 2nd-4th of July, 2018). Conference proceedings (pp. 6473-6479). IATED Academy.

Seaborn, K., & Fels, D. I. (2015). Gamification in theory and action: A survey. International Journal of human-computer studies, 74, 14-31.

Sharma, K., Deo, G., Timalsina, S., Joshi, A., Shrestha, N., & Neupane, H. C. (2020). Online learning in the face of covid-19 pandemic: Assessment of students' satisfaction at chitwan medical college of nepal. Kathmandu University Medical Journal, 18(2 COVID-19 Special Issue), 40–47. https://doi.org/10.3126/kumj.v18i2.32943

Siti Nurul Mahfuzah, M., Sazilah, S., & Norasiken, B. (2017). An Analysis of Gamification Elements in Online Learning To Enhance Learning Engagement. 6th International Conference on Computing & Informatics, 041, 452–460.

Stott, A., & Neustaedter, C. (2013). Analysis of gamification in education. Surrey, BC, Canada, 8, 36.

Sun, S. Y. H. (2011). Online language teaching: The pedagogical challenges. Knowledge Management & E-Learning: An International Journal, 3(3), 428-447.

Tani, M., Gheith, M. H., & Papaluca, O. (2021). Drivers of student engagement in higher education: a behavioral reasoning theory perspective. Higher Education, 1-20.

Westaby, J. D. (2005). Behavioral reasoning theory: Identifying new linkages underlying intentions and behavior. Organizational behavior and human decision processes, 98(2), 97-120.

Usage Preferences of Massive Open Online Course (MOOC): An Exploratory Study Among Pharmacy Students in UiTM Puncak Alam

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Abstract: Massive Open Online Course (MOOC) is an online education system that has gained increasing popularity in higher education in recent years. Universiti Teknologi MARA (UiTM) has implemented MOOC as part of its teaching and learning modalities, in line with the launch of the Vice Chancellor's special project, MOOC 450 in 2017. In the Faculty of Pharmacy, UiTM, a total of seven MOOC courses are being offered to the students. However, the enrolment rate of MOOC courses is quite low. Therefore, this research is conducted to gain insihts on the preferences of our students in using MOOC as part of their learning process in UiTM. A total of 133 students of Bachelor of Pharmacy in UiTM Puncak Alam, Selangor were involved in this reasearch. Respondents were given a set of self-administered questionnaire comprising of three parts: (i) general usage of MOOC; (ii) factors that influence students' preference in using MOOC; (iii) problems that hinder students from using MOOC. Our results showed that various teaching materials, flexible accessibility and the capacity to learn at one's own pace are the top three variables that affect the students' preferences in using MOOC. Meanwhile, the top three problems which prevent students from using MOOC are a poor internet connection, lack of physical interactions between students and tutors and lack of interaction between students.

Keywords: blended learning, e-learning, MOOC, online learning, pharmacy education

INTRODUCTION

Massive Open Online Course (MOOC) is a model of online education delivery which embraces large-scale borderless learning opportunities to provide high-quality education to as many people as possible. It is a form of distance education where the learning process takes place albeit the student and teacher are physically distant apart (Martin, 2018). Generally, MOOC consists of short teaching videos, interactive assignments, quizzes, online discussion forums and text-based instructional materials. These materials are made available through an online platform, allowing learners to experience the flexibility of time and space in their online learning environment. In Malaysia, MOOC is developed in tandem with several key national plans including Malaysian Education Blueprint for Higher Education 2015 -2025. The plan is to leverage MOOC as one of the initiatives to enhance quality and access to education (Zulkifli, 2020). Universiti Teknologi MARA (UiTM) has been actively involved in MOOC development since 2014. UiTM has implemented MOOC as part of its teaching and learning modalities, in line with the launch of the Vice Chancellor's (VC's) special project, MOOC 450 in 2017. The Faculty of Pharmacy, UiTM has introduced seven courses of MOOC namely Basic Pharmacology, Biostatistics, Pharmacognosy, Veterinary Pharmacy, Drugs in Sports, Hospital Pharmacy and Radiopharmacy. However, the enrolment rate for these MOOC courses is below satisfactory level. Therefore, this research was conducted to determine factors that influence students' preferences in using MOOC in the Faculty of Pharmacy, UiTM Puncak Alam and to identify the problems that hinder students from using MOOC. This information can be used to improve the effectiveness of MOOC for pharmacy education and to increase students' adherence to MOOC. Plus, this study can assist educators to construct effective teaching methods and subsequently provide students with a more flexible yet effective learning experience.

METHODS

The present study is a descriptive survey design using a self-report questionnaire. It is conducted in the Faculty of Pharmacy in UiTM Puncak Alam to determine factors that influence students' preferences in using MOOC and to identify problems that hinder them from using it. This research has received ethics approval from UiTM Research Ethics Committee (Ref.

No. REC/231/19). Data analysis was performed using Statistical Package for the Social Sciences (SPSS) software.

2.1 Participants and Data Collection

A total of 139 students were involved in this study but 6 respondents were excluded due to incomplete responses. The respondents were second-year undergraduate students pursuing the Bachelor of Pharmacy programme at UiTM Puncak Alam, Selangor. This group of students were chosen as participants of this research as they have been exposed to MOOC as part of their learning activities in their second and third semester. The participants were given a set of self-administered questionnaires and completed questionnaires were collected for analysis.

2.2 Research Instrument

The questionnaire was developed based on a comprehensive literature review and was subsequently pilot-tested. It consists of open and closed-ended questions as well as Likert scale type questions. The questionnaire comprises three parts: (i) general information on MOOC usage; (ii) factors that influence students' preference in using MOOC; (iii) problems that hinder students from using MOOC.

RESULTS

3.1 General usage of MOOC

After the exclusion of individuals with missing values, 133 respondents were included in the analysis. As depicted in Table 1, the majority of the respondents are females. There were a total of 126 female respondents (94.7%) while the were only 7 male respondents (5.3%). All respondents confirmed that they have participated in MOOC courses before and some reported that they have previously enrolled in more than one MOOC course. A total of 115 and 73 students reported having enrolled in Biostatistics and Basic Pharmacology MOOC, respectively. While three students have enrolled in another subject which is the Mandarin language.

Table 1: Demographic profile

Variable	Category	Frequency (N)	Percentage (%)
Gender	Male	7	5.3
	Female	126	94.7
Course	Biostatistics	115	86.5
	Basic Pharmacology	73	54.9
	Others	3	2.3

A total of 92 students (69.2%), which is more than half of the respondents have completed their MOOC session. Among this were 87 female respondents and 5 male respondents, respectively (Fig. 1a). As for the reasons for completion, the majority voted for the requirement of the course (N=52), followed by encouragement by lecturers (N=46), easy to access (N=26) and interesting contents (N=22) (Fig. 1b). When the respondents were asked about the reasons for incompletion, the majority agreed the course was time consuming as the biggest hindrance to completion (N=19), followed by loss of interest (N=12) and the course was difficult to access (N=10) (Fig. 1c).

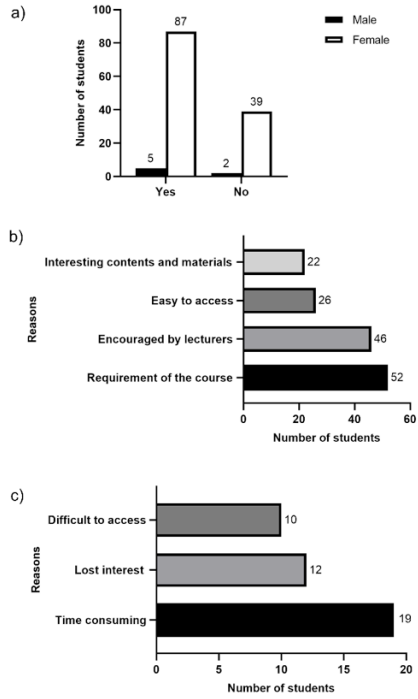

Fig. 1: MOOC completion and contributing factors. a) Number of students who have completed their MOOC courses. b) Reasons for MOOC completion. c) Reasons for incompletion of MOOC

In regards to learning methods, over half of the respondents (51.9%) preferred face-to-face lectures only (Fig. 2a). In stark contrast, a very small portion of the respondents (3%) chose MOOC over traditional lectures. Meanwhile, 60 students (45.1%) preferred a combination of face-to-face lectures and MOOC as preferred learning modalities. When asked about how much time they spend on MOOC, most students (76.7%) responded that they occasionally use MOOC, which is once a week (Fig. 2b). Another 21 respondents (15.8%) stated that they use MOOC often, which is 2 to 3 times per week. Meanwhile, only 1 student (0.8%) reported having used MOOC very often, which is more than 3 times per week. The remaining 9 students (6.8%) mentioned that they never used MOOC even though they have enrolled for the course. As for the duration of engagement per session, almost half of the students (45.1%) responded that they spend 30 minutes

per session, slightly more than those who spend 31 minutes to 1 hour (41.4%) (Fig. 2c). Lesser students (12%) reported going online for a longer duration per session and 1.5% spending 1 to 2 hours and more than 2 hours, respectively.

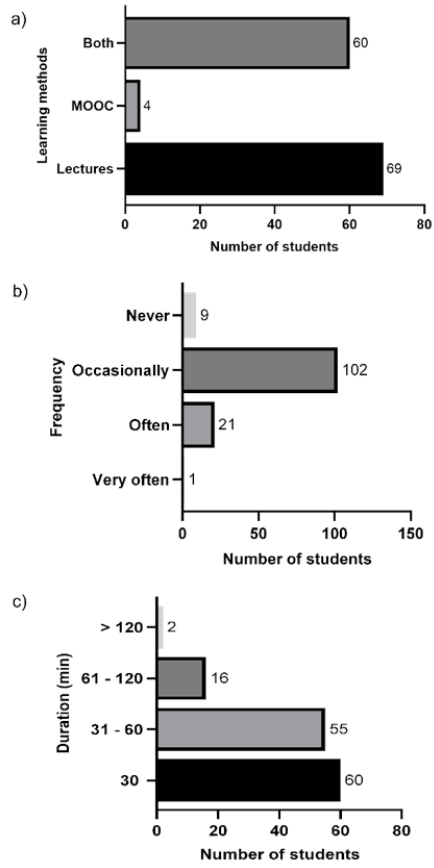

Fig. 2: The preference and usage of MOOC. a) Preferred learning methods. b) Frequency of MOOC usage. Occasionally (once per week), Often (2-3 times per week), Very often (>3 times per week). c) Duration of MOOC usage per session.

3.2 Factors that influence the students' preference in using MOOC

Respondents were asked to rate their opinion on the factors that promote the use of MOOC based on a four-point Likert scale which excluded the midpoint option to mitigate the possibility of misusing it as a dumping ground (Chyung et al., 2017). Eight factors were identified as promoting factors for MOOC usage based on literature were outlined namely flexibility, design, content, interaction, privacy, learning pace, progress and learning experience (Table 2). All factors received more than half positive responses. Out of these, three factors were identified as the main factors that promote the use of MOOC which are a variety of learning materials (97%), flexibility in accessing the course content (93.2%), and ability to learn at own pace (86.5%). While close to half of the respondents disagree that convenience communicating with peers/lecturers as a promoting factor of MOOC usage (48.5%).

Table 2: Factors promoting the usage of MOOC. Data represent the total number of respondents who either agree or strongly agree with the factors listed (N=133).

Factor		Number of students
Flexibility	Ability to access course content anywhere and anytime	124 (93.2%)
Design	Attractive interface	108 (81.2%)
Content	Variety of learning materials such as images and videos	129 (97.0%)
Interaction	Convenience communicating with peers/lecturers	68 (51.1%)
Privacy	Ability to be anonymous which could reduce social anxiety	104 (78.2%)
Learning Pace	Ability to learn at own pace	115 (86.5%)
Progress	Ability to keep up with the rest of the class	81 (60.9%)
Learning Experience	Makes classes more interesting and stimulating	91 (68.4%)

3.3 Problems that influence the students' preference in using MOOC

To identify the factors that hinder the use of MOOC among the students of the Faculty of Pharmacy, UiTM, the respondents were asked to rate their opinion on nine problems that were identified as common problems of MOOC usage. Generally, these problems are technical difficulties, poor design, literacy, interaction and content (Table 3). The majority of the respondents agreed on poor connection as the main hindrance for MOOC usage (90.2%). This is followed by a lack of physical interaction and support from tutors (87.3%) and a lack of student-student interaction (81.2%). Meanwhile, more than half of

the respondents disagreed that lack of access to computers (57.9%), interface is not user friendly (56.4%) and less interactive (52.6%) as barriers to MOOC usage.

Table 3: Problems hindering students from using MOOC. Data represent the total number of respondents who either agree or strongly agree with the factors listed (N=133).

Factor		Number of students
Technical Difficulties	Poor internet connection	120 (90.2%)
	Lack of access to computers	56 (42.1%)
Poor Design	Interface is not user friendly	58 (43.6%)
	Less interactive	63 (47.4%)
Literacy	Student lacks of computer literacy	68 (51.3%)
	Students lack of writing, communication and English language skills	77 (57.9%)
Interaction	Lack of student-student interaction	108 (81.2%)
	Lack of physical interaction and support from tutors	116 (87.3%)
Content	Lengthy materials	93 (69.9%)

DISCUSSION

MOOC once sets off a tsunami in education particularly in 2012 (Pappano, 2012) and 2013 (Booker, 2013). It continues to stay significant until now despite many issues and challenges especially in regards to its impersonal nature (Littlefield, 2020) and high attrition rate (Aldowah et al., 2020). Leveraging the MOOC technology transforms the way education is delivered thus maximises education opportunities and benefits. Key benefits of MOOC could be interpreted from different perspectives. For example, from the learner's perspective, MOOC endows students with flexibility in terms of time, space and pace, permitting greater opportunities for further learning and development. While from the educator's perspective, MOOC enables teachers to empower students by fostering self-directed learning, shifting the teaching and learning process from the traditional teacher-centric to student-centric environment.

Faculty of Pharmacy supports the national and UiTM education agenda to increase access to quality education for Malaysians and the global community. MOOC Malaysia is one of the initiatives launched in 2014 to achieve said agenda. In line with this, the faculty is offering seven MOOC courses namely Basic Pharmacology, Biostatistics, Pharmacognosy, Veterinary Pharmacy, Drugs in Sports, Hospital Pharmacy and Radiopharmacy. These courses are offered in addition to traditional face-to-face lectures. This approach is termed as the "distributed flip" (Caulfield, 2013) or the "blended/hybrid" model (Bruff, 2013). Blending MOOC with conventional teaching is hoped to address various learning preferences and enhance students' knowledge and skills. The positive impact of blended learning on teaching and learning has been affirmed by various studies (Morris, 2014; Rudneva et al., 2020). Among merits of embedding MOOC into traditionally taught courses include providing unlimited access to learning materials, enriching learning resources, filling gaps in expertise, implementing a variety of teaching and learning styles, fortifying principal skills, and teaching students how to teach online (Griffiths, 2015). Furthermore, MOOC has increasingly played a role in health sciences education to enhance the quality of teaching and learning in health care professionals.

