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Evaluation of Massive Open Online Course (MOOC) Approach among Undergraduate Students

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Abstract

Massive Open Online Course (MOOC) has received a great interest in teaching and learning approach especially in universities. Learning experience in the period of pandemic COVID19 has caused extensive use of MOOC as the learning resources. This research presents the evaluation through questionnaire survey on the acceptance of MOOC as a blended learning tool among undergraduates in a higher education. The questionnaire adopted from Computer System Usability Questionnaire (CSUQ) was distributed among a sample of 26 users to identify their satisfaction on the developed MOOC. Participant evaluation from the first run of MOOC for the developed course revealed high level of satisfaction among undergraduates with the usability, quality and interface of the MOOC. Improvement towards the initial phase of the developed MOOC shall be done in future especially on the content, assessment and number of practice questions.

Keywords: MOOC, Blended Learning, Development, Satisfaction, Undergraduate

Introduction

Massive Open Online Courses (MOOCs) refer to online courses that are opened to participants for free with no enrolment limit (Razami et al., 2019). MOOCs can be a proper learning platform for online learning for students which are generally equipped with short video lectures, notes, discussion forum, assessment and progress report (Razami et al., 2019.; Shakya et al., 2016). Because of these functions, education and learning during the COVID19 pandemic were able to continue in educational institutions through implementation of MOOCs. Teaching and learning processes are no longer restricted to traditional, face-to-face approaches (Syahid et al., 2021). Ministry of Education Malaysia has anticipated transformation of common undergraduate courses into MOOC to make learning more

accessible and to practice blended learning. Besides meaningful learning experience, MOOCs flexibility and accessibility to provide content anywhere and anytime has make them to gain popularity (Ponnaiah et al., 2022). Knowledge and skills in a subject can also be imparted through online teaching tools such as MOOCs (Ponnaiah et al., 2022). Besides changes in knowledge and skills, attitude, confidence and changes in behaviour, increased excitement about a subject and effects on cultural identity are among the benefits of MOOCs (Blum et al., 2020). Universities and institutions worldwide supported the implementation of MOOCs in order to provide education for all (Chauhan, 2014). The emerging of MOOCs from increasing number of students and courses has opened different variants of MOOCs in institutions.

There are very few studies available on the implementation and satisfaction of MOOCs among undergraduates in Malaysia. This research aims to identify the satisfaction among undergraduate students that have experienced MOOC for Microbiology for Environmental Health in previous semester in the university.

Methodology

This study employed quantitative method through online survey. The sample of this study was undergraduate students from UiTM Cawangan Pulau Pinang Kampus Bertam that has undertaken a developed MOOC for a core subject in previous semester. The pilot phase of the developed MOOC was successfully run among 28 undergraduate students. Purposive sampling involving 28 first year Diploma in Environmental Health students was done as this is an initial study. The samples undertook MOOC for Microbiology for Environmental Health course that the developed MOOC was targeted for. A total of 26 students had participated in the survey which was adopted from the Computer System Usability Questionnaire (CSUQ). The CSUQ has high reliability and can be used as standardised measurements of satisfaction. There were 19 items classified into four categories which include system usefulness category (8 items), information quality (7 items) and interface quality (3 items). CSUQ has been used as universal questionnaires that cover usability criteria including efficiency, effectiveness, and satisfaction. There were 28 items used in the research adopted from Razami et al (2019) measured using a five-point Likert scale anchored on ‘1=strongly disagree’ and ‘5=strongly agree’. The results were analysed using descriptive analysis.

Results and Discussion

MOOC usability evaluations were categorized into three which are MOOC usability, MOOC quality and MOOC interface. Table I presents the MOOC usability. MOOC Usability items measure the degree of effectiveness and satisfaction among students when using the MOOC. The results indicate that respondents were highly satisfied with the developed MOOC as majority of the respondents answered strongly agreed to all items. The response in item 1, 3,5,6, 8 and 9 however showed that some of the respondents were moderately satisfied with the use the MOOC. This was probably because of this being their first time in using MOOC (Razami et al., 2019). In comparison with items, perceptions of the respondents showed positive results which indicated that the MOOC could serve as supplementary tool that can improve and expedite student’s learning process. The developed MOOC was simple, faster to learn subject’s topics, productive and fun learning and provide additional information that can help students to understand better the subject. The results contradicted that many respondents moderately agreed that MOOC meets their need and were uncertain about usefulness of MOOC (Syahid et al., 2021). As the MOOC development differs following

educators' contents, ideas and implementation, the argument therefore is not suitable to be discussed. However, improvement on the developed MOOC should be done following the findings of the survey.

The results indicate that MOOC can help educators to improve teaching methods. Educators who are not familiar with technology should start to practice MOOC as their supplementary learning tool for the students as the Malaysia government for higher education had also encouraged to transform common undergraduate courses into MOOCs and blended learning (Razami et al., 2019).

