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## The Design and Evaluation of a Mooc Islamic Prayers Learning Module

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### Abstract

The purpose of this study is to design and evaluate a learning module for Islamic prayers which was developed based on the framework of the Massive Open and Online Course (MOOC) approach. The research methodology of this study was based on the design and development of the research method proposed by Richey and Klein (2007) and the evaluation strategy developed by Branch (2009). The Malaysian MOOC Development and Delivery Guidelines of the Ministry of Higher Education Malaysia was employed as the instructional design guideline in developing the learning module. The evaluation of the learning module was carried out through a survey involving 30 local undergraduate students. The analysis of their responses showed the level of their acceptance of the learning module was relatively high, as evidenced by the high ratings for factors that influence the use of the module, namely perceived usefulness, perceived ease of use, interaction, content, attitudes toward use, and intention to use. Collectively, these factors have a significant impact on the success of the implementation of MOOC learning modules, and, therefore, it becomes imperative for applications developers or instructional designers to adhere to good design principles, best practices, and guidelines (such as the Malaysian MOOC Development and Delivery Guidelines) in developing effective learning modules.

### Introduction

As acknowledged, the Covid-19 pandemic which has hit the world since November 2019, bringing in many problems and challenges that have severely affected the lives of many people throughout the world. It has virtually affected every sphere of the human life, such as public health, economy, social, politics, and education (Zhu & Liu, 2020; Osman, 2020). To date, the lack of vaccines has led many nations to implement drastic strategies to curb the spread of the various strains of the Covid-19 virus. For example, in education, many countries in the world have decided to close all institutions of learning, such as schools, colleges, and universities, as one of the strategies to prevent the spread of this contagious, deadly disease among their citizens (Burges & Sievertsen, 2020; David, Pellini, Jordan & Philips, 2020).

According to the *United Nations Educational, Scientific, and Cultural Organization* (UNESCO) data, as of May 3, 2020, nearly 1.2 billion students and youth worldwide were affected by the closure of schools and universities due to the outbreak of COVID-19 infections, which signifies a grave problem as the number of students affected represented 70% of the student population in the world (UNESCO, 2020). Specifically, more than 190 countries had closed all schools and universities (Psacharopoulos, Patrinos, Collis & Vegas, 2020), making more than 1.5 billion students in the world without access to formal education. Based on the lessons learned from previous pandemics, such as Ebola, such closures will have a huge impact on the people's socio-cultural activities, especially students who will be deprived of education that can lead to depression, anxiety, and a lack of motivation to continue learning in this difficult time (Pellini, David & Jordan, 2020; Beaunoyer, Dupere & Guitton, 2020).

Inadvertently, the impact of the Covid-19 pandemic has adversely affected not only formal educational activities but also other important human activities, such as religious activities carried out in religious institutions like mosques and churches (Latifah, 2021, Suraya, 2020). Admittedly, the suspension of both types of activities has caused apprehension and dissatisfaction among the members of the communities. Faced with these challenges due to the Covid-19 pandemic, they have to resort to other viable, practical alternatives to continue learning, which invariably involve the use of a wide spectrum of technologies, especially the Internet and mobile technology, such as smartphones (Wang & Zhu, 2019).

The use of such technologies has become pervasive over the recent years, which has been spurred by the rapid growth of internet-enabled mobile devices. In the Malaysian context, a study by the Malaysian Multimedia Communications Commission showed that the penetration rate of smartphone use in Malaysia was 78.0% at the end of 2018 (Malaysia Communications and Multimedia Commission, 2018), which created a highly conducive environment for online learning through mobile devices and internet facilities. Currently, one of the online learning technologies to support virtual teaching and mobile learning via mobile devices is the *Massive and Open Online Course* (MOOC) technology (Stohr, 2017; Sharples et al., 2015).

In principle, MOOC or *Large Scale Online Course* is a learning system based on open concepts and large-scale web-based learning supported by the cloud computing technology (Deng, Benckendorff, & Gannaway, 2019), enabling people, irrespective of their gender, educational background, location, and age, to pursue learning using the Internet transcending time and place (Deng et al., 2019). In recent years, the use of MOOC in course offerings at the tertiary level has witnessed a steep increase (Tseng et al., 2019). This is best exemplified by Shah and Cheng's (2018) report that showed that over 900 universities worldwide had offered 11,400 courses through various MOOC platforms in 2018, which saw the number of students pursuing studies with such a platform had increased by almost 100 million (Shah & Chang, 2018). Also, the same report showed the demography of those using MOOCs among students in developed countries was more diverse than those of developing countries (Ma & Lee, 2017).