Despite the many benefits of MOOC, enrolment in MOOC courses offered at Faculty of Pharmacy remains poor. Hence, the study was conducted to

identify the promoting and hindrance factors that influence MOOC usage among Bachelor of Pharmacy students at UiTM Puncak Alam. With these findings, effective and innovative initiatives can be implemented in the design and development of MOOC for pharmacy education. Second-year undergraduate students from the Faculty of Pharmacy, UiTM Puncak Alam were chosen as respondents for the current study because they have been exposed to MOOCs during their second and third semester. All 133 respondents confirmed that they have enrolled in MOOC courses and 69.2% responded to have completed their MOOC.

The majority of the respondents completed their MOOC courses to fulfil the requirement of the course. Although MOOC completion is not compulsory for the students to pass their course, many still feel obligated to do so. While those who failed to complete their course blame it on time constraints. This is in agreement with a previous study by Eriksson et al. (2017) where 21 of 34 interviewees mentioned lack of time as the reason for their dropout. Time management is of utmost importance in the life of university students. Juggling between academics and extracurricular activities is a daunting task. However, when conflict arises and one has to choose between MOOC and other tasks, MOOC is often not prioritized due to ambiguous benefit of MOOC on career and employment (Eriksson et al., 2017).

As for preferred learning modalities, our data suggest that students prefer face-to-face lectures, either alone or in combination with MOOC content over MOOC alone. Since our respondents are full-time students, gravitating towards face-to-face lectures is anticipated as stated by Arias et al. (2018). A study by Cao and Sakchutchawan (2011) on older students, working students, part-time students and students with family obligations revealed that online courses are more favourable compared to face-to-face classes. Students are more inclined to gravitate towards the pedagogical approach that best suit their needs, where they believe will give them success. MOOCs are generally offered as standalone courses. Many integrates MOOC contents into existing curriculum in thier practice (Bralić & Divjak, 2018; Robinson, 2016; Swinnerton et al., 2017) and they have been receiving positive feedbacks (Aboshady et al., 2015). While face-to-face lectures are found to be interesting and motivating by some students, integrating MOOC in conventional classroom settings accommodates different learning styles, needs and preferences. However, incorporating MOOC into regular

classroom teaching has its challenges. Various factors have to be taken into consideration for it to be a success. Among tips for excellent integration include outlining detail instructions on how the MOOC and its resources should be utilised, explaining what are the learning objectives that the students should achieve, and providing ample opportunities for discussions and feedback, be it synchronous or asynchronously (de Jong et al., 2020). It is crucial to ensure that the students fully understand their responsibilities so they can get the most out of this learning model.

Our study posits that the ideal duration and frequency for MOOC usage is less than 30 minutes per week, respectively. As reported by Guo et al. (2014), the duration of videos is the most significant indicator for engagement. The authors recommended instructors to segment videos into chunks shorter than 6 minutes because videos less than 6 minutes are more engaging than longer videos. Delivering content in bitesize chunks allows learners to easily digest the content in one sitting. Another study compared learners' engagement, retention and completion rate between two versions of Study Skills MOOC (Padilla Rodriguez et al., 2020). Both versions share the same contents but differ in length formats. The first version was delivered as a single six-week course, while the second version was deployed as two three-week blocks. The findings showed that learners enrolled in the second version have higher engagement, retention and completion rates compared to those in the other version. Therefore, to optimise students' engagement in MOOC courses, educational content should be delivered over a shorter time.

Our exploratory study reveals that the variety of learning materials is the number one factor that promotes the use of MOOC by our students. According to Hone & El Said (2016), course content significantly enhances retention. Sujatha and Kavitha (2018) stated that a mixture of lectures, reading passages, exercises and illustrations is imperative to motivate learners to complete the MOOC course. Having diverse instructional materials will aid in addressing different learning styles and therefore increase the retention rate. Other factors that influence MOOC usage by our students are flexibility in accessing the course content and learning pace. These are similar to previous findings on the advantages of MOOC (Bodenham, 2019; Hone & El Said, 2016; Robinson, 2016; Sujatha R., 2018). Having the freedom to access the materials anytime anywhere without being constrained by time allows learners to complete the tasks at their convenience.

The top three problems which hinders students from using MOOC are a poor internet connection, lack of physical interaction and support from tutors and lack of student-student interaction. A study by Zulkifli et al. (2020) at a polytechnic in the south Malaysia revealed that low internet or Wi-Fi coverage is the biggest barrier to teaching and learning using MOOC despite students eagerness to commit. Lack of physical interaction is one of the major differences between online learning and on-campus learning that negatively affect students' perception of the former (Khalil et al., 2020). Students feel that they received less social interaction and technical support with online learning (Muilenburg, 2005). As stated by Cheng et al. (2014), interactions through online forums create a positive impact on learners' perception towards MOOC.

Even though MOOC has been recognised as an important tool to widen access to higher education, the effectiveness has always been debatable. This research provides us with some insights on the students' preference on MOOC usage in their study. This was corroborated by a study that suggested that many complex factors are influencing the effectiveness of MOOC in health sciences education (Longhini et al., 2021). A multidisciplinary approach both in the design and implementation of MOOC should be addressed. Thus, the findings of this study will aid educators in constructing more attractive and effective MOOC courses that would promote students' engagement in MOOC. Moreover, this would provide students with a more flexible yet effective learning experience especially when online distance learning has become a new norm in education, globally.

The strength of this study is that it used qualitative data to evaluate learners' reactions to the learning and skills gained from MOOC. However, MOOC should be evaluated and analysed based on learning theories such as behaviourism, cognitive constructivism and social constructivism (include connectivism) (Picciano, 2017). Hence more questions in each domain should be addressed to establish a more conclusive theoretical foundation for MOOC developed in this faculty. Furthermore, the limitation of the study was no data were gathered from pre-course surveys and post-course surveys, depending mostly on the respondent's self-reported data.

CONCLUSION

Advancement in technology has brought a new paradigm shift in the education field. Despite challenges and hurdles, new alternatives and innovations in teaching modalities are readily accepted by students and educators. With the use of MOOC as a standalone or blended in existing curriculum, quality education can be provided even in trying times like the COVID-19 pandemic. Moreover, MOOC is capable of ensuring transferable credits both for university and continuing education that may benefit many in this emergency phase. This study highlights factors that influence the use of MOOC among pharmacy students of UiTM Puncak Alam that will allow educators to recognise the issues and devise the best strategies to maximise the quality of MOOC. Variety of learning materials, flexibility, internet connection and interaction are among factors influencing MOOC usage. Designing MOOCs with diverse teaching materials and making them readily accessible by students may enhance students retention to complete the MOOC courses. To overcome the challenges concerning internet connection, universities should improve their infrastructure especially internet connection so that a conducive environment for online learning can be provided to students. MOOCs should offer more opportunities for synchronous and asynchronous interactions, be it student-student or student-instructor interactions to avoid students feeling left out. This will hopefully provide enough support if not equal to what students will receive in a face-to-face classroom. It is important to note that although MOOC offers freedom in terms of time, space and pace to the students, discipline is crucial factor that ensures the completion of the course. Students are required to manage their time efficiently and take the effort to complete the tasks within the required time frame. Future studies could explore the correlation between the intention of enrolling in MOOC courses and the rate of engagement in the activities and completion of the course.

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REFERENCES

Aboshady, O. A., Radwan, A. E., Eltaweel, A. R., Azzam, A., Aboelnaga, A. A., Hashem, H. A., Darwish, S. Y., Salah, R., Kotb, O. N., Afifi, A. M., Noaman, A. M., Salem, D. S., & Hassouna, A. (2015). Perception and use of massive open online courses among medical students in a developing country: multicentre cross-sectional study. BMJ Open, 5(1), e006804. https://doi.org/10.1136/bmjopen-2014-006804

Aldowah, H., Al-Samarraie, H., Alzahrani, A. I., & Alalwan, N. (2020). Factors affecting student dropout in MOOCs: a cause and effect decision making model. Journal of Computing in Higher Education, 32(2), 429-454. https://doi.org/10.1007/s12528-019-09241-y

Arias J. J., S. J., Anderson K. (2018). MOOCs are generally offered as standalone courses. However, integrating MOOC contents into existing curriculum is increasing and positive feedbacks from e-Journal of Business Education & Scholarship of Teaching, 12(2), 23. https://files.eric.ed.gov/fulltext/EJ1193426.pdf

Bodenham, L. (2019). The advantages of learning via MOOCs. Retrieved 12 August 2021, from https://london.ac.uk/news-opinion/london-connection/feature/advantages-learning-moocs

Booker, E. (2013). Is 2013 year of The MOOC? Information Week. Retrieved 9 August 2021, from https://www.informationweek.com/software/is-2013-year-of-the-mooc-

Bralić, A., & Divjak, B. (2018). Integrating MOOCs in traditionally taught courses: achieving learning outcomes with blended learning. International Journal of Educational Technology in Higher Education, 15(1), 2. https://doi.org/10.1186/s41239-017-0085-7

Bruff, D. O., Fisher, D. H., McEwen, K. E., Smith, B. E. (2013). Wrapping a MOOC: Student perceptions of an experiment in blended learning. Journal of Online Learning and Teaching, 9(2), 187-199. https://my.vanderbilt.edu/douglasfisher/files/2013/06/JOLTPaperFinal6-9-2013.pdf

Cao, Y., Sakchutchawan, S. (2011). Online vs. Traditional MBA: An Empirical Study of Students' Characteristics, Course Satisfaction, and Overall Success. Journal of Human Resource and Adult Learning, 7(2), 12.

Caulfield, M., Collier, A., & Halawa, S. (2013). Rethinking online community in MOOCs used for blended learning. Retrieved 10 August 2021, from https://er.educause.edu/articles/2013/10/rethinking-online-community-in-moocs-used-for-blended-learning

Cheng, B., Wang, M., Mørch, A. I., Chen, N.-S., Kinshuk. & Spector, J. M. (2014). Research on ELearning in the Workplace 2000–2012: A Bibliometric Analysis of the Literature. Educational Research Review, 11, 56-72.

Chyung, S. Y., Roberts, K., Swanson, I., & Hankinson, A. (2017). Evidence-Based Survey Design: The Use of a Midpoint on the Likert Scale. Performance Improvement, 56(10), 15-23. https://doi.org/https://doi.org/10.1002/pfi.21727

de Jong, P. G. M., Pickering, J. D., Hendriks, R. A., Swinnerton, B. J., Goshtasbpour, F., & Reinders, M. E. J. (2020). Twelve tips for integrating massive open online course content into classroom teaching. Medical Teacher, 42(4), 393-397. https://doi.org/10.1080/0142159X.2019.1571569

deBruyn, J. (2014). Wake Tech Beats Harvard/MIT in MOOC Completion Percentage. Retrieved 9 August 2021, from http://www.bizjournals.com/triangle/news/2014/08/05/wake-tech-beats-harvard-mit-mooc-completion.html

Eriksson, T., Adawi, T., & Stöhr, C. (2017). "Time is the bottleneck": a qualitative study exploring why learners drop out of MOOCs. Journal of Computing in Higher Education, 29(1), 133-146. https://doi.org/10.1007/s12528-016-9127-8

Griffiths, R., Mulhern, C., Spies, R., & Chingos, M. (2015). Adopting MOOCs on Campus: A Collaborative Effort to Test MOOCs on Campuses of the University System of Maryland. Online Learning, 19(2). http://eric.ed.gov/?id=EJ1062937

Guo, P. J., Kim, J., & Rubin, R. (2014). How video production affects student engagement: an empirical study of MOOC videos Proceedings of the first ACM conference on Learning @ scale conference, Atlanta, Georgia, USA. https://doi.org/10.1145/2556325.2566239

Hone, K. S., & El Said, G. R. (2016). Exploring the factors affecting MOOC retention: A survey study. Computers & Education, 98, 157-168. https://doi.org/10.1016/j.compedu.2016.03.016

Khalil, R., Mansour, A. E., Fadda, W. A., Almisnid, K., Aldamegh, M., Al-Nafeesah, A., Alkhalifah, A., & Al-Wutayd, O. (2020). The sudden transition to synchronized online learning during the COVID-19 pandemic in Saudi Arabia: a qualitative study exploring medical students' perspectives. BMC Medical Education, 20(1), 285. https://doi.org/10.1186/s12909-020-02208-z

Littlefield, J. (2020). The Dark Side of the MOOCs. Retrieved 9 August 2021, from https://www.thoughtco.com/problems-with-online-classes-1098085

Longhini, J., De Colle, B., Rossettini, G., Palese,A. (2021). What knowledge is available on massive open online courses in nursing and academic healthcare sciences education? A rapid review,

Nurse Education Today, 99, 104812. https://doi.org/10.1016/j.nedt.2021.104812.

Martin, F. O., B. (2018). Distance Learning. In R. E. West (Ed.), Foundations of Learning and Instructional Design Technology: The Past, Present, and Future of Learning and Instructional Design Technology (1st ed.). EdTech Books. https://edtechbooks.org/lidtfoundations/distance_learning

Morris, N. P. (2014, 15-18 July 2014). How Digital Technologies, Blended Learning and MOOCS will Impact the Future of Higher Education International Conference e-Learning 2014, Lisbon, Portugal.

Muilenburg, L. Y., Berge, Z. L. (2005). Student barriers to online learning: A factor analytic study. Distance Education, 26(1), 29-48.

Padilla Rodriguez, B. C., Armellini, A., & Rodriguez Nieto, M. C. (2020). Learner engagement, retention and success: why size matters in massive open online courses (MOOCs). Open Learning: The Journal of Open, Distance and e-Learning, 35(1), 46-62. https://doi.org/10.1080/02680513.2019.1665503

Pappano, L. (2012). The year of the MOOC. The New York Times. Retrieved 9 August 2021, from https://www.nytimes.com/2012/11/04/education/edlife/massive-open-online-courses-are-multiplying-at-a-rapid-pace.html

Parr, C. (2013). MOOC Completion Rates Below 7%. Retrieved 9 August 2021, from http://www.timeshighereducation.co.uk/news/mooc-completion-ratesbelow-7/2003710.article

Picciano, A. G. (2017). Theories and frameworks for online education: Seeking an integrated model. Online Learning, 21(3), 166-190. https://doi.org/10.24059/olj.v21i3.1225

Robinson, R. (2016). Delivering a medical school elective with massive open online course (MOOC) technology. PeerJ, 4, e2343. https://doi.org/10.7717/peerj.2343

Rudneva, M., Valeeva, N., & Faizi, R. (2020). Academic writing MOOCs – a blended learning approach. SHS Web of Conferences, 88, 02010. https://doi.org/10.1051/shsconf/20208802010

Sujatha R., a. K. D. (2018). Learner retention in MOOC environment: Analyzing the role of motivation, self-efficacy and perceived effectiveness. International Journal of Education and Development using Information and Communication Technology, 14(2), 62-74.

