

## A MOOC-BASED FLIPPED CLASSROOM: THE PRE-DIPLOMA STUDENTS' PERSPECTIVES

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### Abstract

The Massive open online course (MOOC) is a move toward greater openness in higher education. The current literature on MOOCs, covering research on their effectiveness to accommodate different students' abilities showed conflicting results in this regard. With limited studies on a MOOC-based flipped classroom in Malaysian higher education, this study explored the perceived usefulness and perceived ease-of-use of the MOOC-based flipped classrooms among the pre-diploma students who enrolled in the English MOOC. The pre-diploma students were interviewed to respond to these concerns. Questionnaires were also administered to all registered users to analyze the perceived use and ease-of-use of the MOOCs when used in flipped classrooms. The study found the significant challenges faced by pre-diploma students in terms of the content, language, and technical aspects of MOOCs. Therefore, possible solutions to these challenges were identified and discussed. These findings can help the policy makers explore strategies for MOOC's future development, implementation, and success in the context of higher education in Malaysia specifically for pre-diploma students.

**Keywords:** MOOC, pre-diploma students, English MOOC, flipped classroom

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### Introduction

The 20th century introduced the power of electronic technologies which have had a great impact on and made changes to all aspects of lives, especially the education curriculum. Garrison (2000) highlighted the integration of information and telecommunication technologies to support distance learning by providing accessible platforms for anyone to learn at any time and anywhere. The invention of Information and Communication Technologies (ICT) has reformed traditional face-to-face classroom teaching to more modern distance education.

Technology has transformed education. In relevance to the wave of instructional technology, higher education institutions were introduced to massive open online courses (MOOCs) as an effective method of online content delivery (Hill, 2012; Li & Keller, 2018). MOOC is considered one of the technological advances in global education (Montgomery, 2016). Chamberlin and Parish (2011) listed the pros and cons of MOOC in terms of the openness of the courses, the overwhelming number of students registering for the course, students' participation in the gathering of information, and their inability to navigate the amount of information produced, the issues of credit versus no credit, and the commitment of students in completing the tasks in MOOC.

On a positive note, most educators believe that MOOCs could enhance traditional learning by promoting a personalized learning environment self-paced (Stein et al., 2014). Besides, The New York Times declares 2012 as the year of the MOOC and had a substantial influence on the implementation of MOOC in higher education (Pappano, 2012). Later in the same year, Martin (2012) highlighted the positive outcomes of implementing MOOC as supplementary learning materials to the face-to-face artificial intelligence course taught at the University of Massachusetts. He emphasized how the MOOC learning materials offered enhanced learning experiences to the learners. It is important to understand the four

basic techniques of MOOC design including formative assessment, progress bars, gamification, and badges (Martin, 2012). For many researchers and designers who analyze massive open online courses (MOOCs), it is essential to understand the pedagogical perspectives that are instantiated in the design of a course. Failure on the part of the MOOC instructors and designers to conform to these pedagogical perspectives of MOOC very often leads to failure in understanding the types of instructional activities in the MOOC.

The design of MOOC should aim to motivate learners to learn and engage in the learning process by completing MOOC activities. An effective MOOC should be well-structured with suitable instructional activities and detailed guidance, activities, and feedback fit with the individual's learning style and clear instruction that can be easily understood by learners. The first issue of concern is the availability of guidelines related to the types of instructional activities and feedback used by MOOC instructors.

Malaysia Higher Education Blueprint emphasizes digital literacy for its future graduates. In line with this notion, the Ministry of Education Malaysia (MOE) commenced Malaysia MOOCs on 18 September 2014 launched in Putrajaya, Malaysia by the Higher Learning Minister II (Nordin et al., 2016). MOE collaborated with four Malaysia universities as MOOC content developers as follows: (i) Universiti Teknologi MARA (UiTM); (ii) National University of Malaysia (UKM); (iii) University Putra Malaysia (UPM); and (iv) University of Malaysia Sarawak (UNIMAS). As a result, each of the universities specifically developed MOOC content for four different courses as the following: (i) Introduction to Entrepreneurship (UiTM); (ii) Ethnic Relations and Integration in Malaysia (UKM); Islamic and Asian Civilizations (UPM); and (iv) ICT Competency (UNIMAS). All of these courses are listed under Malaysia MOOCs and published in the OpenLearning platform which can be accessed via this link <https://www.openlearning.com/malysiamoocs>. Nordin et al., (2016) mentioned that these courses covered 30 percent of the whole syllabus content and all course instructors are recommended to utilize the MOOCs for their blended learning requirements. It is worth noting that Nordin et al., (2016) proposed five factors for the development of learning content for the MOOCs which is for the development of Ethnic Relations and Integration in Malaysia MOOC. The proposed five factors in the development of learning content for MOOCs are as such: (i) Type of MOOC; (ii) Type of Video Lectures; (iii) Integration of Cultural Aspects in Video Lectures; (iv) Communication Style in Video Lectures and (v) Humor Effect (using speech balloons) in Video Lectures.