A number of surveys have shown that the use of MOOCs can have a significant impact on student learning of many learners around the world. These surveys also showed that most of the MOOC courses have been developed to support formal education at the tertiary level (Shah & Cheng, 2018). By contrast, the use of MOOCs for non-formal education, which typically takes place outside the formal classroom, is still lacking (Mrhar et al., 2017). Given

this lack of use, it is, therefore, appropriate to carry out studies that focus on examining the impact of MOOCs on non-formal education.

The non-formal education system used by the Muslim community in Malaysia has its genesis that can be traced back to the time of the Sultanate of Malacca (Abdul Hamid, 2018). Today, such teaching is delivered in mosques involving lectures, sermons, discussions, forums, recitations and memorization of the holy Koranic verses, debates, and *halaqah* (Mohd Nor & Wan Othman, 2011). In particular, the curriculum of non-formal education delivered in mosques is primarily focused on the teaching of basic Islamic knowledge, including *tawhid* (the study of monotheism), *fiqh* (Islamic jurisprudence), al-Quran, and the history of Islam. For the learning of *fiqh*, the focus is on the learning of fundamental obligatory daily prayers, fasting, pilgrimage, and tithe, with the former being given a stronger emphasis as prayers are one of the five pillars of Islam (Mustofa et al., 2011).

Despite its importance as one of the Islamic pillars, studies have shown that some Muslims have not fully observed this tenet by failing to perform the obligatory five daily prayers (Hasna, 2016; Faridah, 2016; Jamaliah et al., 2017; Suhaily et al., 2018). To make matters worse, this situation is further exacerbated when both formal and informal learning have been interrupted due to the Covid-19 pandemic. As such, lies in the need to utilize available technological resources to ensure the members of the Muslim community can continue to engage in Islamic teaching, such as the learning of daily prayers, in this challenging time. In this regard, MOOC can be used to host and deliver appropriate online learning modules with which the Muslim adherents can learn the basic Islamic principles and rules with ease.

## Literature Review

### MOOC

Inevitably, the concept of distance learning has evolved through several phases, first from blended learning to open source learning and then to MOOCs (Kennedy, 2014). According to Daradoumis et al. (2013), MOOCs support learning through the production and dissemination of learning materials over the internet for free, which serves as the foundation of MOOC that was conceptualized from the Open Educational Resources (OER) and Open Courseware Web (OCW) initiatives. In essence, according to Fini (2009), MOOCs consist of three main features as follows: (a) The use of open technology and open software for education, (b) The sharing of open resources or learning materials, and (c) The sharing of open knowledge and educational practices between students and instructors. On the other hand, according to Gardner and Brook (2018), MOOCs are characterized by five main features or attributes as follows: (a) online course sites, (b) open, (c) co-participation, (d) distribution, and (e) self-directed learning. Specifically, the course sites of MOOCs provide opportunities for students and instructors to connect, collaborate, and be actively involved in the learning process, while 'open' refers to the situation in which learning materials are made free and open to all. Whereas, 'participation' means that students are a part of the course by engaging with other students. Also, MOOC courses have a distributional feature that is flexible and cross-border and that supports multiple channels which allow users to access learning materials anytime, anywhere.

As revealed in a review of the current literature, in the last decade there have been two types of MOOC models offered by the institutions of higher learning around the world, namely constructivist MOOC (cMOOC) and extension MOOC (xMOOC). The former is the earliest model that was developed to offer a computer networking learning course at the University of Toronto (Siemens, 2012). The latter was introduced in 2011 by Sebastian Thrun and Peter

Norvig at the Stanford University (Alevitzou, 2015). The main difference between cMOOC and xMOOC is the learning theory that underlies each model. For example, the foundation of cMOOC rests on the constructivist theory in networking, while the cognitive-behavioural theory serves as the cornerstone of xMOOC (Admiraal, Huisman & Pilli, 2015). To date, almost all institutions of higher learning have been using the xMOOC model to host and deliver courses through the Coursera, EdX and Udemy platforms (Armstrong, 2012). Over the recent years, a number of studies have shown that the use of MOOCs has made a significant contribution to the educational democratization efforts (Ma, Lee, & Kuo, 2013). For instance, over the last 10 years, millions of individuals around the world have been using MOOCs to learn a diverse range of fields and knowledge (Margayan et al., 2015).

Viewed from the pedagogical perspective, Toven-Lindsey, Rhoads, and Lozano (2015) assert that most of the learning strategies applied in MOOCs are mainly based on student-centered methods, which, according to Margayan, Bianco, and Littlejon (2015), have been widely used by most of the world's leading MOOCs service providers, including Coursera, EdX, Udemy, and Udacity. Moreover, it was observed that these MOOC service providers have been using videos as the main instructional medium in delivering teaching materials. It was also revealed that communication between students and teachers and among students themselves has been carried out primarily through discussion forums, announcements on a course site, emails, and social media. Also, online quizzes, tests, and peer-reviewed assignments have been used to assess students' performances. As such, these characteristics or features help make MOOCs a practical, suitable teaching medium for the teaching practitioners of non-formal educational institutions, such as mosques and churches, to conduct online religious classes.