Swinnerton, B. J., Morris, N. P., Hotchkiss, S., & Pickering, J. D. (2017). The integration of an anatomy massive open online course (MOOC) into a medical anatomy curriculum. Anat Sci Educ, 10(1), 53-67. https://doi.org/10.1002/ase.1625

Zulkifli, N., Isa Hamzah, M., & Bashah, N. H. (2020). Challenges to Teaching and Learning Using MOOC. Creative Education, 11(3), 197-205.

Students-Generated Video Assessment for Law of Conveyancing, Faculty of Law, Universiti Teknologi MARA : A Way Forward

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Abstract: Law students at universities are taught substantive and procedural laws to prepare them for legal practice. Thus, during physical class, students' assessments are dominated by applications of law, giving legal opinions and essay writing. Online assessments during Open and Distance Learning (ODL) require more than just copying and pasting cases, statutory provisions or other materials. In line with the motivation theory, students shall immerse themselves in reading, preparing answers and giving opinion to nurture a comprehensive understanding and interest in substantive and procedural laws. Answering problems posed to them through video production incorporates knowledge, analytical assessment of the issues, and concluding the findings to ensure every aspect of the issues is addressed. The creation of a video requires students to put in time and effort, not just in finding the answer or proposing solutions to the problem, but also requires some technical know-how to produce a suitable video. This paper aims to evaluate whether video assessment during ODL is in line with the theory of motivation that enhanced students' understanding of the subjects conducted online. A doctrinal method is engaged that reflects a better perception by students through video assessment compared to applications of law through essay writing. Using video creations as a form of assessment encourages law students to develop digital communication skill in order to impart professional legal advice through a creative role-play and enhance their

learning of conveyancing law and procedure in a more casual, yet effective, method. To ensure efficacy, the rubric for video assessments shall be clear and precise, and evaluate the contents as well as the presentation skills. Lastly, lecturers as assessors should convey their reflections to students in a comprehensive manner, highlighting their strengths and weaknesses.
Keywords: Substantive law1, online class2, motivation theory3, video assessment4, rubric5

INTRODUCTION

Due to the COVID-19 pandemic, various policies have been launched by governments and education institutions across the world in order to continue teaching and learning activities, whilst at the same time, to contain the spread of the virus (Ali, 2020). Universities in Malaysia also joined the new norm of online education (ODL) (Wan Mohamad et al., 2020; Othman et al., 2020, Abdul Rahman, 2020). The development of e-learning technology conveyed further possibilities of ODL since e-learning allows easy access to materials, flexible space, time and pace of study, comprehensive interaction and communication, and immediate feedback that make the learning process effective (Arora, 2015). The shift in teaching and learning methods also means a shift on how assessment takes place. It is not practical to adopt the assessments carried out during the traditional face-to-face where students have to write answers within a specific permitted and at a specific exam hall. Students are also not allowed to copy (Muhamad Nasri et al., 2020). At the Faculty of Law, University Teknologi MARA, students in their third and fourth year will have to embark on procedural law papers to equip them with actual legal practice. Law of Conveyancing is a subject taught in Year 3 (Part 6) as a core paper. Students must pass two pre-requisite substantive law subjects, namely Land Law 1 and Land Law 2, in order to register for Law of Conveyancing. Briefly, the Law of Conveyancing consists of the procedural aspect of land transactions in Malaysia. Students are trained to act on behalf of the client from taking instructions until the land transaction is perfected. Students are also taught land-related matters such as creating a power of attorney and real property gains tax. The legal procedural aspect of the Law of Conveyancing requires students to understand and visualise actual land dealings, besides the need to incorporate the substantive part on issues relating to land law in Malaysia. Thus, with the shifting of mode

from physical face-to-face classes to ODL, students are forced to do grasp the whole procedure with the embedded knowledge of the substantive land law in front of their computers at home.

Research by Ali (2018) indicates that students tend to strongly bond with information communication technology (ICT). Hence, students have accepted the new norm of teaching at universities through ODL. The crucial part is the assessment that must be carried out in order to measure whether knowledge transfer has occurred. Remote learning provides an avenue for students to use resources in the preparation of their assignments.

Abdul Rahman (2020) reflects that pdf answers submitted by students compounded to lecturers' eyesight problems because of the unavoidable need to stare at the glary screen for hours where it often becomes unbearable. A careful selection of assessments is vital, or else lecturers may receive copy and paste assignments. It is worse when knowledge transfer does not happen as students merely re-produce the notes they received during classes and through websites without understanding the legal principles or the rationale of such legal opinion. Written submission of assignments from facts situations posed to the students during closed book tests is a popular method during physical class, which was possible before the outbreak of the COVID-19 pandemic. However, even before the pandemic, several researchers (Walters et al., 2015; Schofield et al., 2017 and Hawley and Allen, 2018) suggest that student-generated video creation assessment is an innovative and emerging form of assessment in higher education. Ben G et al. (2020) affirmed this and concluded from their research that assigning students to create videos is a viable method of encouraging learning, service and effective assessment method.

For assessments during the September 2020 - February 2021 semester, students registered for Law of Conveyancing were given hypothetical facts concerning a client who intends to purchase a property (together with a building). The client seeks legal advice on the procedural aspect of the conveyancing process from the beginning until the client is registered as the new proprietor of the said property. Students were instructed to create a video in a group to answer the legal process of transferring land. Ryan (2013) and Pareira et al. (2014) affirmed that a video creation project consisting of groups of students can enhance collaboration and team working effort that

foster a better working environment. The collaborative effort can expose students to a real working environment of Advocates and Solicitors.

LITERATURE REVIEW

The COVID-19 pandemic indirectly results in the urgent need to develop the educational system's technological infrastructure, expanding the teacher's pedagogical expertise and the student's learning repertoire (Thomas, 2021). It is closely related to the students' ability to adapt to ODL and the different assessment methods adopted to reflect that knowledge transfer has occurred. The ability to adjust is associated with motivating factors that geared the students towards accomplishing the desired goal, acquiring knowledge and, at the same time, passing the subject with excellent grades. Brophy (2010) defines motivation as "a theoretical construct to explain, the initiation, direction, intensity, persistence, and quality of behaviour, especially goal-directed behaviour". Motivation involves goals that provide the incentive for purposeful action with an intended direction. The Self- Determination Theory (SDT) (Ryan and Decy, 2020) stresses that conditions supporting the individual's experience of autonomy, competence and determination can foster high quality forms of motivation and engagement for activities, including enhanced performance, persistence and creativity. It is vital to possess the optimum level of motivation to ensure that the desired goal could be attained. Schmid et al. (2014) state that technology can enhance learning, and video is one of the most effective tools that can promote students' interest in education. In agreement with these findings, Brame (2016) viewed that three factors, namely, cognitive load, student's engagement and active learning, can provide a solid base for development, and video is an appropriate educational tool.

ODL inculcates self-learning, and the appropriate assessments can enhance the degree of determination to achieve the desired results. For example, passing the subjects with flying colours which also paves the way to be a successful Advocate and Solicitor. At this age of accountability, it is recognised that assessment is a powerful device that can enhance student's learning (Abdallah, 2016). Mundrake (2000) defines assessment as the means used to evaluate the outcomes of the educational process.

In affirming this definition, James (2006) simplified that assessment is a tool to measure the learning outcome. Hence, it is essential to determine the appropriate mode of assessments to ensure that the learning outcomes are achieved. Research conducted before the outbreak of the COVID-19 pandemic by Hawley and Allen (2018) was optimistic of student-generated video creation for assessment. It has several benefits, notably, supporting the development of digital and communication skills relevant to today's world and enhancing learning. Their literature on students' video-creation for assessment highlighted the benefits of this mode of assessment. Table 1 offers an overview of the scope of the literature and the video projects described, together with the benefits highlighted by Hawley and Allen (2018).

Table 1: An Overview of the Benefits on the Students Video-Creation as an Assessment (Hawley and Allen, 2018)

Title	Country	Programme/Institution	Video Creation Project	Benefit/Positive Outcome as highlighted by Hawley & Allen, 2018
Wong et al., 2003	USA	Educational technology; postgraduate; on-campus; Michigan University	Students worked in small groups to create "iVideos" – short, two-minute, digital videos designed to evoke powerful experiences about educative ideas.	Students to gain increased competency and efficacy in using technology with this being learned in an authentic manner not divorced from subject content or pedagogy.
Kearney & Schuck, 2006	AUSTRALIA	Across different subjects and topics; 5 schools (two primary and three secondary)	Students worked in groups to create various video creation projects such as animations of astronomy concepts, news stories, advertisements etc., as determined by subject areas.	Students recognised these skill developments as being of benefit to them beyond graduation and in their future employment
Burns & Lester, 2007	UK	Tourism/ On-campus/ University of Brighton	Students had to create visual essays about a city using either video or collection of stills.	Students video creation enhanced learning
Elsom, 2009	UK	Biochemistry/ on-campus/ University of Brighton	Students worked in groups and had to create short videos (4 mins) to explain a particular topic in biochemistry.	The opportunity to use and develop creativity during video creation projects, for example, in considering how to portray subject content in the video, as valuable as both a skill development and as a means to enhance learning, increase motivation and engagement
Cox et al., 2010	UK	Information & Knowledge Management; undergraduate; on campus; University of Sheffield	Students had to create a video (or photostory or animated model in PowerPoint) for 3 minutes on a given theme for submission for assessment.	A further possible factor relevant to the video creation and learning relate to the levels of engagement as studies reported that students video creation to be enjoyable to increase motivation and engagement.

Letschka & Seddon, 2010	UK	Two programmes within Arts/ Design; on-campus; University of Brighton	Two groups of students (3D design/wood, metals, ceramics and plastics; history of design & decorative arts & visual culture) had to create a short video (30 secs – 1 minute) together either on aspects of objects stored in a museum or on contemporary making of objects destined for museum collections.	Using student-generated video creation enabled students to gain increased competency and efficacy in using technology.
Yang & Wu, 2012.	TAIWAN	English as a Foreign Language, High School	Students were required to complete digital storytelling projects within groups as part of the teaching.	Using student-generated video creation enabled students to gain increased competency and efficacy in using technology, with this being learned in an authentic manner not divorced from subject content or pedagogy.
Greene & Crespi, 2012	USA	Business/ accounting; on campus; university	Students worked in groups as a compulsory task to produce one minute television advertisements/ students worked in groups as an optional task to create 2-3-minute educational video on	The processes of video creation, for example in preparing a script, considering how to portray a concept in a new way and review/editing of the material,
Ryan, 2013	IRELAND	Biochemistry module across 3 programmes; undergraduate; on campus; university in Ireland.	The video project replaced a traditional essay and was one part of the summative assessment alongside practical laboratory work and a lab report. Students worked in groups to create an educational digital video for their peers on a biochemical area of interest to them.	The ease of sharing/viewing content increased the likelihood of peers and others viewing the content, not just academic tutors. This factor also contributed to increased motivation and engagement. These include that video creation is active learning which supports and transforms students from passive knowledge consumers into knowledge constructors.

Pereira et al., 2014	SPAIN	Nursing, On Campus, University	Students had to make online videos about "structure and function of the human body."	Development of skill in using technology was cited benefit for video creation for assessment. Video creation projects were done collaboratively with groups of students involved in the video creation; thus, the benefits of collaboration and team working were often reported within the studies.
Russell & Moote, 2015	UK	English (as a foreign language); distance learning; pre-university foundation level	Students were asked to produce a short individual video on the the topic of studying at a British university which was submitted via a YouTube account.	Using student-generated video creation enabled students to gain increased competency and efficacy in using technology, with this being learned in an authentic manner not divorced from subject content or pedagogy.
Walters et al., 2015	NEW ZEALAND	Sports undergraduate; on campus; University	New assessment method – video creation as opposed to the previous exam. Students had to create a short (3 minute) video to examine a sport and recreation-related issue from a sociological theoretical perspective.	Students recognised these skills by (producing video as assessment) developments that benefit them beyond graduation and in their future employment
Orús, et al., 2016	SPAIN	Business/ on campus; university	Students worked in groups to create videos that explained a theoretical concept of marketing. Videos could partially replace the content of the primary compulsory project of the course, but no direct link to the final mark was assigned to the video.	Video creation enhanced learning

Borowczak & Burrows, 2016	USA	Teacher education; undergraduate; on-campus; university	Students had to create and share their videos and use YouDemo as a tool to support their assessment of their own and others' work.	Ideas regarding methods for assessing videos have been proposed to advocate for a change management process to support the development of the assessment criteria, use of rubrics and examples, plus clear guidance using traditional academic rhetoric to show clearly the focus on intellectual content rather than technical difficulty.

The primary purpose of law schools is to ensure that students are learning the skills they need in order to think, perform, and conduct themselves as competent lawyers. A valid, reliable and fair assessment system that assesses students learning and improves their learning skills (Rogelio, 2010). The American Bar Association (Crompton Report, 1979) states that legal education at the tertiary level serves as preparation for a lifetime career involving continuous growth and self-development. Lecturers can provide students with assessment instruments that reflect explicit criteria for their performance to judge their performance. The current assessment practice of a single end-of-the-semester do-or-die final exam does not provide students the feedback they need to develop self-learning skills and improve performance in law school and beyond (Rogelio, 2010).

METHOD

This paper employs doctrinal research to analyse students' video-generated assessment as an effective mode of assessment during the COVID-19 pandemic, where teaching and learning are done via ODL. A literature search using a systematic approach was undertaken using Google Scholar, EBSCO Host, Heins Online. It covers an extensive range of databases, including journals related to education, technology, and health and social care. Search terms such as "video/ video creation" "assessment" "student generated/ learner-generated" "digital/ technology/assessment" were utilised to produce responses that are relevant to the research topic. In addition, Google search is employed to student-generated sources to capture as

much relevant materials as possible (Aromataris & Riitano, 2014). In evaluating the effectiveness of videos as a mode of students' assessment, statistics on students at the Faculty of Law, Universiti Teknologi MARA, Shah Alam, Malaysia were used to reflect the learning process during ODL where student-generated video creation is used as an assessment method. In order to ascertain the impact of students' video creation for assessment of the students' performance, two groups of students registered for Law of Conveyancing at the Faculty of Law Universiti Teknologi MARA, Shah Alam, Malaysia were used as samples. The first group is from the Session 2 (2018/2019) which consists of 209 students. Since this is before the outbreak of Covid-19, thus, classes and assessments were conducted on a face-to-face basis. This batch represented the groups that have taken the ordinary assessment method by resolving the legal issues through written essays. The second group was taken from the Session 1 (2020/2021) which consists of 77 students, where the learning and assessments were done online and the assessment method was by producing a video for the purpose of resolving the legal issues.

