

## **Students' Acceptance of Usage in Massive Open Online Course (MOOC) in Universiti Tun Hussein Onn Malaysia**

**Arihasnida Ariffin<sup>1\*</sup>, Noor Azreen Jemuri<sup>2</sup>, Norhasyimah Hamzah<sup>3</sup>,  
Tamil Selvan Subramaniam<sup>4</sup> & Siti Nur Kamariah Rubanis**

<sup>1,2,3,4,5</sup>Fakulti Pendidikan Teknikal dan Vokasional, Universiti Tun Hussein Onn Malaysia  
hasnida@uthm.edu.my

Received: 20 September 2018

Received in revised form: 3 October 2018

Accepted: 15 October 2018

Published: 1 November 2018

### **ABSTRACT**

Massive Open Online Course (MOOC) is the latest technology medium that offers lifelong learning in open access with unlimited participation. The purpose of this study is to identify the students' acceptance of usage in MOOC at Universiti Tun Hussein Onn Malaysia (UTHM). There are four domains that are studied including perceived of usefulness (PU), perceived ease of use (EU), user satisfaction (US) and attribute of usability (AU) in MOOC applications. The selected sample consisted of 155 students at Faculty of Civil Engineering and Environment, UTHM, which took the course of Hydrology. This study employed the quantitative research design which includes the use of a Likert - scale questionnaire. Data were analyzed using descriptive analysis. The results showed that the mean values of the four domains of the students' acceptance of usage in MOOC application are moderate. Overall, mean value of the perceived ease of use (EU) in MOOC applications is higher compared to the other domains. In general, the finding reveals positive response towards the MOOC implementation among university students at the higher education. Using MOOC in teaching and learning is a suitable platform that needs to be expanded at UTHM in line with global technological developments in education.

### **Keywords**

Massive Open Online Course (MOOC), perceived of usefulness (PU), perceived ease of use (EU), user satisfaction (US) and attribute of usability (AU)

### **Introduction**

The Malaysian Institute of Higher Education (IPT) is recommended online learning to the global level in line with the launch of the Malaysia Education Blueprint (Higher Education) 2015-2025. The Ministry of Education aims to make online learning a basis for the curriculum by aggressively encouraging the Massive Open Online Course (MOOC) in every IPT in Malaysia. Therefore, the MOOC which is an evolution of teaching and learning applications in global education is employed. The use of MOOC in teaching and learning is a platform that needs to be expanded. This is in line with the country's e-learning basic vision and mission that seeks to transform towards global competitiveness through e-Learning (Sahib, 2014). Additionally, it also offers quality, and opportunities through e-learning. In addition, with the implementation of the MOOC, e-learning technologies are increasingly being able to implement the teaching and learning process without limitation.

The development of technology, especially the evolution of the internet, has challenged the concepts and theories of traditional education, especially to classroom concepts and teaching and learning (Hunt, 2004; Resnick & Wirth, 1996). Technology also transforms generations and forms of social relationships (Talesra, et al., 2003) when enhanced "software" programs actually increase interactivity, enhance communication, enhance adaptability, enhance sharing and enhance the learning experience (Wati, 2008; Robertson, 1992). Internet technologies, for example, allow students to connect with no time limit and geography (Deore, 2012).

MOOC is one of the online teaching and learning applications. The Ministry of Education's intention to make online learning as the basis of the curriculum with aggressive encouragement to MOOC received the response from many public universities including UTHM. Faculty of Civil and Environmental Engineering, UTHM has developed three

courses using MOOC's application in teaching and learning. However, the use of MOOC in the teaching and learning process is still new and the students' acceptance of the MOOC application in teaching and learning has not been identified. Therefore, this study was conducted to identify the students' acceptance of MOOC application in UTHM.

## **Background of the Study**

Teaching and learning using technology are still limited among educators as not all educators have been trained and proficient to use them (Ebrahimi and Jiar, 2018). This was supported by Norizan (2005) in his study that the majority of educators did not have good computer skills, the basic knowledge of using Microsoft Word, Microsoft Excel and Microsoft PowerPoint software clearly showed that teachers still needed guidance. Research by Zainudin and Muhammad Azam (2011) found that training or courses using computers and the internet may be required by educators so that computers can be fully utilized for the purpose of the teaching and learning process. Additionally, the skills of using such technology can be used by educators to diversify teaching methods such as using online learning mediums. According to Khan (2005), online learning is seen as a student-centered approach and learning facility suitable to anyone, anywhere and anytime. He also agree that information technology-based sources of information on learning materials are open-minded, flexible and consistent. Based on the problems arising, this study was conducted to identify the students' acceptance of the MOOC application at UTHM.