### **Research Objective**

This study aims to design, develop, and evaluate the efficacy of a prayers learning module delivered through the *Massive Open Online Course* (MOOC) platform. Specifically, the evaluation of this module was focused on user acceptance in terms of perceived usefulness, ease of use, and attitude toward the use of such a learning module.

### **Research Methodology**

The research methodology of this study was based on the Design and Development Research method proposed by Richey and Klein (2007) involving analytical design, development, application, and evaluation (Branch, 2009). The analysis of the course contents was carried out based on several relevant Islamic references and sources, such as the Holy Koran, *Sunnah* (Prophetic traditions), *Ijmak*, and *Qias* (Mustafa et al., 2016) by a group of researchers. This analysis helped identify the required contents of the learning module that include the basic principles and rules of prayers encompassing ablutions, the pillars and steps of prayers, and aspects that nullify a prayer, among others. More specifically, the design of *MOOC* for the learning of prayers was based on the Malaysian MOOC Development and Delivery Guidelines (Ministry of Higher Education, 2017) to ensure the course components must consist of the following aspects: (a) learning outcomes, (b) learning materials, (c) learning activities, (d) assessment, and (e) reference materials.

In the development phase, the core teaching materials were developed using the digital video technology, given that videos are the main teaching materials used in MOOCs in most countries (Ministry of Higher Education, 2017; Tomte, 2018). The production of instructional

videos was guided by the model proposed by Koster (2018), who argue that an effective instructional video for use in MOOCs must consist of three main elements, namely physical design, cognitive design, and affective design. The appropriate features of the physical design include the duration, speed, and action of the video. Also, an important feature of the affective design is the sustained interactions between students and instructors or learning materials. Koster (2018) also asserts that a video has to be relatively short to make it effective by keeping students to remain focused. On the other hand, cognitive design refers to the accuracy and appropriateness of the contents of instructional videos (Koster, 2018). In this study, the instructional videos that had been produced were then evaluated by several subject matter experts. Finally, the implementation and testing phase of the MOOC learning module for Islamic prayers involved a group of undergraduate students.

The evaluation of the learning module was based on the MOOC acceptance model proposed by Hone and Said (2016); Zhou (2016). In principle, this model consists of a number of constructs, namely perceived ease of use, interaction, content, attitude toward use, and intention to use (Hone & Said, 2016; Zhou, 2016). The evaluation was carried out on a sample of 30 undergraduate students aged between 18-23 years, who were randomly selected from several institutions of higher learning. The learning treatment lasted for a month, after which a MOOC evaluation questionnaire was administered to each student. Essentially, this survey questionnaire comprises 39 items which were adapted from those of Zhou (2016), Hone and Said (2016), with each item being rated along a five-point Likert scale ranging from '1' (*Strongly Disagree*) to '5' (*Strongly Agree*). An internal consistency analysis was performed that established this research instrument to be highly reliable, as attested by the computed reliability coefficients ( $\alpha$ ) of 0.87.

### **Data Analysis**

The evaluation of the learning module was carried out on 30 undergraduate students comprising 13 males (43.3%) and 17 females (56.7%) who were randomly drawn from several institutions of higher learning. Table 1 summarizes the descriptive statistics of the respondents' responses to the questionnaire items pertaining to the constructs of the study.

Table 1

*The descriptive statistics of the respondents' responses*

<b>Construct</b>	<b>Item</b>	<b>M</b>	<b>S.D</b>
Perceived usefulness	1. I believe this learning module can improve my learning performance.	4.56	.51
	2. Using this learning module helped increase the effectiveness of my learning.	4.41	.50
	3. Using this learning module helped me translate learning materials into knowledge.	4.37	.49
Perceived ease of use	4. Learning with the use of this learning module was easy.	4.48	.51
	5. It was easy for me to master the study skills with this learning module.	4.11	.75
	6. My interaction with this learning module was smooth.	4.26	.48
Attitude toward use	7. I believe studying with this learning module is a good idea.	4.48	.51
	8. I believe using this learning module is a right decision.	4.19	.62
	9. I am satisfied in using this learning module.	4.35	.49
Intention to use	10. I will continue to use this learning module in the future.	4.04	.85
	11. I will continue to use this learning module in the long run.	4.11	.75
	12. I intend to continue using MOOCs in the future.	3.78	.93
Self-efficacy	13. I am confident of being able to study with this learning module until the end of this course.	4.07	.550
	14. This learning module matches my need for learning.	4.11	.75
	15. This learning module is in line with my learning practice.	3.96	.81
	16. It is easy to familiarize with the features of this learning module.	4.22	.42
	17. This learning module is ideal for me to complete an online course.	4.22	.42
Social Norm	18. Other students' confidence in using this learning module helped convince me to use it.	4.04	.52
	19. Other students' acceptance of this learning module helped encourage me to use it.	4.07	.55
	20. Other students' willingness to use this learning module helped influence me to use it.	4.00	.83