RESULTS AND DISCUSSION

3.1 Results Analysis of Students Taking Law of Conveyancing

Table 2: Analysis of Results of Law of Conveyancing, Faculty of Law, University Teknologi MARA

No	Semester	A+	A	A-	B+	B	B-	C+	C	C-	D+	Total
1	Session 2 2018/2019	0	1 (1%)	4 (2%)	19 (10%)	35 (17%)	50 (23%)	45 (20%)	54 (26%)	0 -	1 (1%)	209 (100%)
2	Session 1 2020/2021	0	5 (6%)	13 (18%)	24 (32%)	12 (16%)	8 (10%)	8 (10%)	7 (8%)	0 -	0 -	77 (100%)

Session 2 2018/2019 students were given essay and problem-solving assignments which they had to tackle as a group. Students of Session 1 2020/2021 were given video creation assignments where they, as a group, had to produce a video to solve the factual situations posed to them. The task involved advising a client on a sale and purchase transaction of a property. The students were instructed to elaborate on the procedural aspects and solve specific substantive law issues. The video created should incorporate

the application of the relevant law to the given facts, advises to the clients, and ensure that the flow of the land transaction process is meticulously elaborated in the video. The majority of the students produced high-quality drama-based videos with a mixture of role-playing which were mostly edited via "Powtoon". Thus, they managed to obtain very good grades for assignments. Hence, students had a better chance of scoring on the subject. The analysis for both physical and ODL systems reflects students achieving better results during online classes, where there were no failures for Session 1 2020/2021, as compared to 1% failure rate for Session 2 2018/2019. 24% of the students secured an "A" grade compared to only 3% during Session 2 2018/2019. 58% of the students obtained a "B" grade during the 2020/2021 semester while only 50% of the students obtained a "B" grade during the 2019/2019 semester. 18% of the students obtained a "C" grade during the 2020/2021 semester while 46% of the students obtained a "C" grade in 2018/2019. Based on the above comparison, it can be seen that, generally, students during the 2020/2021 semester obtained better grades, compared to their earlier counterparts as more students obtained "As" and "Bs" and there was lesser "Cs".

In brief, the result analysis provides evidence regarding the inclination of the younger generation towards ODL. As indicated by Abdul Rahman (2021), the students are more active in asking questions and participating in group conversations. ODL is an advantage for introverts because they can voice their opinions freely and more confidently. From the analysis above, providing students with the opportunity to use videos as a means to present their advice to the hypothetical clients and solve the legal problems posed which will then be assessed has provided the students with an alternative avenue, besides the usual essay writing. The video making process is beneficial to the students on the visualisation capability, digital creativity, team-work and the role-play that enhance the students' ability to grasp the procedural aspects of the Law of Conveyancing. As concluded by Hawley & Allen (2018), using the video creation by students for assessment could improve students' understanding since they are able to express their learning in a more enjoyable manner. The collaborative learning in the process of the video creation as suggested by Pereira et al. (2014) is visible from the overall achievement of the result for the Law of Conveyancing during the 2020/2021 semester.

3.2 The Video Assessment Rubric shall be precise to meet the learning outcome

The following general rubric on video creation assessment by students impose an objective evaluation on any video assessment:

Table 3: General Rubric for a Video Creation for Assessment (A project for the International Society Technology in Education (ISTE), 2021)

Points	Excellent	Good	Satisfactory	Needs improvement
Concept	The video demonstrates a key concept	The video shows key concepts.	The video demonstrates a previous concept.	The video does not demonstrate a clear concept.
Design	The quality and materials in the video are very well organised and understandable.	The quality and materials in the video are adequately organised and somewhat clear.	The quality and materials in the video lacked some organization and 50% clear.	The quality and materials in the video are not organized and lack clarity.
Participation	All members demonstrated an active role in the process.	The majority of the members demonstrate an active role.	Half of the group did most of the work.	Only one person demonstrated an active role.
Final Project	The final product looks professional and has visibly demonstrated the concepts.	The final product looks decent and has somewhat demonstrated the concepts.	The final product requires more revisions and did not clearly demonstrate the concepts.	The final product looked unrefined and did not clearly demonstrate the concepts.

The general rubric produced by a member of the International Society Technology in Education (ISTE) clarifies the evaluation criteria and objective where the students can anticipate as to how they will be able to get excellent results. However, for law students, the rubric should be tailored to the aspiration of continuous growth and self-development where it also provides guidelines for students in preparing their assessment and boost their motivation to become creative.

Table 4: Rubric for Assessment of Videos for Law of Conveyancing

Points	Excellent	Good	Satisfactory	Needs improvement
Creativity	The editing & continuity of the video is excellent (5 marks)	The editing & continuity of the video is good (4 marks)	The editing & continuity of the video is satisfactory (3 marks)	The editing & continuity of the video needs improvement and not smooth (0-2 marks)
Concept & Design	The quality and materials in the video are very well organized and understandable (5 marks)	The quality and materials in the video are adequately organized and somewhat clear. (4 marks)	The quality and materials in the video lack organization and are only 50% clear. (3 marks)	The quality and materials in the video are not organised and lack clarity. (0-2 marks)
Participation	All members demonstrate an active role in the process. (5 marks)	The majority of the members demonstrate an active role. (4 marks)	Only half of the group actively participated in the group work. (3 marks)	Only one member demonstrates an active role. (0-2 marks)
Application of legal principles, use of authorities and conclusions	Excellent and clear discussions of relevant law and their applications to facts given (13-15 marks)	Good discussion of relevant law and their applications to facts given. (9-12 marks)	Satisfactory discussion of relevant law and their applications to facts given. (4-8 marks)	Superficial discussion of relevant law and lack application of law to facts given. Discussion of irrelevant law. (0-3 marks)

The evaluation of the video assessment revolves on the most crucial part of the assessment which is the ability to explain the land conveyance process, where a law student is expected to deliver his/her primary duty in advising clients equipped with all the related authorities as to how the land transactions should be perfected in accordance with the law. Hence, 50% of the marks (15 out of 30) were allocated to the discussion of the legal principles, their application to the given client's situation and the conclusion. Marks were also allocated to students' participation and team work in order to inculcate positive attitude and the ability to work as a team that lawyers should possess in performing their duty.

Alongside the rubric, explicit instructions are vital to ensure clarity in the video generating process to address the issues. In addition to that, written feedbacks and comments are given together with the marks. The feedback is beneficial to the students' learning of the subject (Mahoney at el., 2019). The lecturers' comments will help the students to identify their strengths and weaknesses.

CONCLUSION

Video creation is a contemporary model of assessment that is likely to be widely accepted, which has the potential to positively transform the students' experience and assessment methods (Hawley and Allen, 2018). As an innovative and emerging assessment form, the instructions and rubric should be made available to students. A well-designed rubric makes the assessment process more valid and reliable, where the actual value of rubrics lies in advancing the teaching and learning process (Wolf and Steven, 2007). Ultimately, student-created videos as a tool for an assessment motivate students' engagement in active learning. In particular, it is a suitable assessment method for lecturers during the COVID-19 pandemic, as it is compatible with distance learning (Matthew et al., 2021). In particular, for a procedural law subject such as Law of Conveyancing, using videos as assessment method inculcate team-work, engagement in active and practical learning rather than providing explanations/answers in a written essay form that may lack creativity and visualisation aspect.

REFERENCES

Abdallah G.(2016), Theoretical Framework for Educational Assessment: A Synoptic Review, Journal of Education and Practice www.iiste.org ISSN 2222-1735 (Paper) ISSN 2222-288X (Online) Vol.7, No.24, 2016

Abdul Rahman N. (2020), The Impacts of ODL during MCO@Covid 19, SIG: e-Learning@CS eISBN: 978-967-0841-88-5 p44-50.

Ali W. (2020). Online and Remote Learning in Higher Education Institutes: A Necessity in light of COVID-19 Pandemic. Higher Education Studies; Vol. 10, No. 3; 2020 ISSN 1925-4741 E-ISSN 1925-475X, URL: https://doi.org/10.5539/hes.v10n3p16

Ali, W. (2018). Transforming Higher Education Landscape with Hybrid/ Blended Approach as an evolving Paradigm. Journal of Advances in Social Science and Humanities, 3(7), p143-169.

American Bar Association, Section of Legal Education and Admissions to

the Bar, Report, and Recommendations of the Task Force on Lawyer Competency: The Role of Law Schools 4 (1979) [hereinafter Cramton Report] cited by (Rogelio AL, 2010).

Arora, A. (2015). Using eLearning Technologies To Improve Educational Quality of Language Teaching, Retrieved from https://elearningindustry.com/using-elearning-technologiesimprove-educational-quality-language-teaching.

Blackinton, M., (2013) Teaching a "Hands-On" Profession in an Online Classroom. PT in Motion. American Physical Therapy Association; p16-23.

Borowczak, M & Burrows, A (2016) Enabling Collaboration and Video Assessment: Exposing Trends in Science Preservice Teachers' Assessments. Contemporary Issues in Technology & Teacher Education, 16(2), 127-150

Brame CJ. (2016). Effective Educational Videos: Principles and Guidelines for Maximizing Student

Burns, P & Lester, J. (2007) 'Living in a material world: visualising tourism' in Barlow, J. (ed) Making Teaching More Effective. Brighton: University of Brighton Press Cited in Ridley, P. (2011) 'Visualising Learning' in Hartley et al. (2011) Eds. Learning Development in Higher Education (Universities into the 21st Century). Basingstoke: Palgrave MacMillan, p183-195.

Chiu, T. K. F. (2021). Applying the self-determination theory (SDT) to explain student engagement in online learning during the COVID-19 Pandemic. Journal of Research on Technology in Education, 1–17. https://doi.org/10.1080/15391523.2021.1891998.

Chiu, T.K.F., Lin, TJ. & Lonka, K.(2021) Motivating Online Learning: The Challenges of COVID-19 and Beyond. Asia-Pacific Edu Res 30, 187–190. https://doi.org/10.1007/s40299-021-00566-w

DOI: 10.1080/02607476.2020.1802582

Elsom, J. (2009) 'A creative assessment strategy to improve student motivation and engagement in biochemistry' in Barlow, J, Louw, G. & Price, M. (Eds) Social Purpose and Creativity: Integrating Learning in the Real World. Articles10 from the Learning and Teaching Conference 2008. Brighton: University of Brighton. Available at: https://staff. brighton. ac.uk/clt/published/Post-conf_0809_Social_Purpose.pdf.

Greene, H., & Crespi, C. (2012). The value of student-created videos in the college classroom-an exploratory study in marketing and accounting. International Journal of Arts & Sciences, 5(1), 273.

Hawley R and Allen C. (2018). Student-generated video creation for assessment: can it transform assessment within Higher Education? IJTR 2018; 5(1): 1-11, https://doi.org/10.2478/ijtr-2018-0001.

Jamal O, Kadar R, Umar N, Ahmad N, (2020), Covid-19 Pandemic Effects in Teaching and Learning Methods during Movement Control Order (MCO), SIG: e-Learning@CS eISBN: 978-967-0841-88-5 p1-13.

James M., (2006). Assessment, Teaching, and Theories of learning. MS of Chapter 3 in J. Gardner (Ed) (2006) Assessment and Learning (First Edition) (London: Sage): 47-60

Learning from Video Content, CBE Life Sci Educ December 1, 2016, 15:es6 DOI:10.1187/cbe.16-03-0125.

Mahoney P., Macfarlane S. and Ajjawi R., (2019), A Qualitative Synthesis of Video Feedback in Higher Education, Teaching in Higher Education Critical Perspectives, ISSN: 1356-2517 (Print) 1470-1294 (Online) Journal homepage: https://www.tandfonline.com/loi/cthe20.

Matthew O et al., (2021). Chemical Anthropomorphism: Acting Out General Chemistry Concepts in Social Media Videos Facilitates Student-Centered Learning and Public Engagement, J. Chem. Educ. 2021, 98,

4, 1283–1289, https://doi.org/10.1021/acs.jchemed.0c01139.

Mohamad Nasri N, Husnin H, Mahmud SND, Halim L. (2020) Mitigating the COVID-19 Pandemic: a snapshot from Malaysia into the coping strategies for pre-service teachers' education, Journal of Education for Teaching, 46:4, 546-553,

Mundrake, G. A. (2000). The evolution of assessment, testing, and evaluation. In: Rucker, J. Assessment in Business Education, 38, NBEA Yearbook. Reston: NBEA.

Rogelio A. L (2010). Is Our Students Learning? Using Assessments to Measure and Improve Law School Learning and Performance, Barry Law Review: Vol. 15: Iss. 1, Article 4. Available at: https://lawpublications.barry.edu/barrylrev/vol15/iss1/4

Russell, M. & Moote, J., (2015) Using YouTube in Formative Assessment: An overview of a formative video assessment activity. Kings College London. Available at: https://keats.kcl. ac.uk/pluginfile.php/2120369/mod_resource/content/4/TEL%20Case%20Study%20%237%20Using%20YouTube%20In%20Formative%20Assessment.pdf.

Ryan, B., (2013) A Walk Down the Red Carpet: Students as Producers of Digital Video-Based Knowledge. International Journal of Technology Enhanced Learning 5, 24-21.

Ryan, R.M., & Deci, E.L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective Definitions, theory, practices, and future directions. Contemporary Educational Psychology. https://doi.org/10.1016/j.cedpsych.2020.101860.

Schofield, L., Baker, K., Vo, D., Pham, T., Lindsay, L., & Han, B. (2017). How does the option of video assessment Student-generated video creation for assessment impact on student choice and grades? In Nash, S. & Patston, L.L.M. (Eds), Spaces and Pedagogies: New Zealand Tertiary Learning and Teaching Conference 2017 Proceedings (pp67-78). Auckland, New Zealand: ePress, Unitec Institute of Technology.

Thomas K.F.C., et al. (2021). Motivating Online Learning: The Challenges of COVID-19 and Beyond, Asia-Pacific Edu Res (2021) 30(3):187–190 https://doi.org/10.1007/s40299-021-00566-w.