The findings of the study by Nadwa (2007) show that in a more teacher-centered learning process, chalk and talk results in the knowledge delivered not fully accepted by the students. The study found that the use of information technology will help increase students' understanding and empowerment toward the courses learned (Dori and Belcher, 2005; Darling-Hammond et al., 2014). The study by Dori and Belcher (2005) also found that students using information technology applications had a better understanding of concepts than students who did not use the application.

Additionally, the conventional teaching pattern is one of the contributors to the weakness of students (Jeniri, 2007). Teachers need to improve the quality of their teaching and learning in line with the current educational challenges by exposing students to teaching aids which can help to understand and help students towards more meaningful learning (Rahim and Hayazi, 2010). In addition, high-risk students to fail in the study are also encouraged to learn with information technology support (Darling-Hammond et al., 2014). The use of information technology can also help lecturers handle large classes with large number of students in one classroom (Lass et al., 2007). Information technology is seen to have a positive impact on the students, especially in terms of motivation and teaching and learning (Fook and Sidhu, 2007; Razak 2013). According to Norazah and Hong (2009), the use of technology in teaching and learning gives new implications more effectively in teaching and learning and contributes to the effectiveness of education.

Changes in the teaching and learning process should be done to improve quality and disseminate dissemination in line with the advancement of information technology in education. Asniza and Zaidatun (2011) say that the integration of social networking tools utilized by skilled teachers will enhance student learning and facilitate the development of lifelong skills such as collaboration, creative thinking and knowledge building. Zahiah and Razaq (2005) point out that online learning is one of the simulations that allows students to experience real learning experiences and interact with other individuals without having to face each other. The purpose of this study was to identify students' acceptance of the MOOC application at UTHM. This study emphasizes on four domains that have to be studied, which are, perceived of usefulness (PU), perceived ease of use (EU), user satisfaction (US) and attribute of usability (AU) in MOOC applications.

## **Methodology**

This study is a descriptive study to identify students' acceptance of the MOOC application at UTHM. The researcher used a questionnaire to obtain feedback from respondents. According to Azizi et al., (2007), the questionnaire is an instrument used frequently in descriptive studies because through this method the collaboration of the respondents is easy to obtain. The questionnaire emphasizes four key aspects of the user's perceived of usefulness (PU), perceived ease of use (EU), user satisfaction (US) and attribute of usability (AU) in MOOC applications. Alpha Cronbach value for this questionnaire was 0.936. Based on Mc Milan and Schumaker (1984), the alpha values within the range between the values of 0.70 to 0.90 are acceptable ranges to ensure and enable research instruments to be used in research.

The population of this study consists of students of the Faculty of Civil and Environmental Engineering, UTHM. The selection of 155 students was due to the respondents who attended Hydrology Course (BFC21201), the course developed using the UTHM MOOC application.

## Finding and Discussion

### Perceived of Usefulness

Table 1 shows descriptive statistic for the first construct. Perceived of usefulness is defined as the degree to believe that education in higher education will improve by using Massive Open Online Course (MOOC). The measurement of perceived of usefulness comprises of five items modified to suit the context of this study.

**Table 1.** Perceived of usefulness

Construct	Measured Item	Mean	Standard Deviation
Perceived of Usefulness	PU1: MOOC will help to get the information of the learning content quickly	3.07	0.704
	PU2: MOOC allows to access information outside of the classroom	3.10	0.685
	PU3: MOOC is useful in the rapid retrieval of information from lecturer	3.01	0.688
	PU4: MOOC will save the time of teaching and learning	3.05	0.691
	PU5: MOOC will improve learning performance	3.04	0.720

Table 1 shows the mean score and the standard deviation of items referring to the MOOC application. The highest mean value is 3.10 and the standard deviation is 0.704 which is for item PU2 (MOOC allows to access information outside of the classroom). The lowest mean value is 3.01 and standard deviation of 0.688 which is for item PU3 (MOOC is useful in the rapid retrieval of information from lecturer). Overall, student acceptance of MOOC application ease of use is at a moderate level.