Instructor Support	21. I am free to ask questions in this this learning module.	4.11	.75
	22. The instructors always gave me feedback promptly.	4.00	.68
	23. The instructors were always available.	4.00	.68
	24. The instructors always guided me when I asked for assistance.	4.15	.77
	25. The instructors played an important role in supporting my learning with this learning module.	4.22	.64
Interaction Instructor and Students	26. The instructors made significant contribution to the discussion in this course.	4.30	.47
	27. The instructors were always supportive in helping students with problems.	4.22	.42
	28. I always interacted with the instructors while studying with this learning module	3.73	.92
	29. The instructors always emphasized the relationships between the topics being discussed.	4.26	.66
Module Learning Design	30. This course helped challenge me to think critically.	4.26	.45
	31. The course assignments were interesting and stimulating.	4.26	.45
	32. The course contents are up to date.	4.33	.48
	33. The evaluation of the course (based on projects, assignments, and quizzes) is appropriate to the learning objectives.	4.33	.480
Module Organization	34. This course incorporates problem-solving elements in learning.	4.30	.47
	35. The course is well planned and organized.	4.33	.48
	36. The tasks are clearly explained.	4.22	.64
	37. I understand what it takes for me to complete this learning module.	4.30	.465

### Discussion

The aim of this research is to design and evaluate a learning module for Islamic prayers hosted and delivered on the MOOC platform, which supports a flexible, cross-border implementation of large-scale online learning. From the Islamic standpoint, Muslims need to learn and practice the obligatory five daily prayers, which are the second pillar of Islam, by focusing on both the theoretical and practical aspects (Mustafa, Mustafa & Ali, 2016; Zaharudin, 2014). As such, a module for the learning of prayers was developed, containing six topics, namely the introduction to prayers, legal conditions, the pillars of prayers, aspects that nullify prayers, and the procedure of performing prayers. The evaluation of this learning module was conducted on a group of undergraduate students who were randomly chosen from several local universities.

The results of the evaluation showed the mean scores of the constructs of the study based on the respondents' feedback were moderately high as follows: perceived usefulness (Mean = 4.44, SP = .41), ease of use (Mean = 4.3, SP = .35), interaction (Mean = 4.14, SP = 4.12), content (Mean = 4.3, SP = .38), attitude toward use (Mean = 4.33, SP = .46), and intention to use (Mean = 3.97, SP = .70). Surely, such findings have some practical implications. For example, according to Davis (1989), the perception of ease of use refers to the degree of confidence of an individual in adopting a particular technology with little effort.

These above findings suggest that the students believe that the learning module is easy to use, allowing them to access and learn the learning contents using the cloud computing technology with ease. In terms of usefulness, the same findings indicate that the learning module is beneficial to them, with which they can learn efficaciously to help fulfil their needs to learn aspects related to the Islamic prayers transcending time and place. Revealingly, the findings also suggest that the learning contents of the learning module are up to date, well-structured and presentable, which in turn helps make the interactions between students and contents seamlessly smooth and fluid. Equally promising, the findings signify that the two-way communication between instructors and students is important to ensuring the effectiveness of online learning.

Also, prompt constructive feedback plays an important role in helping students to learn effectively in a MOOC environment. Overall, the findings indicate that the learning module hosted on the MOOC platform has been strongly accepted by the respondents, as made evident by the high ratings given to the constructs of the study, namely perceived usefulness, ease of use, interaction, content, attitude toward use, and intention to use. Collectively, these factors have a significant impact on the success of the implementation of MOOC, and, therefore, it becomes imperative for application developers or instructional designers to adhere to good design principles and best practices in developing effective learning modules (Al-Adwan, 020); Tseng, Lin, Wang & Liu, 2019),

## Conclusion

As demonstrated in this study, the use of the Malaysian MOOC Development and Delivery Guidelines (Ministry of Higher Education, 2017) can help applications developers or instructional designers to develop efficacious learning modules to support and facilitate both formal and non-formal education. In addition to the above guideline, such practitioners need to adhere to well-established principles, standards, and best practices, all of which can have a significant impact on users' perceptions of perceived usefulness, ease of use, usefulness, and intention to use. As such, these factors have to be given a strong emphasis in the development of learning modules to be deployed in the MOOC environment (Hone & Said, 2016).

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