Walters, S. R., Hallas, J., Phelps, S., & Ikeda, E. (2015). Enhancing the ability of students to engage with theoretical concepts through the creation of learner-generated video assessments. Sport Management Education Journal, 9(2), 102-112.

Wan Mohammad W.A., Mohd Mydin A, Kechil R, (2020), UiTM Cawangan Pulau Pinang Students Readiness Towards Online Teaching and Learning, SIG: e-Learning@CS eISBN: 978-967-0841-88-5 p51-58.

Assessment of Student Engagement in Open and Distance Learning for Construction Management

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Abstract: The traditional method of teaching and learning have significantly changed in the higher education due to the COVID-19 pandemic. The development of Open and Distance Learning (ODL) offers opportunites for students' to improve their technological literacy especially in managing their academic work and performance from a distance geographical location. Many researchers have made an attempt to investigate the student engagement in relation to various context of higher education. This study assess student engagement towards ODL in construction management studies . A literature review has been conducted to facilitate the aim of this article.The key discussion suggests that ODL has moderate to high level of student engagement. Therefore, this study recommends the adoption of Online Student Engagement (OSE) approach as an instrument in assessing the student engagement through ODL in the aspect of skills, participation, performance and emotional.

Keywords: Online Learning, ODL, Student Engagement, Online Student Engagement

INTRODUCTION

The advent of COVID-19 has significant impact to the higher education system globally (A. Patricia Aguilera-Hermida, 2020; Chan et al., 2020; Pasion et al., 2020; Husin et al., 2020; Qazi et al., 2021).Conventional

teaching and learning is no longer the only student learning mode in the higher education.The disruptive technology and innovation has inevitably imparted to the mode of online learning for either synchronously or asynchronously. All students have to adhere and adapt to the call for self-isolation and continue their lesson through online platforms for as long as it needed to curb the COVID-19 pandemic. As a result, universities are required to take action to respond to the change with little to no preparation for online teaching and learning. Open Distance Learning (ODL) is one of the methods to continue the teaching and learning process in an online learning environment. Simpson (2018) defined ODL as learning activities that combines open and distance learning that makes education available for anyone without any specific entry requirements or age, but may come with a fee or is entirely free. ODL also provides education for all without any boundaries and often emphasized on open access and flexible learning to enable learners to have the opportunities of education (UNESCO, 2002). Given the rise of information technology coupled with the aftermath of COVID-19 pandemic, ODL has became the ubiquitous method of online teaching and learning mode in the higher education level (Md Saidi et al., 2021; Hussin et al, 2020; Selvaras, 2020; Zuhairi et al., 2021).

However, online-learning (i.e. ODL) is not as convenient as one could imagined especially for students. Bower (2019) argues if students face trouble pertaining to technology when using ODL platforms as they suffer a loss in social connection and mental engagement which negatively affects the students' learning outcomes. The study conducted by Choy and Queck (2016) highlights that without a clear instructions/guidelines and discussions conducted by instructors during the online lessons, it could potentially harm the learning experience of students when ODL is conducted. This is due to the reason that students are used to attending face-to-face learning and have already developed the ability to engage in a physical classroom environment with the instructor. Students can have rich discussions among themselves and tutor regarding to the lesson (Robinson, 2012). In online learning environment, students tend to disengage with the synchronous or asynchronous online lesson due to the distance and capacity of internet connectivity (Cho and Cho, 2014; Hussin et al., 2020). Although students can learn online lessons anytime and anywhere provided with the access of internet connection, the level of student engagement in ODL when it is conducted in a longer period of time is still unclear. Therefore, it is an

issue that must be addressed to ensure that students are able to achieve the intended learning outcomes.

LITERATURE REVIEW

2.1 Open and Distance Learning (ODL)

Open and Distance Learning (ODL) has been gaining momentum in the past decades (Md Saidi et al., 2021;Bordoloi, 2018; Ghosh et al., 2012; Dzakiria, et al., 2005; Davis, 1996; Hogson,1993). The main aim of ODL is to provide equitable access and various means to education (Selvaras,2019). (3) It is also known as " Self-learning", " Independent learning", "Flexible learning" implying accessible learning that is self-regulated and the ability to learn at a certain pace using advance computer technologies and tools (Bordoloi, 2014; Yang et al., 2014). Online tools such as Google Meet, Zoom, Microsoft Teams, Loom, Whatapps are the common tools used to communicate, collaborate and exchange information between students and instructors (Md Saidi, 2021; Hussin et al, 2020). Students are able to access online materials through mobile devices and social media to communicate with their peers and instructor either verbally or non-verbally anywhere at anytime (Hussin et al, 2020). On the other hand, tutors can prepare a pre-recorded videos, live session or both depending on their availability and the situation. The survey results by Md Saidi, et al. (2021) revealed most students prefers synchronous online lesson compared to asynchronous, while both students and educators prefers using Whatapps and Google Meet as their main tool for communication. A study by Luaran, Jain, and Abd Rahman (2016) indicate that there are positive results when using Whatapps as a platform of academic materials sharing. The study also reported that students have more confidence and participates actively through instant discussion via chatting or voice message.

Although students have more flexibility in their learning through ODL, it shows that their persistence and engagement to cope with their academic activities gradually deteriorates. In the study conducted

by Selvaras (2019) , majority of undergraduates' law students prefer blended learning (i.e. classroom learning and online learning) over learning legal lesson entirely online. A recent study conducted by Hussin Awang and Mohd Fatzel (2020) reported that one-third of accounting students do not enjoy learning online through ODL and majority of the students indicates poor internet connectivity is one the contributing factor that contribute to the situation where students tend to dislike ODL.Thus, the academic performance of students that face challenges in engaging in online lesson through ODL can be affected (Zuhairi, et al., 2019; Dzakaria et al., 2005)

2.2 Student Engagement

The relationship of student engagement and online learning is a serious issue in higher education in the plight of COVID-19 pandemic situation (Pasion et al., 2020 A. Patricia Aguilera-Hermida, 2020; Bolliger and Martin, 2020; Henrie et al., 2015; Shukor et al., 2014). Barkley (2010) defined student engagement as the continuous activities experienced by the students that is resulted from a mutual discourse between active learning and student's motivation. Kuh (2009) described student engagement as the time and energy spent by student activities that is measured to achieve the university's objectives and outcome, and the motivation of students to partake these activities.Through online learning, students are able to take control over their academic activities and responsibilities to complete their courses. Either synchronous or asynchronous mode, student requires self-motivation, self-discipline, and good time management skills to adapt with the pace of the course (Chan et al., 2021). Several studies found out student engagement and online learning has a positive effect to satisfaction with online education and learning outcomes including critical thinking, examination results, and practical application (Gray and DiLoreto, 2016; Hamptom and Pearson, 2016). Also, given the great flexibility during ODL, students are also able to gain their education attainment at the same time fulfilling their other responsibilities (Tanis et al., 2020; Stone et al., 2016).

However, the sudden change and unreadiness of students to move to online learning due to unforeseen circumstances have undermine their

ability to engage and focused to online lessons (Aguilera-Hermida, 2020; Hodges et al., 2020; Murphy et al., 2020). Students have reported that they are under distress and have formeda negative perception towards online learning experience and exacerbated by the lack supporting resources (Aguilera-Hermida, 2020). Students' dedication to online learning decreases due to the lack of experience and leads to mounting anxiety and passive involvement (Pasion et al., 2020). Previous studies also shows that online students have lower level of attachment, higher feeling of isolation and lack of presence and participation in online learning (Lane et al., 2015). Therefore, the implementation of ODL with little and no preparation has negatively affected student engagement in online lessons. Hence, this study aims to assess students' engagement towards ODL in construction management programme on undergraduates students from Universiti Teknologi MARA (UiTM) Shah Alam, Malaysia.

2.3 Construction Management Programme

The Construction Management Programme offered in UiTM Shah Alam offers a curriculum that emphasise on process, analysis and comprehensive understanding of theories and methods applied in construction and development (AP246, 2021) . The programme outcome is for students to acquire a certain set of skills including problem-solving skills, technical skills, IT skills, communication skills and leadership skills. The aim of the Construction Management Programme is for students to understand the complex nature of construction, methods and procedures which often requires teamwork and interdisciplinary collaboration experience (Jin et al., 2018). Didactical approach of teaching and learning in construction management is changing in contemporary times. ODL is a new learning method that exposes student with various online learning platforms such as Ufuture, MOOC, Moodle, Google classroom and etc.

With the rapid digital transformation, ODL can be defined as the foundation of new IT-driven courses in the Construction Management Programme such as Building Information Modelling (BIM), Virtual Reality (VR), Internet of Things (IoT) and Artificial Intelligent

(AI). A study by Elgewely et al.(2021) found out that the VR environment potentially enhances student's engagement, motivation and achievement. Clevenger et al.(2012) argued that BIM-visualised models and related databases have the capability to provide an enhanced platform for education. Not to mention, the influence of AI and IoT has significantly influenced the Construction Management Programme to better facilitate students in multiple software skills coupled with social skill (Pan and Zhang, 2021; Fang, 2020). It is essential for students to be able to interact with multiple construction technologies in supporting visualisation, virtualisation, and autonomous processes in a digital construction environment when they graduate (Olantunji, 2019).

However, ODL in the Construction Management Programme faces several challenges as the curriculum requires hand-ons activities such as industrial training, fieldwork, laboratory work and community project. To achieve certain learning outcomes, students are required to conduct laboratory tests, handling survey equipment, conduct survey activities, having the ability to use software and reaching out to the community. For example, the ability to use BIM software requires appropriate teaching and learning resources; finding the right balance between theory and practice, technology and process, traditional and emerging construction management methods; and training of the course instructor (Poulitaival and Forsythe 2016; Olantunji, 2019). Similarly, to assess student engagement in ODL for Construction Management Programme requires balance both theorectical and practical application to equipped students the necessary knowledge and technical skills before entering into the workforce and further develop their professional career.

2.4 Theorectical ODL Engagement

In the theorectical ODL engagement, the Construction Management Programme primarily conducted academic activities via the university's online learning platform(i.e. Ufuture) (Abdul Karim, 2020). The online learning platform provides an interface for both students and instructors in managing the course materials for enabling easy access to lecture notes or presentation slides, conduct classes

either synchronous or asynchronous approach, allow students and instructors to chat in a forum discussion, provide a central storage location to upload/download assignments, prepare final assessments and quizzes as well as to track the students learning progress and online attendance.

There are several academic activities that are being practice in the Construction Management Programme to engage students in ODL session. In synchronous online learning– students and instructors meet online simultaneously at different locations using web/video conferencing tools (Mackay and Fisher, 2014). The functions of web/video conferencing tools is to enable students and instructors to engage in the same slides presentation, making verbal interaction or text chatting, sharing various documents file or weblinks, and e-whiteboard to scribble on (Downes, 2004; Mackay and Fisher, 2014). Online interaction between students and instructors is the key that positively affects the student engagement(Baratuci and Linse, 2002). However, it is not easy to conduct synchronous online learning as there are several challenges (Mackay and Fisher, 2014). Firstly, the lack of non-verbal cues between students and instructors. More often that not, it is difficult to make eye contact in web-conferencing as most students shut their video camera that severly degrades the communication experience. Secondly, the camera position mounted on the top of laptop or PC often making eye-contact looking downwards on the screen instead looking directly into the camera. Furthermore, limitated internet bandwidth and loss of wireless signal impede student engagement in ODL experience especially those living in the remote areas. To overcome these issues, asynchronous online learning is the alternative approach in ODL session.

Asynchronous online learning is the most commonly used format for autonomous learning activities. ODL students can plan and monitor their own self-learning activities according to their pace (Mackay and Fisher, 2014). There are several ways to conduct asynchronous online learning that includes discussion boards/forums, online textbook, video and audio streaming, and Massive Online Open Course (MOOC). Discussion boards/ forums can be conducted in both real-time or whenever students or instructors are online (Wijekumar

and Cameron, 2007). Students and instructors can discuss the course content materials and provide their opinions and comments effectively in the discussion boards/forums. A study reported that discussion board is one of the best methods of learning asynchronously (O'Neal, 2009). On the other hand, online textbook offers students interative textbook contents, assignment questions, quizzes with auto-grading and answers, multimedia content, podcasts and interactive simulation. Unfortunately, online textbook has limited effectiveness towards student engagement (Chen et al., 2011).

Furthermore, video and audio streaming is one of the most favourable method in asynchronous online learning as students likes to watch animated and lively videos via video streaming platforms (i.e Youtube,Pre-recorded lectures) to stimulate learning experience. Students can learn quickly by rewinding and fastforwarding the video according to their liking and drop comments if they have any questions. However, the method depends on the contents, lengths, visual attractions and high quality audio to engage student learning experience. Lastly, MOOC has gained popularity and fast growing trend among ODL learners or students (Mackay and Fisher, 2014). This online platform emphasise on self-paced learning and playing an active role in the learning process. The plethora of online courses offer in MOOC provide students more credibility to online education and desire for more knowledge and learning. On the flip side, MOOC is the most difficult for ODL students to complete as they are not self-motivated. The sheer lack of real-time interaction worsen the student comprehension and unenjoyable in learning (Mackay and Fisher, 2014).

The Construction Management Programme adapts both synchronous and asynchronous in ODL environment whenever it is possible to allow students to experience every facet of ODL experience. The university's online-learning platform (i.e Ufuture) tremendously help both students and instructors to manage online classes, access to course materials and assessements, online interaction either verbally and non-verbally to track student engagement and learning performance. The ODL theorectical engagement is not complete without exposing student to experience the pratical skills in the Construction Management Programme.

2.4 Practical ODL Engagement

In terms of practical ODL engagement, the laboratory work is important for construction students to achieve construction management knowledge (Abdulwahed and Nagy, 2009; Auer et al, 2012, Jeschofnig and Jeschofnig, 2011; Hamadou et al, 2008). In the past 50 years, construction education is more on theoretically driven. But, this phenomenon in education has change the approach used during lectures from a more classroom based towards a laboratory based approach to enhance student's hands on practical skills. Experiential learning by hands-on skills is the best method to gain construction expertise (Auer et al, 2012, Jeschofnig and Jeschofnig, 2011; Hammadou et al, 2008). Practical skills can be referred as learning through experience where the interactive approaches such as using real tools and equipment in a laboratory. Through the laboratory based approach, the instructors present the materials through lectures and the students will give feedback and interactions with the instructor (Abdulwahed and Nagy, 2009; Long et al, 2012; Hamadou et al, 2008).