Another issue of concern is the users of MOOC, the pre-university students. For the study, a specific group of learners: the pre-university students learning the English Language Proficiency course would be the focus of the study. This is based on Morrison (2013) who suggested that further research on the use of instructional design theory or models needs to be conducted with a different population.

This group of students is chosen because of these two reasons; they are the Generation Z students who are supposedly the advocates of the social learning environment and the entry requirements that they have to comply with when they first join the university which makes them different from other students in most public universities in Malaysia. Gen Z students have not just a greater dependence on technology, they embrace the social learning environment, and are more hands-on and directly involved in the learning process. Based on a study conducted by Barnes & Noble College (cited in Kozinsky, 2017) on Gen Z preferences, it was found that 85% of them prefer to study with friends. By doing this, they could help each other (52%), make learning fun (67%), and enable them to share new ideas (60%). This collaborative learning environment was not limited to in-person interactions, but also via digital tools

such as Skype and online forums.

The study intends to develop a guideline that can assist instructors in determining the types of instructional activities and the types of instructors' feedback that would encourage the students to complete the instructional activities without being dependent on the class instructor. Henceforth, the objectives of the study are:

- a) To determine the usefulness of MOOC by pre-university students;
- b) To determine the challenges by pre-university students;

The following research questions for this study are as below:

- a) What is the perceived usefulness of the MOOC by pre-university students?
- b) What are the types of challenges faced by pre-university students?

The study hopes to develop a guideline for MOOCs that can cater to the different learning preferences of pre-higher education students and increase their engagement and participation in learning the English language via MOOCs. Therefore, the study is significant to the students, educators, MOOC developers, the institution, the policymaker, MOOC researchers, and the public in general.

Designing a MOOC that caters to different learning styles, will motivate the students to involve actively in the learning process and will probably lead to better performance at the end of the course. It can also help educators to accommodate the different needs of the students in one classroom. Different individuals have different learning styles. Hence, the ability to design an online course that caters to all diverse learning preferences can help educators manage the differences more constructively. The study can also assist MOOC developers and researchers who wish to extend the study related to learning preferences, learning motivation, learning attainment, and MOOC guidelines in the future.

This study also hopes to assist policymakers in designing an educational policy about the implementation of MOOCs in higher education. The outcome of this study will provide significant information on how students view the usage of English MOOC, the potential of integrating MOOC as a blended learning tool, and relevant information that aims to enhance the value of MOOC teaching pedagogy towards the realization of MyHE 4.0.

## Methods

### Data Collection

A survey method is used to gather the information perceived usefulness of the MOOC based on the pre-students' perspectives by using the Technology Acceptance Model measurement. The survey consisted of 5 Likert-scale rating questions with the response of "Extremely disagree" and "Extremely agree". The Technology Acceptance Model (TAM) is a widely used theoretical framework for understanding and measuring users' acceptance and adoption of technology (Silva, 2015; Muchran & Ahmar, 2018). It was developed by Fred Davis in the 1980s and has since been extended and applied in various research studies. TAM measurement typically involves collecting data through surveys or questionnaires to assess users' perceptions and attitudes towards a particular technology. The key constructs in TAM measurement include: Perceived usefulness (PU): Users' belief about the extent to which a technology will enhance their performance or productivity. Perceived ease of use (PEOU): Users' belief about the degree of effort required to use the technology (Silva, 2015; Muchran & Ahmar, 2019). The teaching and learning process of this English course consisted of a flipped classroom with the implementation of MOOC according to the course scheme of work. The respondents were randomly selected among pre-diploma students. There were 186 respondents involved in this study who enrolled in the course English for Pre-Diploma Students.