The results of the first study showed that the students' acceptance of MOOC application at UTHM was moderate to the whole item. This is evident when some students agree that it is easy for them to learn to operate and be proficient with the MOOC app. According to Shiung (2007), online e-learning sessions are very easy to update as the latest content can be uploaded to a server computer as needed. The findings also show that some students agree that they can complete the task quickly with MOOC. Scott and Ryan (2009) in their study found that online members are involved in discussions and interact effectively when they have set appropriate tasks.

The next findings show that some students agree that their interaction with the MOOC app is clear and easy to understand. In online interaction, students will perform four types of interaction: interaction between student and student, student interaction and instructor, interaction between student and learning materials and interaction between student and interface (Said and Tahir, 2013). Student interaction with MOOC app is the kind of interaction between the student and the interface. Interactions between students and the interface are very important because the online and easy-to-use online learning interface will be able to attract students to actively participate in online learning. According to Said and Tahir (2013), the level of student participation can be measured using two categories, namely active and passive participation. The student's active participation can be measured based on the number of posts made in the discussion group while the passive participation can be measured based on how often the students see the posts available in the discussion group.

The findings also show that some students agree that MOOC is flexible for interaction. This can be attributed to past studies that online learning is more relevant, flexible and gives students the freedom to start learning at any time based on their personal needs as well as their commitment to their family, work and social life (Abas, 2009; Rozinah 2007; Rosenberg 2001; Talesra et al. 2003, Smith and Regan, 1993). In conclusion, students' acceptance of MOOC application at UTHM is at a moderate level but needs to be improved to ensure the smooth implementation of the course using the MOOC app.

### Perceived Ease of Use

Table 2 shows descriptive statistic for the second construct. Perceived of ease of use is defined as the degree to which to believe that using Massive open Online Course (MOOC) improves the quality of education in higher

education. The measurement of perceived of ease of use contained five items modified to suit the context of this study.

**Table 2.** Perceived of ease of use

<b>Construct</b>	<b>Measured Item</b>	<b>Mean</b>	<b>Standard Deviation</b>
<b>Perceived of ease of use</b>	<b>EU1:</b> Learning to operate MOOC would be easy for me	3.22	0.637
	<b>EU2:</b> I would find it easy to get MOOC to do what I want it to do	3.27	0.638
	<b>EU3:</b> My interaction with MOOC would be clear and understandable	3.19	0.653
	<b>EU4:</b> I would find MOOC to be flexible to interact with	3.16	0.650
	<b>EU5:</b> It would be easy for me to become skillful at using MOOC	3.09	0.697

Table 2 shows the mean score and the standard deviation of items that refer to the benefits of using the MOOC app. The highest mean value is 3.27 and the standard deviation is 0.638 which is for item EU2 (I would find it easy to get MOOC to do what I want it to do). The lowest mean value is 3.09 and the standard deviation is 0.697 for item EU5 (It would be easy for me to become skillful at using MOOC). Overall, student acceptance of the benefits of using the MOOC app is at a moderate level.

The results of the second study showed that students' acceptance of the benefits of MOOC application at UTHM was moderate to the whole item. This can be seen when some students agree that MOOC helps them to get learning content information quickly. Through internet and applications built on it, students can also acquire teaching materials and communicate with lecturers (Min et al., 2012). Even teaching materials can be managed and shared with students more systematically (Mat-Yamin et al., 2014; Wan-Ishak et al., 2014).

The findings also show that some students agree that the MOOC application allows them to access information outside the classroom. Students with internet connection influence the frequency and ability to access online learning (O'Connor, et al., 2003). According to Ismail (2003), in diversifying the usage strategy, students can access the material and learn it according to their own level and time. The findings of the next study show that some students agree that the MOOC application is useful in obtaining quick information from lecturers. According to Suhanom (2004), students increasingly tend to seek the information needed through electronic-based facilities due to the widespread and rapid dissemination of information. According to Shiung (2007), students can access all learning information materials simultaneously.