There are several hands on learning that basically being practices in construction programmes such as traditional labs, home experimenter kits, simulations, remote labs, scenarios and considerable interactivity. Recently, the education sector faced with the difficulties to deliver the practical aspect due to the pandemic covid situation that happen globally. In order to enhance the engagement of students for practical ODL, remote or virtual labs are relevance to be used as delivery methods. There are several design of virtual and remote labs for ODL students as an options to enhance engagement with ODL students such as videos of lab sessions (Auer et al, 2012, Auer et al, 2010; Long et al, 2012; Chener et al, 2011). But, this delivery method does not give students real hands-on interaction (Tee and Karney, 2010; Auer et al, 2010). Besides that, practical online learning can use condensed lab sessions on the main campus or some satellite campus. Unfortunately, this method is more expensive for students and the quality of lab can be variables due to the changing on satellite campuses with the various levels of laboratory expertise provided (Long et al, 2012; Hamadou et al, 2008). In addition, portable kits can also be used as practical delivery methods. This portable kits need to be shipped to the

students. But this method will be a compromise because this kits must be affordable and portable to the students. Otherwise, the expensive lab sessions will be left out (Long et al, 2012).

Furthermore, simulation also can be used as practical delivery methods for ODL students. From the previous literatures, there are no significant evidence shows the negative sides of using remote labs or simulation in substituting conventional lab. The analysis showed that there is greater awareness on experimental design and more cases of high critical thinking were developed amongst students when using virtual ODL compared to physical labs (Auer et al, 2012, Jeschofnig and Jeschofnig, 2011, Hamadou et al, 2008). On the other hands, there are still concerns about student regarding using of virtual lab, they cannot experience the real hands-on skills and it may affect how they develop a sense of reality on the learning outcomes (Tee and Karney, 2010). Thus, to ensure the student learning outcomes is achieved, it is crucial to measure and assess the extent to which the student acquired the necessary practical skills and hands-on experience.

2.4 Assessment ODL Engagement

In the Construction Management Programme, assessment of students engaged in ODL is important to be reviewed as to ensure the quality of the programme. There are two types of assessments that can be used as a method of evaluation such as formative assessment and summative assessment. The evaluation of students should be done both formatively and summatively to ensure the assessment engagement among ODL students (Lawton et al, 2010; Lap et al, 2010; Aravinthan, 2011). Online quizzes and assignments are the best practice to evaluate student ODL assessments. Online quizzes is a method of assessment for students to increase their participation in class during the ODL process (Cooper et al., 2007; Pai, 2012). Therefore, the marks from the online quizzes can contribute about 10 percent to the student's final grade.

To increase the student engagement, students should be allowed to retake online quizzes as many times as possible to improve their understanding on the knowledge they have learned (Cooper et al., 2007;

Pai, 2012). Previous literature shows that ODL students generally give positive feedback about online quizzes because it can help them to increase their understanding on the current lecture materials. Analysis shows that the online quizzes are useful to test the basic concepts but not the sophisticated knowledge (Lawton et al, 2010; Lap et al, 2010; Cooper et al., 2007). To fill in this gap, online assignments can be used to test the diagnostic knowledge where students can give their feedback when they progress through the course. Research reveals that online assignment can enhance student understanding by working on problems demonstrated as a significant improvement in achievement (Cooper et al., 2007, Dedic, 2008). Students also can upload all their online assignment via e-portfolio as their graduate marketability when they finish their study (Lawton et al, 2010; Lap et al, 2010; Cooper et al., 2007). Lastly, the online examination can also be conducted to evaluate the student ODL engagement throughout the semester.

There are several challenges to conduct online examination to ensure the educational quality and security cannot be compromised (Malik,2010; Mehrabian, 2008). Further actions need to be consider to deal with students who fear poor performance in the online exam environment (King et al., 2009). Previous literature also suggested the open book online examination can be allowed to evaluate students on application questions (King et al., 2009). However, online learning evaluation reveals that, generally, most of construction course students feel that traditional classroom learning still offers greater interactivity and satisfaction as compared to synchronous online learning (Clarey, 2009). Research also found that the learning outcomes are probably at least equivalent or better with synchronous online learning sessions as compared to classroom instruction (Lawton et al, 2010; Lap et al, 2010; Clarey, 2009).

THE ONLINE STUDENT ENGAGEMENT (OSE)

The design and variable of the student engagement was derived from the structure of Online Student Engagement (OSE). OSE was developed by Marcia D. Dixson in 2015 to study students engagement associated with online environment (Dixson, 2015). The underpinning approach of OSE is the intergration of social construtivism, the Community of Inquiry (CoI)

model and the fundamental of student engagement in traditional classroom that redefine engagement in online learning environment(Dixson, 2015). The engagement involves students putting their effort in learning skills and understanding teaching materials, demonstrate a meaningful discouse with their classmates and the ability to emotionally connected to their learning (Dixson, 2015).Therefore, OSE approach is to measure the extent to which student are actively involved in learning, a sense of how they feel about their learning and mutual relationship with the learning contents, instructor and their fellow classmates in the aspect of skills, participation performance, and emotional in Figure 1.

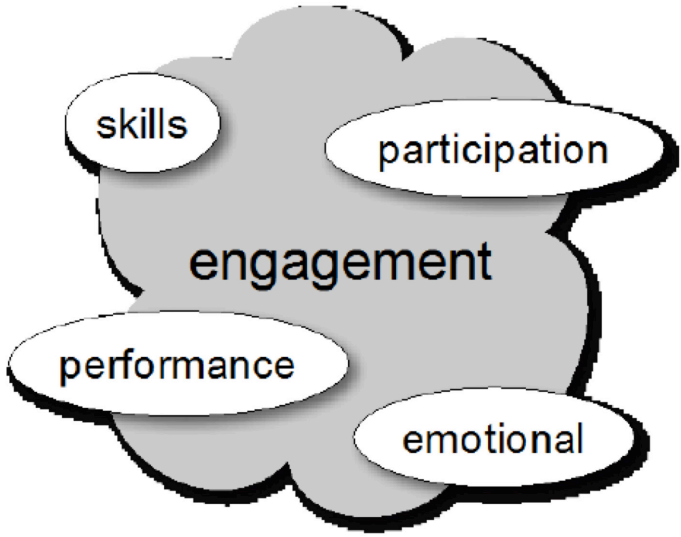

Fig 1 Affective and Behavioural Components of Engagement (Source: Dixson,2015)

The OSE offers three main function: (1) to help design for online course research, (2) To provide assessment for instructor about the degree of student engagement towards the choices of course design being made, (3) to proof teaching efficacy, argument of merits, teaching award, promotion/ permanent position.

However, other instruments have also been developed to measure students engagement including the National Survey of Student Engagement (NSSE), Student Engagement Instrument (SEI), the Engagement versus Disaffection

(EvsD), and Motivation Strategies for Learning Questionnaire (MSLQ). However, these instruments uses scales that are limited in reflecting the characteristics in online learning environment (i.e. ODL)(Lee et al, 2019). Therefore, in studying the assessment of ODL, the OSE scales is the most relevant and reliable approach to measure the students engagement in online learning environment.

KEY LITERATURE FINDING AND DISCUSSION

The emerging trend of adopting ODL in the plight of COVID-19 pandemic has implications on both students and instructors in the higher education. The concept of ODL has started to become imparted in student learning in both synchronous and asynchronous mode of teaching and with little to no preparation on how student engaged and adapt to this style of learning. In the Construction Management Programme offered in UiTM, Shah Alam provides a wide-range of curriculum that emphasise on process, analysis and comprehensive understanding of theories and pratical methods applied in construction and development. The introduction of ODL in construction management programme has potential of paving a way for emerging new IT-driven courses such as Building Information Modelling (BIM), Virtual Reality (VR), Internet of Things (IoT) and Artificial Intelligent (AI). These construction technologies equipped students with multiple IT skills and social skill in working in a digital construction environment. Similarly, the ODL facilitates student learning and engagement through theorectical, practical and assessement to prepare the students with sufficient knowledge and technical skills in their professional career.

In the theorectical aspect of ODL engagement, the university's online learning platfom (i.e Ufuture) provides interface both students and intructors in attending or conducting classes in synchronous and/or asynchronous mode, managing course materials, presentation slides, forum discussion, upload/download assignments, prepare final assessemnts and set up quizzes, tracking learning activities and online attendance. Although the university's online learning platform is useful and handy for both the students and instructors, several challenges were observed that poor internet connection, lack of interaction and participatiom both synchronous and asynchronous , and the lack of eye contact in online presence could jeopardise overall student engagement.

On the other hand, the pratical aspect of ODL engagement involves students gaining their practical experiential learning in construction pratices. The normal practice of traditional labs, using tools and testing materials are replace with remote or virtual labs through video lab sessions and condensed lab session. The former does not deliver the best outcomes as it does not provide the students with the tangible hands-on interaction, the latter is also more costly and expensive depending the quality and level of expertise that the labs provided. In addition, the use of portable kits is also a practical delivery method, However, is it subjected to whether the students are able to afford the portable kits. Nonetheless, the key challenge with the practical ODL engagement is that student might not have the adequate tangible hands-on experience and skills to fully benefit the learning experience in construction management.

Futhermore, assessements in ODL engagement is crucial to ensure the delivery and quality of the Construction Management Programme. The assessement involves formative (e.g. quizzes, questioning, observation) and summative (e.g. final exams, e-portfolio, final reports) to evaluate student learning and engagement throughout the programme. The purpose of the assessment is to measure the extent to which the students understand and are able to demonstrate cognitive skills and problem-solving skills in the given tasks. This is to ensure that they are on track in learning and aquired the skills in class. Nonetheless, one of the key challenges of setting assessments through ODL is that the online examination may superficially test student knowledge and critical thinking on the subject they studied as mostly would search for answers online without having to be proctored. Eventually, the final grades of students may give a false impression of overall student performance in ODL session as compared to the physical face-to-face class.

Therefore, this study investigates further on student engagement in terms of skills, participation, performance and emotional aspect. The OSE approach introduce the extend to which construction management students engaged in the online learning environment through ODL. The relationship between student engagement and ODL provides opportunity towards understanding better on the effectiveness of online learning environment in higher education.

CONCLUSION

The traditional method of teaching and learning is not the only option in higher education. The advent of technology coupled with the catastrophic global COVID-19 pandemic has catapult the higher education sector into a new method of teaching and learning. The adoption of ODL is forced to be reckon with among students and instructors alike in the enduring the mounting challenges in teaching and learning. Student engagement in ODL has yet to be determined on how student engaged with the teaching materials. The Construction Management Programme offered in UiTM Shah Alam conducts ODL session using the university's online learning platform (i.e. Ufuture). The ODL platforms used by UiTM Shah Alam has an interface for students and instructors to access and manage multiple academic activities synchronously or asynchronously. Conducting ODL also to paves the way for students to uptake the emerging IT-driven courses such as BIM, VR, IoT and AI in construction which lead them to acquire multiple IT skills and social skill in the revolution digital construction environment. Remote labs, condensed labs and portable kits are some of the pratical activities that are feasible for student to learn in ODL session. The end result of student's learning is to be able to evaluated via their formative and summative assessment such as online quizzes, logbook, reports and final examination throughout the ODL process. Therefore, it is crucial to understand the extent to which construction management students are engaged in the ODL lessons. The OSE approach is to be able to capture and understand student active learning, their feeling about learning and the mutual relationship with the learning contents, instructor and their fellow classmates in the aspect of skills, participation performance, and emotional in online learning mode. Future study could explore further by using survey method as to whether they could effectively learn and engaged in the full scale of ODL mode.

REFERENCES

Abdul Karim, M. (2020). UiTM moves to online learning mode. New Straits Times. Retrieved from https://www.nst.com.my/education/2020/04/586565/uitm-moves-online-learning-mode

Abdulwahed, M. and Nagy, Z.K. (2009). Applying Kolb's Experiential Learning Cycle for Laboratory Education. Journal of Engineering Education July 2009, 283-293.

AP246 | BSc (Hons) Construction Management. (2021). Retrieved 18 September 2021, from https://fspu.uitm.edu.my/index.php/AP246

Aravinthan, T., Lokuge, W., & Manalo, A. (2011) Effectiveness of formative online quizzes in learning and teaching a structural engineering course. Proceedings of the 2011 AAEE Conference, Fremantle, Western Australia.

Auer, M.E.,Pop, D.V.,& Zutin, D.G. (2012). Outcome of an Online Laboratory to Support A Master Program in Remote Engineering. Proceedings of the American Society for Engineering Education 2012 Conference & Expo.

Auer, M.E.., Zutin, D.G., Maier, C., & Niederstätter, M. (2010). Work in Progress: An Educational Online Laboratory Portal Based on Web 3.0 Technology. Proceedings of the 40th ASEE/IEEE Frontiers in Education Conference. available at: http://unesdoc.unesco.org/images/0012/001284/128463e.pdf.

Baratuci, W.B., & Linse, A.R. (2002). Heat Transfer On-line. In Proceedings of the American Society for Engineering Education 2002 Conference & Expo.

Barkley, E. F. (2010). Student engagement techniques: A handbook for college faculty. San Francisco, CA: Jossey-Bass.

Bolliger, D., & Martin, F. (2020). Factors underlying the perceived importance of online student engagement strategies. Journal Of

Applied Research In Higher Education, 13(2), 404-419. doi: 10.1108/jarhe-02-2020-0045

Bordoloi, R. (2018), "Transforming and empowering higher education through open and distance learning in India", Asian Association of Open Universities Journal, Emerald Publishing Limited, Vol. 13 No. 1, pp. 24-36, doi: 10.1108/AAOUJ-11-2017-0037

Bower, M. (2019). Technology mediated learning theory. British Journal of Educational Technology, 50(3), pp.1035-1048.

Chan, S., Lin, C., Chau, P., Takemura, N., & Fung, J. (2021). Evaluating online learning engagement of nursing students. Nurse Education Today, 104, 104985. doi: 10.1016/j.nedt.2021.104985

Chen, J., Victorino, C., Menon, U., Tseng, M., & Smith, T. (2011). A Study of On-line Textbook Use Across Multiple Engineering Courses. Proceedings of the American Society for Engineering Education 2011 Conference & Exposition.

Cherner, Y., Khan, A.S., Karim, A., Mullett, G.J. (2011). Use of Adaptable Simulation-based Virtual Laboratories for Teaching Alternative Energy and Energy Conservation in Engineering & Technology Programs. Proceedings of the American Society for Engineering Education 2011 Conference & Exposition.

Cho, M. and Cho, Y. (2014). Instructor scaffolding for interaction and students' academic engagement in online learning: Mediating role of perceived online class goal structures. The Internet and Higher Education, 21, pp.25-30.

Choy, J. and Quek, C. (2016). Modelling relationships between students' academic achievement and community of inquiry in an online learning environment for a blended course. Australasian Journal of Educational Technology.