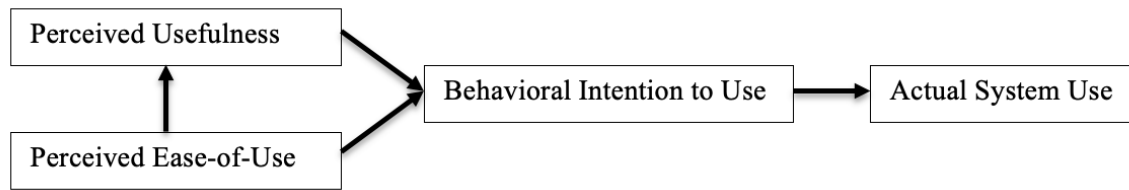


Figure 2. The Technology Acceptance Model (TAM)

### Result and Discussion

The findings of this study are illustrated in Table 1. There are 70 male respondents and the remaining 116 female respondents with 62.4% and 37.6% respectively.

Table 1. Frequency of the Respondents

Respondents	Frequency	Percent
Female	70	62.4
Male	116	37.6
Total	186	100.0

In this study, a total number of 186 respondents were involved. These respondents are enrolled in the English for Pre-Diploma course and registered users for the English MOOC. They used English MOOC in the classroom as well as during independent online learning throughout the semester.

Table 2. Perceived Usefulness of the MOOC

Perceived Usefulness (PU)	Mean	SD
Using this MOOC in my learning process enables me to accomplish the learning outcome more quickly.	4.12	0.72
Using this MOOC would improve my English proficiency.	4.13	0.71
Using this MOOC in my learning process would increase my knowledge.	4.21	0.67
Using this MOOC would enhance my English proficiency during the learning process.	4.28	0.66
Using this MOOC would make it easier to understand the English language and the learning process.	4.37	0.70
I would find this MOOC useful in improving my English language.	4.40	0.62
Average Mean Value	4.25	0.68

Table 2 shows the findings of the perceived usefulness and ease-of-use of the MOOC which covered the content, language, and technical navigation of the MOOC. The highest mean value with 4.40 (SD=0.62) for the element “I would find this MOOC is useful in improving my English language”. The lowest mean value reported for “Using this MOOC in my learning process enables me to accomplish the learning outcome more quickly” with 4.12 (SD=0.72). Subsequently, “Using this MOOC would improve my English proficiency” has a mean value of 4.13 (SD=0.71), “Using this MOOC in my

learning process would increase my knowledge” with a mean value of 4.21 (SD=0.67), “Using this MOOC would enhance my English proficiency during the learning process” with the mean value 4.28 (SD=0.66), and “Using this MOOC would make it easier to understand the English language and the learning process,” with the mean value 4.40 (SD=0.62).

Table 3. Perceived Ease-of-Use (PEU) of the MOOC

Perceived Usefulness (PU)	Mean	SD
Using this MOOC in my learning process enables me to accomplish the learning outcome more quickly.	4.25	0.78
Using this MOOC would improve my English proficiency.	4.13	0.71
Using this MOOC in my learning process would increase my knowledge.	4.28	0.66
Using this MOOC would enhance my English proficiency during the learning process.	4.37	0.70
Using this MOOC would make it easier to understand the English language and the learning process.	4.21	0.67
I would find this MOOC useful in improving my English language.	4.12	0.72
Average Mean Value	4.22	0.71

Next, in Table 3, the highest mean value for perceived Ease-of-Use (PEU) is 4.37 (SD=0.70) for the “I would find this MOOC would be clear and understandable”. In contrast, the lowest mean value is 4.12 (SD=0.72) for the element “I would find this MOOC easy to use”. Then, “My interaction with this MOOC would be clear and understandable” has a mean value of 4.28 (SD=0.66), followed by “Learning to navigate this MOOC would be easy for me” with a mean value of 4.25 (SD=0.78), “It would be easy for me to become skillful at using this MOOC” with the mean value of 4.21 (SD=0.67), and “I would find it easy to get this MOOC to do what I want it to do” with the mean value of 4.13 (SD=0.71). The average mean value for the perceived usefulness of the MOOC is 4.25 (SD=0.68) which indicates that most of the respondents were likely to extremely agree with the usefulness of the MOOC. Besides, the average mean value for perceived ease-of-use of the MOOC is 4.22 (SD=0.71) which illustrates the almost extreme agreement with the easiness of navigating the MOOC.