The findings also show that some students agree that the MOOC application saves time teaching and learning. According to Noor Azliza, Lilia Halim (2002), multimedia technology has vast potential for improving the quality and efficiency of the teaching and learning process. The findings also show that some students agree that the MOOC application can improve learning performance. Hanna and Wilsom (2002) in their study found that students who participated in online class led the students in traditional learning. In conclusion, students' acceptance of the benefits of MOOC application at UTHM is at a moderate level but needs to be improved to ensure the smooth implementation of the course using the MOOC app.

## User Satisfaction

The results in table 3 shows the descriptive statistic for the third construct which is on user satisfaction. It refers to the degree of experience in a variety of situations and it is also connected to MOOC. It is a highly personal assessment that is greatly affected by user's expectations. The measurement of user satisfaction contained five items and modified to suit the context of this study.

**Table 3.** User Satisfaction

<b>Construct</b>	<b>Measured Item</b>	<b>Mean</b>	<b>Standard Deviation</b>
<b>User Satisfaction</b>	<b>US1:</b> I completely satisfied in using the MOOC	2.97	0.495
	<b>US2:</b> I feel very confident in using the MOOC	2.89	0.689

<b>US3:</b> I found it easy to share information using MOOC	3.07	0.571
<b>US4:</b> I can accomplish the task quickly using this procedure	3.03	0.711
<b>US5:</b> I believe that from using MOOC will increase the learning quality	3.01	0.655

Table 3 shows the mean score and the standard deviation of items that refer to user satisfaction on the use of the MOOC app. The highest mean value is 3.07 and the standard deviation is 0.571 which is for item US3 (I found it easy to share information using MOOC). The lowest mean value is 2.89 and the standard deviation is 0.689 which is for item US2 (I feel very confident in using the MOOC). Overall, user satisfaction on MOOC application usage is at a moderate level.

The results of the third survey showed that the students' acceptance of consumer satisfaction in using MOOC application in UTHM was moderate to the whole item. This can be seen when some students agree that they are satisfied with using the MOOC app. The study conducted by Ahmed Thalal, Ahmad Zaki, Ahmad Nor and Mohd Shahrman (2014) noted that the use of online applications such as developing a website is not only more attractive to the students but also suitable for the R & D process especially in the third language based on the functions provided in the the online application. However, the findings also show that some students are not sure of using the MOOC app. Students who take the course from the free MOOC portal are worried about having a low level of motivation. Additionally, based on the report presented by edX (2012) as cited by O'Connor (2014) shows that a large number of free online course participants are more likely to only visualize the teaching and learning materials loaded on the portal as compared to completing a course to obtain a certificate of completion of the course. The next findings show that some students agree that it is easy for them to share information using the MOOC app. This finding coincides with the original MOOC goal of improving the level of networking between students and the surrounding community as suggested by Siemens and Downes (2011). The findings also show that some students agree that using the MOOC app will improve the quality of their learning. Salabery (2001) finds that the impact of technology development in teaching can improve students' attitudes towards learning in and out of the classroom. In conclusion, student acceptance of consumer satisfaction in using MOOC application at UTHM is at a moderate level but needs to be improved to ensure the smooth implementation of the course using the MOOC app.

### Attribute of Usability

Table 4 shows descriptive statistic for the last construct. Attribute of usability refers to attempt in connecting the gap between human's goals and MOOC. This was done by introducing the students with interactive MOOC and observing their performance. The measurement of attribute of usability comprises of five items modified to the context of this study.

**Table 4.** Attribute of Usability

<b>Construct</b>	<b>Measured Item</b>	<b>Mean</b>	<b>Standard Deviation</b>
<b>Attribute of Usability</b>	<b>AU1:</b> It easy to interact with MOOC	3.01	0.645
	<b>AU2:</b> The procedure through MOOC on learning content	3.07	0.604
	<b>AU3:</b> I found it easy to decide which the case need to be	3.09	0.638
	<b>AU4:</b> I found the various functions in this MOOC were well integrate	3.08	0.679
	<b>AU5:</b> I think that I would like to use this MOOC	3.10	0.656

Table 4 shows the mean score and standard deviation of items referring to the application usability MOOC. The highest mean value is 3.10 and standard deviation is 0.656 which is for item AU5 (I think that I would like to use this MOOC). The lowest mean value is 3.01 and the standard deviation is 0.645 which is for item AU1 (It is easy to interact with MOOC). Overall, student acceptance of MOOC application usability is at the moderate level.

