

## Proposed Model of Students Acceptance of Massive Open Online Courses

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### Abstract

*The importance of using Massive Open Online Courses (MOOCs) as a source of learning can be clearly seen from the increase of the number of universities that have chosen to use them to offer courses to their students. While many efforts have been made in the studies of MOOCs, the understanding of people's behaviour and intent is a key issue in MOOCs. This study aims to identify the factors that will influence the students and learners behavioural intention to accept MOOCs. This research will compare the existing UTAUT2 model as the theoretical framework which is used to investigate the factors that influence user acceptance. Finally, this article proposed a model to support the behavioural intention of using MOOCs by integrating the educational value construct. Using the proposed model, we can investigate which of the factors that affect the behavioural intention of using MOOCs have a significant influence on the student's acceptance of MOOCs. The results can be helpful for universities and schools introducing MOOCs to their students in taking into consideration the factors for ensuring students are interested to participate and can benefit from the technology.*

**Keywords:** *Massive Open Online Courses, UTAUT2, E-learning, Acceptance test, Educational Value, Behavioural Intention.*

## 1. Introduction

MOOCs have made a significant impact on the education sector and has gained rapid development and interest from a wide range of learners and educators (Zheng, et al., 2015). MOOCs are described as open access, global, free, video-based content accessed through an online platform (Baturay, 2015). Since 2012, MOOCs have gained significant influence on the learnings of lifelong learners, education institutions leading to other universities to join the MOOC movement (Raffaghelli, Cucchiara, & Persico, 2015). Universities are investing a great deal of money and resources into integrating MOOCs into the programs with the aim of achieving extending their reach, increasing branding, improving educational outcomes, etc. (Hollands & Tirthali, 2014). These MOOCs offered by universities are made free to students, but in reality are heavily subsidized as mentioned above (Cusumano, 2012). Considering the increasing investments in MOOCs and the cost, resources and

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durations of its implementation, it is important to research and understand the users' (students) perspective of the technology and their willingness to accept the technology (MOOCs) beforehand. Thus, it is important to address the behavioural intentions of accepting MOOCs and identify the factors that influence it.

Majority of previous studies on MOOC acceptance have used Technology Acceptance Model (TAM), its variation TAM2 and TAM3, and UTAUT to analyse MOOC acceptance. These models, however, do not explore factors such as, the influence of learners' perceived value on using MOOCs in terms of educational value gained from MOOCs, habits of using MOOCs and fun or pleasure that come from using MOOCs.

Furthermore, from the process of conducting the literature review to identify previous studies that support the use of the UTAUT2 model on investigating MOOCs acceptance, only a few studies were found, as shown in Table 1.1. These are the key problems which this research aims to tackle by modifying and extending the existing UTAUT2 model to include the element of perceived educational value as part of the determinants of behavioural intention towards using MOOCs.

**Table 1.1 Past research on MOOC acceptance using UTAUT2**

Model	Study Cited (Author & Year)	Domain	Factors Tested
<b>UTAUT2</b>	(Choi & Hong, 2018)	Analyse elementary school teachers' intention to use MOOCs.	Performance expectancy, Effort expectancy, Social influence, Facilitating condition, Hedonic motivation, Price value Additional: Trust
	(Lim, et al., 2017)	Determinants of Intention to Enrol in MOOCs and Actual Usage	Performance expectancy, Effort expectancy, Social influence, Facilitating condition, Hedonic motivation, Habit Behavioural intention
	(Yan et al., 2018)	Analysing influencing factors of college students' MOOC learning	Performance expectancy, Social influence, Facilitating condition, Habit, Behavioural intention

Despite ongoing discussions about the use of MOOCs in higher education institutions, together with various debates and criticisms of MOOCs, attention towards understanding the user behaviour towards MOOCs usage is needed. Students' perception, attitude and acceptance towards MOOCs need to be understood for MOOC initiatives and programs should be undertaken. Thus, in an attempt to contribute to this need, the study attempts to identify the factors influencing learner's acceptance of MOOCs among students by proposing a model on MOOC acceptance based on UTAUT2 model.