A semi-structured interview revealed three themes of the results found in the content, language, and technical aspects of the MOOC. These are the challenges faced by the respondents when navigating the MOOC in the flipped classroom. Two respondents highlighted the need to add the Malay language in the instructions and notes so that they understand the information given. It is important to determine the appropriate level of English to use for a second English language learner (Chadwick, 2012). According to Chadwick (2012), the language that learners use and experience can be divided into three types: Basic Interpersonal Communication Skills (BICS), Classroom Language (CL), and Cognitive Academic Language Proficiency (CALP). BICS is the ability to language appropriately in social situations, CL takes the form of teachers’ instructions, and CALP is the academic language that learners need to understand the content of the lesson. Hence, it is crucial to choose the right language to learn the content of the MOOC thus leading to independent learning (Chadwick, 2012; Eglseer, 2023).

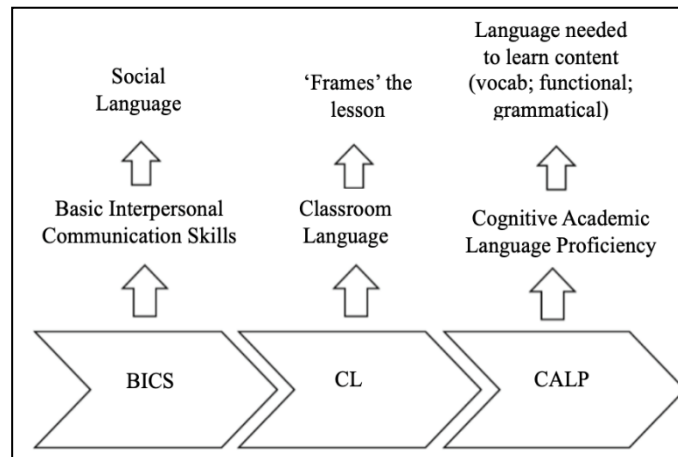


Figure 2. The Language Which Learners Use and Experience (Chadwick, 2012)

These findings are parallel with other studies whereby students frequently felt abandoned in MOOC courses and expressed the necessity for more structure and supervision (Mackness et al., 2010; Kop et al., 2011; Kop, 2011; Bayne & Ross, 2011; Koutropoulos et al., 2012; Ross et al., 2014; Bali, 2013, 2014; Liyanaganawandera et al., 2013; Veletsianos et al., 2015; Eglseer, 2023). These problems led to a low retention rate (Adamopoulos, 2013; Daniel, 2012; Downes, 2010, Lewin, 2013, Kizilcec, et al. 2013; Jagannathan, 2023) which resulted in a low completion rate in MOOC (Stark & Pope, 2014; Montgomery, 2016; Albelbisi & Habibi, 2023). The specific problem was the lack of consensus on what practices for design and development would improve engagement, participation, and completion rates in MOOCs (McAuley et al., 2010). Therefore, addressing the challenges faced by the pre-diploma students in the semi-structured interview would help to design more effective MOOC content that is suitable to their learning needs.

### Conclusion

In conclusion, this MOOC namely English for Pre-Diploma Students has been a great experience for the learners to explore the usage of MOOC in a flipped classroom. Significantly, the respondents suggested dual language in the English MOOC to assist independent learning via MOOC. This recommendation will help MOOC designers to include more options in terms of language for second English language learners to guide ease-of-use when implementing MOOC in the classroom.

This study employed MOOC as a tool in the flipped classroom to improve students' engagement. Hence, these factors should be considered when designing the MOOC guidelines to increase student engagement in terms of precision of instruction and applicability of activities (Henrie, et. al., 2015). In their study, it is evidenced that students can improve their understanding of interaction skills, managerial skills, and calculation concepts. The construction of technology in classroom teaching and learning processes can improve student engagement and learning. As a result, this engagement can lead to student increases in academic performance as students realize their interest in the course subject through technological experience. Another benefit of technology in the classroom also highlighted by Stafford and Stinton (2016) is that students can review content information and ask questions with their teachers at times other than classroom hours, which is the limitation of the traditional classroom. Flipped classroom introduces technology to the traditional classroom setting.

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### Author Contribution

Imelia Laura Daneil –conceptualization, data curation; Tang Howe Eng – data analysis, Jacqueline Susan Rijeng – Literature Review; Kimberley Lau Yih Long – Data collection and Christine Jacqueline Runggol – review and editing

### Conflict of Interest

The authors declare no conflict of interest.

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