The results of the fourth study showed that the students' acceptance of MOOC application in UTHM was moderate to the whole item. This can be seen when some students agree that the use of the MOOC app facilitates their interaction. These findings have similarities in the study conducted by Gray and Xiaoli (2001), where students are free to communicate and do not feel confined, not alienated and they are not afraid or worried about connecting to friends through internet.

The findings also show that some students agree that the content in the MOOC helps their learning. In addition to communication and material sharing, the study also found that the use of information technology will help improve students' understanding of the courses (Dori and Belcher, 2005; Daring-Hammond et al., 2014). The study by Dori and Belcher (2005) also found that students using information technology applications had better understanding of concepts than students who did not use the application. The next findings show that some students agree that it is easy for them to make decisions that need to be done using the MOOC app. This can be attributed to the study of Sutherland (2002) that students using online technology can read their learning suitability and style. The findings also show that some students agree that various functions in the MOOC application have been well integrated. Technology also changes the perceptions of the generation and the form of social relationships when the software program is enhanced, it actually enhances interactivity, communication, adaptability, sharing and the learning experience (Zoraini, 2008). The findings also show that some students agree that they want to use the MOOC app. According to Faridah et (2012), the findings of the previous study showed that students agreed that encouragement from lecturers convinced the students to use e-learning and this indicated that the role of lecturers was crucial in improving the effectiveness of e-learning. In conclusion, students' acceptance of MOOC applications at UTHM is at a moderate level but needs to be improved to ensure the smooth implementation of the course using the MOOC app. The results of the analysis obtained from question 16 to 20 have answered the question of the fourth study.

## Conclusion

In conclusion, the results show that the four objectives set out at the beginning of the study have been achieved. This study was able to identify the acceptance factors of the students on the use of MOOC applications. The results showed that the acceptance of the students on the aspect of consumer satisfaction in using MOOC application in UTHM was a factor to be addressed in which some students feel less confident in using the MOOC app. This is because MOOC application usage in teaching and learning is still new among students. In addition, there are among students who still do not know the existence of the MOOC app. Therefore, the use of the MOOC application in teaching and learning is a platform that needs to be expanded in UTHM in line with the development of global technology in education. This is because MOOC embraces lifelong learning elements and provides easy access to individuals widely. In addition, this global graduate learning also needs to be applied in education in our country to leverage the use of internet access to something more scientifically and offer diverse learning in accordance with individual tendencies.

## Acknowledgment

This research was partially supported by Universiti Tun Hussein Onn Malaysia, Johor, using Short Term Grant (U646). We thank our colleagues from focus group Education Technology, who provided insight and expertise that greatly assisted the research.

## Reference

- Abas, Z. W. (2005). E-learning: Potential and challenges for Malaysian institutions dalam e-learning: Issues and challenges. Universiti Malaysia Sabah.
- Abas, Z. W. (2008). Globalisation of education through open distance learning. Globalisation and internationalisation of higher education in Malaysia. Pulau Pinang: Penerbit Universiti Sains Malaysia.
- Amiruddin, A. Z., Hassan, A. T., Rahman, A. A., Rahman, N. A., Bakar, M. S. A. (2014). Use of online application in the third language teaching and learning process: Introduction to quizlet.com. Proceedings of the International Seminar of the 2014 National Insidency Insan (INSAN 2014) Batu Pahat, Johor, 9-10 April 2014.
- Asniza, M. & Tasir, Z. (2011). Implications of social networking tools against teaching and learning process.
- Atenas, J. (2015). Model for democratisation of the contents hosted in MOOCs. *Universities and Knowledge Society Journal*, 12(1), 3-14.
- Azliza, N. & Halim, L. (2002), Learning design and effectiveness assisted multimedia constructivist approach for science KBSM,

*Journal Technology*, Universiti Teknologi Malaysia, 19-38.

Dalalalan, A. F. (2006). Use of technology in engineering learning electricity in polytechnic Malaysia. Universiti Tun Hussein Onn Malaysia. Master Thesis.