Clevenger, C., Glick, S., & del Puerto, C. (2012). Interoperable Learning Leveraging Building Information Modeling (BIM) in Construction

Education. International Journal Of Construction Education And Research, 8(2), 101-118. doi: 10.1080/15578771.2011.647249

Cooper, S.T., Tyser, R.W., & Sandheinrich, M.B. (2007). The Benefits of Linking Assignments to Online Quizzes in Introductory Biology Courses. Proceedings of the MERLOT Journal of Online Learning and Teaching, 3(3), 214-221.

Davis, H. (1996). A review of open and distance learning within management development. Journal Of Management Development, 15(4), 20-34. doi: 10.1108/02621719610116791

Dedic, H., Rosenfield, S., & Ivanov, I. (2008). Online Assignments and Interactive Classroom Sessions: A Potent Prescription for Ailing Success Rates in Calculus. Proceedings of MERLOT Journal of Online Learning and Teaching, 4(4), 515-525.

Downes, S. (2004). Web conferencing 101. A ConferZone white paper (No. WhitePaper Sponsored by: Macromedia).

Dzakiria, H., Mohd Idrus, R., & Atan, H. (2005). Interaction in Open Distance Learning: Research Issues in Malaysia. Malaysian Journal Of Distance Education, 7(2), 63-77.

Elgewely, M., Nadim, W., ElKassed, A., Yehiah, M., Talaat, M., & Abdennadher, S. (2021). Immersive construction detailing education: building information modeling (BIM)–based virtual reality (VR). Open House International, ahead-of-print(ahead-of-print). doi: 10.1108/ohi-02-2021-0032

Fang, Z. (2020). Construction planning of university discipline based on 5G networks and Internet of Things system. Microprocessors And Microsystems, 103430. doi: 10.1016/j.micpro.2020.103430

Ghosh, S., Nath, J., Agarwal, S. and Nath, A. (2012), "Open and distance learning (ODL) education system: past, present and future – a systematic study of an alternative education system", Journal of Global Research in Computer Science, Vol. 3 No. 4 www.jgrcs.info.

Gray, J.A., DiLoreto, M. (2016). The effects of student engagement, student satisfaction,and perceived learning in online learning environments. Int. J. Educ. Leadersh. Prep. 11 (1), 1–20

Hamadou, S.-H., Bannour, W., & Mhamdi, M. (2008). Modelling Laboratory online: case of an implementation of practical work remotely on a digital signal processing kit. Conference Proceedings of International Conference on Engineering Education "New Challenges in Engineering Education and Research in the 21st Century" 27-31 July 2008, Pécs-Budapest, Hungary.

Hampton, D., Pearce, P.F. (2016). Student engagement in online nursing courses. Nurse Educ. 41 (6), 294–298.

Henrie, C., Halverson, L., & Graham, C. (2015). Measuring student engagement in technology-mediated learning: A review. Computers & Education, 90, 36-53. doi: 10.1016/j.compedu.2015.09.005

Hodgson, B., Key Terms and Issues in Open and Distance Learning, Kogan Page, London, 1993, pp. 11, 17.

Hussin, N.S., Awang, N., & Fatzel, F.H. (2020). Students' Experience in Learning Accounting via Open and Distance Learning (ODL). Insight Journal, 7, 29-40.

Janet Clarey, (2009). E-learning 101 An Introduction to E-learning, Learning Tools and Technologies. Brandon-Hall Research, Sunnyvale.

Jeschofnig, L., & Jeschofnig, P. (2011). Teaching lab science courses online resources for best practices, tools, and technology. San Francisco, CA: Jossey-Bass

Jin, R., Yang, T., Piroozfar, P., Kang, B., Wanatowski, D., Hancock, C., & Tang, L. (2018). Project-based pedagogy in interdisciplinary building design adopting BIM. Engineering, Construction And Architectural Management, 25(10), 1376-1397. doi: 10.1108/ecam-07-2017-0119

King, C.G., Guyette, R.W., & Pietrowski, C. (2009). Online exams and cheating: An empirical analysis of business students' views. The Journal of Educators Online, 6(1).

Kuh, G.D. (2009). What Student Affairs Professionals Need to Know About Student Engagement. Journal of College Student Development 50(6), 683-706. doi:10.1353/csd.0.0099.

Lane, F.C., Martin, G.L. and Henson, R.K. (2015), "A multidimensional comparison of traditional, transfer, and online students' university attachment", Journal of College Student Development, Vol. 56 No. 7, pp. 746-751.

Lapp, M., Ringenberg, J., & Fleszar, T.J. (2010). Engineering Online Gateway System – Ensuring and Evaluating Student Learning through Automated, Milestone Examinations. Proceedings of the American Society of Engineering Education 2010 Conference and Expo

Lawton, D., Bransford, J., Vye, N., Richey, M.C., Dang, V.T., & French, D.E. (2010). Learning Science Principles for Effective Online Learning in the Workplace. Proceedings of the 40th ASEE/IEEE Frontiers in Education Conference.

Lee, J., Song, H. and Hong, A. (2019). Exploring Factors, and Indicators for Measuring Students' Sustainable Engagement in e-Learning. Sustainability, 11(4), p.985.

Long, J.M., Horan, B.P., & Hall, R. (2012). Undergraduate Electronics Students' Use of Home Experiment Kits for Distance Education. Proceedings of the American Society for Engineering Education 2012 Conference & Expo.

Long, J.M., Stannard, W.B., Chenery, K., & Joordens, M.A. (2012). Physics Practicals for Distance Education in an Undergraduate Engineering Course. Proceedings of the 2012 Australian Association for Engineering Education (AAEE) Conference

Luaran, J., Jain, J., & Abd Rahman, N. (2016). The use of whatsapp group in class-related information sharing through academic discussion. International Journal on E-Learning and Higher Education, 4, 176-194.

Mackay, S., & Fisher, D. (2014). Practical online learning and laboratories. West Perth, Western Australia: IDC Technologies Pty Ltd.

Malik, M. (2010). Supporting Exam Revision Using Google Talk and Examopedia Wiki, Proceedings of the 40th ASEE/IEEE Frontiers in Education Conference, October 27-30, 2010, Washington, DC, USA.

Mehrabian, A., Ali, T., & Rahrooh, A. (2008). Crafting online Exams in Engineering and Technology: Latest Challenges, Methodologies, and Trends. 2008 Annual Conference & Exposition.

O'Neal, K. (2009). The Comparison between Asynchronous Online Discussion and Traditional Classroom Discussion in an Undergraduate Education Course. Proceedings of MERLOT Journal of Online Learning and Teaching, 5(1), 88-96.

Olatunji, O. (2019). Promoting student commitment to BIM in construction education. Engineering, Construction And Architectural Management, 26(7), 1240-1260. doi: 10.1108/ecam-04-2018-0173

Pai, B.K. (2012). Using Online Quizzes and Discussion Forums to Enhance Learning Numerical Methods. Proceedings of the American Society for Engineering Education 2012 Conference & Expo

Pan, Y., & Zhang, L. (2021). Roles of artificial intelligence in construction engineering and management: A critical review and future trends. Automation In Construction, 122, 103517. doi: 10.1016/j.autcon.2020.103517

Pasion, R., Dias-Oliveira, E., Camacho, A., Morais, C., & Campos Franco, R. (2020). Impact of COVID-19 on undergraduate business students: a longitudinal study on academic motivation, engagement and attachment to university. Accounting Research Journal, ahead-of-print(ahead-of-print). doi: 10.1108/arj-09-2020-0286

Patricia Aguilera-Hermida, A. (2020). College students' use and acceptance of emergency online learning due to COVID-19. International Journal Of Educational Research Open, 1, 100011. doi: 10.1016/j.ijedro.2020.100011

Qazi, A., Qazi, J., Naseer, K., Zeeshan, M., Qazi, S., Abayomi-Alli, O., Said Ahmad, I., Darwich, M., Ali Talpur, B., Hardaker, G., Naseem, U., Yang, S. and Haruna, K. (2021). Adaption of distance learning to continue the academic year amid COVID-19 lockdown. Children and Youth Services Review, 126, p.106038.

Robinson, C. (2012). Student engagement. Journal Of Applied Research In Higher Education, 4(2), 94-108. doi: 10.1108/17581181211273039

Saidi, R., Sharip, A., Abd Rahim, N., Zulkifli, Z., & Md Zain, S. (2021). Evaluating Students' Preferences of Open and Distance Learning (ODL) Tools. Procedia Computer Science, 179, 955-961. doi: 10.1016/j.procs.2021.01.085

Selvaras, J. (2019). Technology usage for teaching and learning law in open and distance learning: a Sri Lankan perspective. Asian Association of Open Universities Journal, 15(1), pp.69-81.

Shukor, N., Tasir, Z., Van der Meijden, H., & Harun, J. (2014). A Predictive Model to Evaluate Students' Cognitive Engagement in Online Learning. Procedia - Social And Behavioral Sciences, 116, 4844-4853. doi: 10.1016/j.sbspro.2014.01.1036

Simpson, O. (2018). Supporting students in online, open and distance learning: Routledge

Stone, C., O'Shea, S., May, J., Delahunty, J., Partington, Z. (2016). Opportunity through online learning: experiences of first-in-family students in online open-entry higher education. Aust. J. Adult Learn. 56 (2), 146–169.

Tanis, C.J. (2020). The seven principles of online learning: feedback from faculty and alumni on its importance for teaching and learning. Res. Learn. Technol. 28 (2319), 1–25. https://doi.org/10.25304/rlt.v28.2319.

Tee, M.Y., & Karney, D. (2010). Sharing and Cultivating tacit knowledge in an online learning environment. International Journal of Computer-Supported Collaborative Learning.

UNESCO (2002) , Open and Distance Learning Trends, Policy and Strategy Considerations, Paris.

Wijekumar, K., & Cameron, B. (2007). Classifying web-based discussion forum tasks and learning outcomes of undergraduate information science students. American Society for Engineering Education.

Yang, J., Yu, H., Chen, S.J., Huang, R. (2014). Strategies for smooth and effective cross-cultural online collaborative learning. J. Educ. Technol. Soc. 17 (3), 208–221.

Open And Distance Learning(ODL) During COVID-19 : Challenges And Obstacles Among Nursing Students

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Abstract:

Many countries, including Malaysia, have recently issued normative criteria that must be followed by all populations in the midst of the Covid-19 pandemic, which has turned into a global health crisis. As a result of the policy, several universities have chosen to use the open and distance learning (ODL) system to pursue non-face-to-face learning. E-learning is the most convenient way used by educators throughout the world to conduct academic sessions using various mediums as requires only internet access and telecommunication devices such as smartphones and laptops. However, there are many challenges and obstacles face by nursing students during ODL, such as poor internet connection and a lack of online educational resources; stress and anxiety during ODL learning; Social distancing; Financial constraints, and burnout from the workload of assignment. In conclusion, the Covid-19 pandemic had an impact on nursing students as a result of the barriers and challenges they faced when participating in online distance learning. Along with the challenges that nursing students are currently facing, lecturers must be prepared to equip themselves with knowledge and skills as well as new practices of teaching and learning that is relevant to the development and needs of the 21st century, thinking skills across all disciplines among nursing students should be given priority. The thinking skills of teachers and students, especially in the context of Higher Order Thinking Skills (HOTS) is a matter of necessity or priority in determining the successful transformation of education as outlined in the Blueprint 2013-2025.

Keywords: Challenges and obstacles, nursing students, Open and Distance Learning (ODL), Stress,Covid-19.

INTRODUCTION

Many countries, including Malaysia, have recently issued a set of normative criterias that all populations must follow during the Covid-19 Pandemic, which has turned into a global health crisis. As a result of the policy, several universities have chosen to use the open and distance learning (ODL) system to pursue non-face-to-face learning. Online learning, often known as E-learning, is the process of learning through the internet. E-learning is the most convenient way used by educators throughout the world to conduct academic sessions using various mediums and only internet access and telecommunication devices such as smartphones and laptops. Distanced education, or we now call it 'Open Distance Learning (ODL),' has been established since the olden times, covering many studies at all levels. According to Ascough (2013), online education includes the following characteristics: it gives a different learning experience than in the classroom since learners are diverse. Next, the learning environment's social dynamic has changed, the discrimination and prejudice towards online learning has been reduced. ODL has been more sophisticated and more accessible to everyone. It is practiced fully for those who are in preschool, primary school, high school and universities due to the growth in technology and to keep the rate of positive cases of Covid-19 low. This pandemic has affected almost 90% of all the students enrolled to school worldwide (UNESCO, 2020a; 2020b). The availability of appropriate material is critical, but this remained a barrier because the pandemic was unforeseen and the preparedness of health schools were inadequate.

Learning is challenging given the current pandemic condition and students reported feeling extremely stressed, even though they believed that normal class lecture is easy to understand. Furthermore, nursing students commonly encounter high levels of stress in their learning, especially during practical sessions, especially those semester one nursing students. Nursing students need to learn the practical session by watching the video. The rapid spread of Covid-19 and the catastrophic health effects of the infection have created a series of concerns, particularly for students. This is because students are

under stress as a result of online learning and increased workload. Since the outbreak of the Covid-19 pandemic, when the government imposed the Movement Control Orders (MCO), stress has become the most commonly reported barrier to academic success. A large number of students, including university students, were confined to their homes as a result of the lockdown. Stress is highly common among university students, particularly among nursing students. Different students react to stress in different ways because they are in distinct areas, resulting in difficulties that are also different. Given the importance of the stress issue in education, a lecturer must first understand why it occurred to remedy the problem.

LITERATURE REVIEW

This chapter focuses on literature regarding the relationship between critical thinking and concept mapping with academic achievement, especially in nursing. The researchers have conducted a thorough search for research articles, dissertations and books that would apply to the study. Copies of potentially relevant studies were then obtained. The data sources used were the computerized databases of (a) the Educational Resources Information Center (ERIC), (b) ProQuest Online Education / Nursing Journals, (c) Dissertation Abstracts International and (d) Psychological Abstract. The keywords used for the search were a combination of the following keywords: "online learning," "open and distance learning", "nursing students", "achievement", "nursing education", "teaching strategy", " challenges and obstacles" and "critical thinking".