Table 1
MOOC Usability Evaluation

No.	Items	Likert-scale (1=strongly disagree, 5=strongly agree) N=26 (%)				
		1	2	3	4	5
1	Overall, I am satisfied with how easy it is to use this MOOC.			2 (7.7%)	8 (30.8%)	16 (61.5%)
2	It is simple to use this MOOC.				9 (34.6%)	17 (65.4%)
3	I can learn the topic better when using this MOOC.			1 (3.8%)	10 (38.5%)	15 (57.7%)
4	I can learn the topic faster when using this MOOC.				11 (42.3%)	15 (57.7%)
5	I feel comfortable using this MOOC.			1 (3.8%)	8 (30.8%)	17 (65.4%)
6	It was easy to learn to use this MOOC.			1 (3.8%)	8 (30.8%)	17 (65.4%)
7	I believe I am able to learn the topic productively when using this MOOC.				11 (42.3%)	15 (57.7%)
8	I have fun learning the topic through this MOOC.			1 (3.8%)	10 (38.5%)	15 (57.7%)
9	I can share my knowledge with my friends through this MOOC.		1 (3.8%)		14 (53.8%)	11 (42.3%)
10	I gain additional information from my friends through this MOOC.				11 (42.3%)	15 (57.7%)

11	Overall, I am satisfied with this MOOC.				9 (34.6%)	17 (65.4%)

MOOC quality refers to the extent of user's perception from clear objectives, suitable contents, and assessment. There were 11 items identified in the study to depict the quality of the developed MOOC. Table 2 summarizes the results. Majority of the respondents agreed that duration to complete the MOOC is adequate. The developed MOOC provided 10 topics for the students to complete during the semester. From the response, it shows that the time allocation for teaching videos, quizzes and assessments provided in the MOOC were enough and suitable. According to Alanazi & Walker-Gleaves (2019), students can also attain academic accomplishment through MOOC in more distributed and open learning environments. Assessments provided in the developed MOOC was comprehensive for every topic and could help students to attain good results in examination. Thus, evaluation towards academic accomplishment among the users of the developed MOOC should be carried out in the next research to support the statement.

Majority of the respondents agreed that the MOOC gives messages for students to correct their mistakes except for 3.8% who did not agree. Positive results were achieved on students' satisfaction towards notes and contents, lecture videos and practice questions. Only 7.7% of the respondents dissatisfied on the number of practice questions in the MOOC. Improvement on the aspects can be done following the findings in order to provide better satisfaction for the next users. The satisfaction among respondents were very important to make sure that gain knowledge and skills from the MOOC. It is also agreed that besides increased knowledge and skills, MOOCs able to provide other values for participants (Blum et al., 2020).

Table 2
MOOC Quality

No.	Items	Likert-scale (1=strongly disagree, 5=strongly agree) N=26 (%)				
		1	2	3	4	5
1	The duration it took to complete this MOOC is just right.			3 (11.5%)	9 (34.6%)	14 (53.8%)
2	The MOOC gives me messages for me to correct my mistake.		1 (3.8%)	2)7.7%)	10 (38.5)	13 (50%)
3	Whenever I make a mistake, I can recover easily and quickly.			2 (7.7%)	12 (46.2%)	12 (46.2%)
4	The information provided in this MOOC is clear.			3 (11.5%)	8 (30.8%)	15 (57.7%)

5	The information provided is easy to understand.			2 (7.7%)	9 (34.6%)	15 (57.7%)
6	The content provided meet the requirement of the course syllabus.			1 (3.8%)	8 (30.8%)	17 (65.4%)
7	The content is well-organized.				9 (34.6%)	17 (65.4%)
8	The video lecture provided is useful for me.				13 (50%)	13 (50%)
9	The notes provided are useful for me.				10 (38.5%)	16 (61.5%)
10	The practice questions are useful for me.				8 (30.8%)	18 (69.2%)
11	The practice questions are clear and easy to understand.				12 (46.2%)	14 (53.8%)
12	The number of practice questions are enough.		2 (7.7%)		9 (34.6%)	15 (57.7%)
13	The hints given when I got incorrect answer are helpful.			3 (11.5%)	9 (34.6%)	14 (53.8%)
14	This MOOC is effective in helping me learn the topic.				9 (34.6%)	17 (65.4%)

Three items were identified in the questionnaire to identify the satisfaction of respondents towards the MOOC interface. Table 3 indicated that majority of the respondents strongly agreed that the interface of the developed MOOC was pleasant. The respondents also like using the interface of the MOOC and that it has all functions and capabilities expected.

Table 3
MOOC Interface

No.	Items	Likert-scale (1=strongly disagree, 5=strongly agree) N=26 (%)				
		1	2	3	4	5
1	The interface of this MOOC is pleasant.			3 (11.5%)	9 (34.6%)	14 (53.8%)
2	I like using the interface of this MOOC.			3 (11.5%)	9 (34.6%)	14 (53.8%)
3	This MOOC has all the functions and capabilities I expect it to have.			3 (11.5%)	9 (34.6%)	14 (53.8%)

The positive perceptions and satisfaction towards the developed MOOC in this study indicated that respondents were fully aware of usability of the MOOC and acknowledging the potential and benefits for their learning. MOOCs are relevant for undergraduate students to benefit from online and blended learning practices in higher education besides cheap and free access to education (Syahid et al., 2021). Students can enroll in MOOC anytime and anywhere in which the materials can be learned by using smartphone as well (Shakya et al., 2016). Alanazi & Walker-Gleaves (2019) had also agreed that although it was the first-time students using MOOCs as teaching method, there were no negative issues aroused from it. Thus, it could be said that implementation of the developed MOOC was a success and should be continued to be used as a teaching approach.

Conclusion

The purpose of the study was to identify the satisfaction of respondents on the developed MOOC from the usability, quality, and interface. From the results, it was identified that the respondents had high satisfaction on the three categories of items of the developed MOOC. However, there are still room for improvement especially on the usability and quality of the MOOC. The results obtained from the study will be used to improve the MOOC content especially on the assessments and number of practice questions.

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