This article is to identify the factors that influence user's intention to use MOOCs among students at UTM Kuala Lumpur campus. The study firstly contributed by proposing a technology acceptance model applicable to identifying and understanding MOOCs acceptance. Results of this study can help to identify and understand factors influencing user acceptance of MOOCs. Secondly, from this study, the significance of these factors on MOOC acceptance can be determined. To support the selection of the UTAUT2 model, a summary of the review of previous works will be provided in the following section below.

## 2. Previous Study

This section provides a summary of the studies found that have used the UTAUT2 model to study the acceptance of MOOCs. As can be seen from Table 1.1, there are only a few studies carried out in the domain of MOOCs, applying the UTAUT2 model for user acceptance. The results of the above studies are compared in Table 2.1 below. The table displays which of the factors were found to have an influence of the behavioural intention to use MOOCs, as well as the factors that were found to have no influence on the behavioural intention to use MOOCs. It can be seen from the table that, performance expectancy and social influence have the highest supported rate. While facilitating conditions showed the least support rate with 2 of the 3 studies finding that facilitating conditions did not influence the behavioural intention to use MOOCs. The remaining factors, effort expectancy, hedonic motivation and habit showed varying results as some of the studies did not test these factors. As these studies have found varying results of the influence of these factors on the users' behavioural intention to use MOOCs, more testing is needed to be done on the influence of these factors to identify if similar results are returned

**Table 2.1. Summary of results of UTAUT2 factors on Behavioural Intention (BI) of using MOOCs from past studies**

Factors	(Lim, et al., 2017)	(Choi & Hong, 2018)	(Yan et al., 2018)	Support rate
Performance expectancy	✓	✓	✓	3
Effort expectancy	✓	✗	Not tested	1

Social influence	✓	✓	✓	3
Facilitating conditions	✗	✗	✓	1
Price value	Not tested	✓	Not tested	1
Hedonic motivation	✓	✓	Not tested	2
Habit	✗	Not tested	✓	1

(✓) = Influences BI

(✗) = Does not influence BI

## 2.1 Justification of model selection

TAM, and its variations, as well as the UTAUT model, are less customer-oriented and more for work settings (Prins, 2014). The UTAUT model was constructed in a working context as it investigated the determinants that affect employees' acceptance and use of information systems (Choi & Hong, 2018). Whereas the UTAUT2 was developed focusing on customer behaviour usage of systems. TAM as a technology acceptance framework and its limitation mean that it may not be applicable in the areas of education (Choi & Hong, 2018). In addition, the TAM is a model which has been developed many years ago which may not be fully applicable to the recent emerging technology of MOOCs and thus is eliminated from the options.

As for the UTAUT model, this model does not include the factors of habit and hedonic motivation as factors influence behavioural intention. Past studies have found that habit and hedonic motivation have a significant influence on learners' intentions to use MOOCs (Lim, et al., 2017; Yan et al., 2018; Choi & Hong, 2018). Furthermore, results of the UTAUT model showed a substantial lower observed variance of behavioural intention, of 56% as compared to UTAUT2's 74%, and also a significantly lower variance of usage, of 40%, as compared to the 52% of the UTAUT2 model.

Prins (2014) has found the extended UTAUT model (UTAUT 2) as the most suited model to measure students' intentions of using IT in an education setting. This applies to MOOCs as it is considered a form of educational IT. A study by Chew, Siew & Ravichandran (2017) used the UTAUT2 model to identify learners' acceptance of MOOCs and has found that habit is the factor that influenced the behavioural intention to enrol in MOOCs the most. Another study by Choi & Hong (2018) analysing MOOC intentions using the UTAUT2 model did find that hedonic motivation is one of the most significant factors that influenced behavioural intention to use MOOCs. Thus, this study is using the extended UTAUT model (UTAUT2) as the most suited theoretical framework to fill this gap in the literature

in regards to the variables of perceived educational value to the user, habit and hedonic motivation influencing the behavioural intention of using MOOCs.