THE ADVANTAGES OF ODL AMONG NURSING STUDENTS

Online learning delivery methods have becoming increasingly common as a result of recent economic and technological advancements. Open and distance learning (ODL) as stated by Santhi, Mohd Ghazali, and Loo (2015) as the provision of flexible educational options regarding access and variety of ways of knowledge acquisition. Open distance learning (ODL) has many advantages, including flexibility, accessibility, cost, and potential for lifelong learning (Musingafi, Mapuranga, Chiwanza & Zebron, 2015). It is a means of enhancing learning by gaining or facilitating the information distributed using a range of technology methods such as audio chatting,

video conferencing, and online databases (El-Hamed & Elgahsh, 2020). As compared to traditional classroom learning, online learning has various advantages. The eradication of time and space barriers is also one of them. Fariza Khalid, Md Yusoff Daud, and Aidah Abdul Karim (2015) from the Faculty of Education, Universiti Kebangsaan Malaysia, found that students had a beneficial impact on the learning process used m-mobile applications. The student is in the responsibility of his or her own learning and self-development in ODL, which promotes a student philosophy in which courses are flexibly constructed to match individual requirements (Ahmad, Philips, Santhi, Wahid, 2013). However, there are also obstacles and challenges of ODL. Recent studies have looked into the challenges and opportunities of e-learning during the pandemic (Mailizar et al., 2020). Researchers are attempting to investigate the benefits and drawbacks of modern e-learning projects from the viewpoints of diverse stakeholders. Students' voices are crucial on this subject, according to Mailizar et al., (2020). Future research should evaluate students' opinions regarding online learning to examine the obstacles experienced by students.

THE OBSTACLES AND CHALLENGES OF ODL AMONG NURSING STUDENTS

i. Poor internet connection and a lack of online educational resources

Integrating e-learning into teaching and learning may be a complicated process, with numerous challenges that must be overcome and are commonly referred to as obstacles to integrating e-learning (El-Hamed & Elgahsh, 2020). "Personal barriers," "attitudinal inhibitors," and "contextual inhibitors" are the three main types of obstacles and challenges that come with adopting e-learning (El-Hamed & Elgahsh, 2020). As a result, students and lecturers learn to adjust to online learning (Juniarta, Eka & Sitanggang, 2018). Furthermore, because online learning is entirely reliant on technological devices and the internet, teachers and students with poor internet connection may be denied access. Online learning's dependence on technological equipment and the provision of such equipment posed a major challenge for institutions, educators, and students (Yates, et al., 2021). The students were up against technological infrastructure, with the most significant issue being a poor internet connection,especially those from

rural areas. It's especially alarming to learn that some students utilize their phones for online classes, 6–8 hours daily.

ii. Social distancing

Darkwa and Antwi (2021) reported that learning in a classroom is more effective than learning online. In this study, the researchers compared classroom learning effectiveness during the Covid-19 Pandemic to the effectiveness before the Covid-19 Pandemic in the University of Cape Coast. Furthermore, the students performed better academically during face to face lessons as compared to when lessons were conducted online. However, the difference was not statistically significant. The research question regarding the effectiveness and performance of students before and during COVID-19, reported that when comparing course content before the coronavirus (classroom learning) to course content after the coronavirus (online learning) (M=3.133, SD=0.940), had the highest mean (M=4.303, SD=0.643) shows before the coronavirus (classroom learning). There was mean difference of 1.170 points. For the mean difference in classroom learning before COVID-19 and online learning during COVID-19, The t-value was 13.124 with 144 degrees of freedom. The t-value was statistically significant at the 0.05 alpha (p-value =0.000). The study shows significant before and after coronavirus.The finding implies that classroom learning was more effective than online learning with respect to the lesson content. However, Shachar and Neumann (2010) found that students who learn online outperform those who learn in a traditional classroom. Students in face-to-face classes performed statistically and significantly better than those in online classes in terms of exam average and progress in post-test instructor questions(Arias, Swinton & Anderson, 2018).

iii. Stress and anxiety during ODL learning

Despite the strict and rigorous training provided in both classroom and clinical setting, students still felt that there was more to learn while in school although they were afraid to make mistakes while performing nursing skills in the clinical setting (Jabien Labrague, 2013). Furthermore, the lecturers' high expectations exacerbated the students' nervousness, which included several tasks and strict deadlines. A similar finding by Skordis-Worrall, Haghparast-Bidgoli, Batura, and Hughes (2015) explored the perceptions

and experiences of a group of students enrolled in an online course in Economic Evaluation. A mixed-method approach was adopted for the data collection, and thematic analysis was used to synthesize the data collected and highlight key findings. The participants identified several positive and negative perceived attributes of online learning, which were well documented in the literature. The study found that the students reported the pace of learning in an online course is slower than in a classroom-based course, "I feel that I was much slower than what I had been in a classroom environment. Things take longer and I think the time built-in did not allow for this, which caused a lot of stress. . .I think the pace is a lot slower than it would be in a classroom based setting and so if the course allow for that personal time to reflect [it] would be helpful. . ." Unfortunately, the COVID-19 pandemic has culminated in a "social recession" a long-term pattern of social alienation that has resulted in a lack of emotional support and larger societal consequences, including increasing anxiety levels (Sundarasen et al., 2020).

iv. Financial constraints

Some students may not have access to all digital gadgets, the internet and Wi-Fi due to financial constraints that preclude them from purchasing their own laptops. Inadequate digital tools, a lack of internet access, or unsteady Wi-Fi connections can all cause issues with e-learning. Financial constraints are constraints that must be accommodated instead of restricting a course of economic action. Students' work performance and exam results may be sacrifieced due to unstable financial and debt burdens. In terms of finances, students were concerned about their ability to manage their educational and financial commitments due to family income loss and lost opportunities to work to self-finance their studies (Sundarasen et al., 2020). As a result, specific countries, particularly those underdeveloped and developing worlds, have adopted e-learning as a new teaching and learning method. It is because that due to financial constraints and other obstacles, not all countries will be able to completely embrace online education(Darkwa & Antwi, 2021)

v. Burnout from the workload of assignment

Even though there are numerous chances for online learning, not all students and learners were able to adapt to it. Students, particularly those from B40 families (the bottom 40 percent of the Malaysian household income)

experience stress and burnout as a result of the high cost of online learning. Some students may not feel comfortable with online learning, which can lead to increased frustration and misunderstanding, especially when they receive their assignment. Other than that, the workload of the assignment also may contribute to stress. During the online learning phase, students experience increased academic burnout,where the students struggle to complete assignments in this new norm if they have internet access issues or inadequate learning resources. This contrinutes to the situation of students feeling unmotivated in their online classes. Aside from that, too many assignments assigned by lecturers can also make students experience burn out while taking distance learning courses. Therefore, the assessments must be taken into account. If lecturers were not given the right tools and resources, they would not be able to provide students with high-quality knowledge content. Nonetheless, to promote nursing care education, students and lecturers must keep up with the development of ICT and modern educational trends. Poor time management of students will also cause students' work to increase as students are not good at determining important work from less critical work. There may be a shortage of laptops, computers, and other IT equipments. Sometimes family members may have to share existing resources due to work from home and study from home policies (Piryani et al., 2020). There may not be enough physical space in the house and a quiet environment to record presentations as well as to carry out synchronous interactions (Piryani et al., 2020).

CONCLUSION

Nurse educators are the primary motivators for nursing students to pursue education. Educators may succeed in teaching the fundamentals, but this does not guarantee that students will have the ability to examine and evaluate what they have learned. Critical thinking is required to achieve a thorough understanding of the complicated processes involved in students learning and this is why critical thinking is important to achieve success in the teaching and learning process. Therefore, it is essential for the teacher to understand the learning skills practiced and their role among the students during the learning process in their respective classes. In conclusion, the Covid-19 pandemic impacted nursing students as a result of the barriers and challenges they have faced when participating in online distance learning. Along with the challenges that nursing students are currently

facing, lecturers must be prepared to equip themselves with knowledge and skills as well as new practices of teaching and learning that is relevant to the development and needs of the 21st century espeially the development of thinking skills across all disciplines among nursing students should be given priority. The thinking skills of teachers and students, especially in the context of Higher Order Thinking Skills (HOTS) is an essential in determining the successful transformation of education as outlined in the Blueprint 2013-2025.

RECOMMENDATIONS

ODL is distinguished by its adaptability, accessibility, affordability, and chances for lifelong learning (Musigafi et al., 2015), hence the nursing students struggled to deal with Online Distance Learning (ODL) as this course involves hands-on skills over virtual demonstrations. Therefore, using videos are a good option when conducting online teaching for practical sessions. As students are unable to participate in discussion with friends and lecturers, they were forced to learn and understand the content taught on their own, which makes online learning an unpleasant experience. This causes impairments of the information-processing system of nursing students due to stress. In addition, poor internet also affects the ODL experience especially for those students lived in rural area. Therefore,the government should increase internet connectivity, accessibility, and reliability so that students and teachers could conduct and participate lessons remotely. The rapid spread of Covid-19 and the substantial health risks associated with disease have caused several issues, particularly for students. This is mainly because of the fact that students are under stressors of online learning and increased workload. Therefore, the use of stress management techniques regularly can help avoid most physical, emotional, and behavioral symptoms of stress. Coping usually entails adjusting to or tolerating negative events or realities while maintaining a positive self-image and emotional balance. The education process is a very stressful experience (Manpreet & Maheshwari, 2015; Papazisis et al., 2008) and university students encounter a great deal of academic, personal, and social stress during their academic activities (Kuruppuarachchi et al., 2012). Although distance learning is theoretically regarded as a model for assisting informal education, further research into the practices of both ODL and face-to-face education systems, as well as the consequences of these practices on students and lecturers, is required (Darkwa & Antwi, 2021).

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REFERENCES

Anne Yates, Louise Starkey, Ben Egerton & Florian Flueggen (2021). High school students' experience of online learning during Covid-19: the influence of technology and pedagogy, Technology, Pedagogy and Education, 3,:1, 59-73. DOI: 10.1080/1475939X.2020.1854337

Ahmad Hj. Mohamad, John Arul Philips, Santhi Raghavan, Wahid Razzaly. (2013). Code of Practice

For Open and Distance Learning - Kod Amalan Pembelajaran Terbuka dan Jarak Jauh (dual-language). Malaysian Qualifications Agency: Petaling Jaya.

Arias, J. J., Swinton, J., & Anderson, K. (2018). Online vs. Face-to-Face: A Comparison of Student Outcomes with Random Assignment. e-Journal of Business Education and Scholarship of Teaching, 12(2), 1-23.

Ascough, R. (2002). Designing for Online Distance Education: Putting Pedagogy Before Technology .Teaching Theology and Religion, 5(1), 17-29

Darkwa, B.F. and Antwi, S. (2021) From Classroom to Online: Comparing the Effectiveness and Student Academic Performance of Classroom Learning and Online Learning. Open Access Library Journal,8:e7597.

Available from: https://www.researchgate.net/publication/352869532_From_Classroom_to_Online_Comparingthe_Effectiveness_and_Student_Academic_Performance_of_Classroom_Learning_and_OnlineLearning [accessed Jul 31 2021].

El-Hamed, D., Elgahsh, N, F. (2020). E-learning During Covid-19 Pandemic: Obstacles Faced Nursing

Students and Its Effect on Their Attitudes While Applying It. American Journal of Nursing Science, 9(4), p. 295-309. DOI: 10.11648/j.ajns.20200904.33

Fariza Khalid, M. Y. (2015). Pemilihan aplikasi teknologi sebagai medium perkongsian maklumat oleh pelajar siswazah universiti . ASEAN Comparatif Education Research Network Conference 2015, (p. 1).

Juniarta., Eka, N,G, A., Sitanggang, Y, F. (2018). Nursing Students' Learning Experiences in an Online Learning Course. Nursing Current, 6(1), p. 43-49. http://dx.doi.org/10.19166/nc.v6i1.1285

Kuruppuarachchi, K. A. J. M., Somarathne, S., Madurapperuma, B. D., & Talagala, I. M. M. (2012).

Factors associated with psychological distress among B. Sc. undergraduates of the Open University of Sri Lanka. http://repository.ou.ac.lk/bitstream/handle/94ousl/759/OU5161_000.pdf?sequence=1

Manpreet, K., & Maheshwari, S. K. (2015). Depression, anxiety and stress among postgraduate nursing students. International Journal of Therapeutic Applications, 21(3), 12- 18.https://www.researchgate.net/publication/309242524_Depression_anxiety_and_stress_among_postgraduate_nursing_students.

Mailizar, Almanthari, A., Maulina, S., & Bruce, S. (2020). Secondary school mathematics teachers' views on e-learning implementation barriers during the Covid-19 pandemic: The case of Indonesia. Eurasia Journal of Mathematics, Science and Technology Education, 16(7), em1860.

Musingafi, M, C, C., Mapuranga, B., Chiwanza, K., Zebron, S. (2015). Challenges for Open and Distance Learning (ODL) Students: Experiences From Students of The Zimbabwe Open University. Journal of Education and Practice, 6(18), p. 59-66. http://iiste.org/Journals/index.php/JEP

Papazisis, G., Tsiga, E., Papanikolaou, N., Vlasiadis, I., & Sapountzi-Krepia, D. (2008). Psychological distress, anxiety and depression among nursing students in Greece. International Journal of Caring Sciences, 1(1), 42. https://www.researchgate.net/publication/47374416_Psychological_distress_anxiety_and_depre ssion_among_nursing_students_in_Greece.

Piryani, R. M., Piryani, S., Piryani, S., Shankar, P. R., & Shakya, D. R. (2020). Impact of COVID-19 Pandemic on Medical Education: Challenges and Opportunities for Medical educators in South Asia. Journal of BP Koirala Institute of Health Sciences, 3(1), 28–38. https://doi.org/10.3126/jbpkihs.v3i1.30318.

Santhi Raghavan, Mohd Ghazali Mohayidin, Loo Sin Chun.(2015). Access to Higher Education via ODL: Addressing Attrition to Maximize University Sustainability, American Journal of Economics, 5(2), 208-216. DOI: 10.5923/c.economics.201501.26.

Shachar, M. and Neumann, Y. (2010) Twenty Years of Research on the Academic Performance Differences between Traditional and Distance Learning: Summative Meta-Analysis and Trend. MERLOT Journal of Online Learning and Teaching, 6, 318-334. http://jolt.merlot.org/vol6no2/shachar_0610.pdf

Sheela Sundarasen, Karuthan Chinna, Kamilah Kamaludin, Mohammad Nurunnabi,Gul Mohammad Baloch, Heba Bakr Khoshaim, Syed Far Abid Hossain & Areej Sukayt.(2020). Psychological Impact of COVID-19 and Lockdown among University Students in Malaysia: Implications and Policy Recommendations. International Journal of Environmental Research and Public Health, 17(17). DOI: 10.3390/ijerph17176206

Skordis-Worrall, Haghparast-Bidgoli, Batura, and Hughes.(2015). Learning Online: A Case Study Exploring

Student Perceptions and Experience of a Course in Economic Evaluation. International Journal of Teaching and Learning in Higher Education, 27(3), 413-4.

UNESCO (2020a). COVID-19 education response. https://en.unesco.org/covid19/educationresponse/globalcoalition

UNESCO (2020b). COVID-19 educational disruption and response. https://en.unesco.org/covid19/educationresponse