Daniel, S. J. (2013). Making sense of MOOCs. Taylors University, Malaysia.

Darling-Hammond, L., Zieleszinski, M. B., Goldman, S. (2014). Using technology to support at-risk students' learning. Technical Report. Alliance for Excellent Education: Washington.

Deore, K.V. (2012). The educational advantages of using internet. *International Educational E-Journal*, 1(2), 111-112.

Dori, Y. J. & Belcher, J. (2005). How does technology enabled active learning affect undergraduate students' understanding of electromagnetism concepts? *The Journal of Learning Sciences*, 14(2), 243-279.

Ebrahimi, S. S. & Jiar, Y. K., (2018). The Use of Technology at Malaysian Public High Schools, Merit Research Journal of Education and Review. 6(3), 54-60.

Fook, C. Y. & Sidhu G. K. (2007). Information technology roles against increased motivation of learning among university students. *MEDC Journal*, Vol 2.

Hamdan, A. R., & Yasin, H. M. (2010). Use of tools teaching (ABM) among technical teachers at the technical school district of Johor Bahru, Johor. Faculty of Education, Universiti Teknologi Malaysia.

Hunt, L. (2004). Creative e-transition. In E-education Applications: Human Factors and Innovative Approaches. (Claude Ghaoui, editor). UK: Idea Group Inc.

Karoulis, et al. (2004). An expert-based evaluation concerning human factors in ODL programs: A preliminar investigation. In E-education Applications: Human Factors and Innovative Approaches. (Claude Ghaoui, editor). UK: Idea Group Inc.

Khan, B. H. (2005). Designed and developed e-learning for program evaluation. U.S. Department of Energy. Washington, D.C.

Malaysia Education Ministry. (2011). National elearning policy higher education institutions. Putrajaya: The Ministry of Higher Education  
Kenneth, G. C. & Cao, X. (2001). Computer and internet usage in education: theories, practice and research basics, *Journal Educational Technology System*, 29(1) 41-48.

Malaysia Education Ministry. (2015). Executive summary of development plan Malaysia education 2015-2025 (Higher Education). Putrajaya: Ministry of Education Malaysia.

Mat-Yamin, F., Wan-Isaac, W. H., & Ibrahim, A. (2014). Students acceptance on document sharing through online storage system. Proceedings of the 6th International Conference on Education and Information Management (ICEIM-2014), 68-73.

Min, K. S., Mat-Yamin, F., and Wan-Isaac, W.H. (2012). Design, purpose of usage and the impact of LMS on student learning: A preliminary findings. Proceedings of the 6th Knowledge Management International Conference 2012, 673-676.

Nadwa, K. (2007). Learning effect based inquiry (Pbi) through the web on the students' performance and perception in level physics subjects university. Universiti Sains Malaysia.

Nordin, N. & Hong, N. C. (2009). Material development and evaluation web-webquest teaching and learning for subjects ICT (Development and evaluation of webquest for information and communication technology subject). *Journal of Education Malaysia*, 34(1), 111-129

O'Connor, F. (2014, January 23). Edx enrollment data shows online learners are more browsers than finishers. Retrieved from <http://www.cio.com/article/print/746978>

Razak, R. A. (2013). Active online collaborative learning strategies in the Malay novel analysis. *Asia Pacific Curriculum & Teaching Journal*, 1(3), 34-46.

Resnick, L. B & Wirth, J. G. (1996). The Changing of Workplace: New Challenges for Education Policy and Practice. San Francisco: Jossey-Bass Publishers.

Rosenberg, M. J. (2001). E-learning: Strategies for Delivering Knowledge in the Digital Age. New York, NY: McGraw-Hill.



Said, M. H., & Mohd, T. L. (2013). Towards identification of students' holistic learning process through Facebook in higher education. *Procedia-Social and Behavioral Sciences*, 97, 307-313.

Scott A. and Ryan J. (2009). Digital literacy and using online discussions: Harvey from the cohort of great teaching in teacher education. In comparative information technology globalization, comparative education and policy research, 4, 103-120, DOI: 10.1007/978-1-4020-9426-2\_8.

Sahib, S. (2014). Council of vice-chancellor of Universiti Teknikal Malaysia Melaka 2014, Universiti Teknikal Malaysia Melaka.