In conclusion, UTAUT2 Model is believed to be a valid framework for understanding and exploring usage intention within an educational setting (Prins, 2014). Thus, in this research, UTAUT2 model is used as the most recent and most applicable of the technology acceptance models in the case of measuring behavioural intention on using MOOCs among students.

## 2.2 Educational Value construct

A major part of the characteristic of MOOCs mentioned previously, is MOOCs use social platforms and online technologies that mainly aimed to provide free access to information for learners across the world (Daniel, 2012). Furthermore, institution-based MOOC programs are offered to students with no additional costs to the students (Cusumano, 2012). Thus, the monetary cost in the case of MOOCs is not present in most of MOOC usage and thus cannot be a prominent factor affecting influence intention to use MOOCs.

In the context of this study, perceived Educational Value is taken as the measure of cost and benefit in MOOCs. In MOOCs, value is perceived not through monetary costs and benefits but through how the student perceives the MOOCs provide benefits to them in terms of educational value. Costs incurred to students, in this case, is not mainly monetary since as mentioned most MOOCs are free, thus the costs incurred here are time and effort invested into the MOOCs. Students spend time and effort into MOOCs and expect a return of educational value.

Therefore, educational value is defined as the cognitive trade-off between the perceived benefits of the applications and the time and effort spent on using them (Ain, et al., 2016), based on Price Value definition (Zheng, et al., 2015; Lee et al., 2003). Table 2.5 provides a summary of the educational value construct conceptualization.

**Table 2.6. Education value construct conceptualization**

Construct	Definition	Value	Relationship	Source
Price Value	“Cognitive trade-off between the perceived benefits of the applications and the monetary cost for using them”	Value = Quality/Benefit	Price → Quality/ Benefit	(Dodds et al. 1991)  (Venkatesh et al., 2012)
Educational Value	“Cognitive trade-off between the perceived benefits of the applications and the time and effort spent on using them.”	Value = Educational benefit/Knowledge	Time and Effort → Educational benefit/ Knowledge	(Dodds et al. 1991) (Venkatesh et al., 2012) (Ain, et al., 2016)

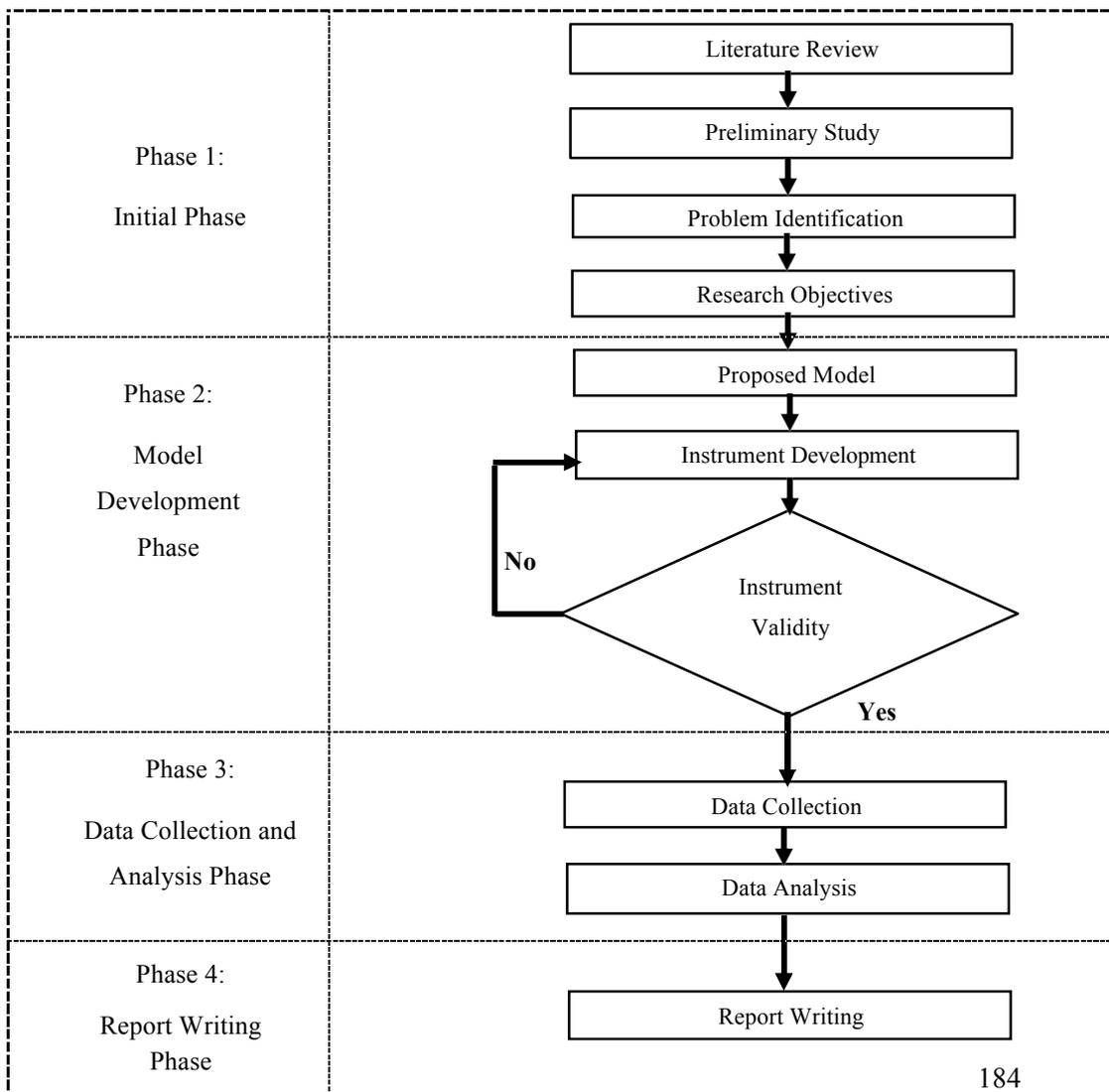
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### 3. Methodology

In this section, the research methodology will be discussed. An operational framework is provided below to summarize the phases in this study.

#### 3.1 Research Procedures

In the process of conducting this study, an operational framework was created to provide an overview of phases taken throughout the study. There are four phases during this study which includes, Phase 1: Initial phase, Phase 2: Model development phase, Phase 3: Data collection and analysis phase and Phase 4: Report writing phase. Figure 3.1 below provides a breakdown of the main activities and deliverables of each of the four phases.



### Figure 3.1. Operational Framework

#### 3.2 Preliminary study

The preliminary study was conducted by performing a structured interview with students regarding their attitude towards MOOCs. 10 students are selected, 5 students were selected to proceed with the interview based on having used or are currently using MOOCs. While the other 5 students were selected based having minimum to no experiencing using MOOCs but are aware of free open online courses.

A summary of the responses to why the students choose to use or to not use MOOCs gave an insight into the student's current perception is in the adoption of MOOCs. When asked if there was a MOOC option available for a traditional class-based course, would the student consider enrolling into the MOOC course option, the results of this question are presented in Figure 3.2 below. Four of the ten students said they would choose the MOOC alternative without hesitation, two of those who have experience with using MOOCs, and two of those who have minimal to no experience with using MOOCs. Three of the ten students said they can give the MOOC alternative a try, however, showed hesitation; two of whom have experience with using MOOCs and one of whom have minimal to no experience with using MOOCs. Finally, three students of the ten said they would not choose the MOOC alternative. One of those who have experience with using MOOCs and two of whom have minimal to no experience with using MOOCs. These results show there are students despite having used MOOCs, still showed hesitation in choosing to MOOC alternative. While some students who have little to no use of MOOCs showed interest in the MOOC alternative. These results indicate that there is still a need to understand further what will influence the students' intention to use MOOCs.

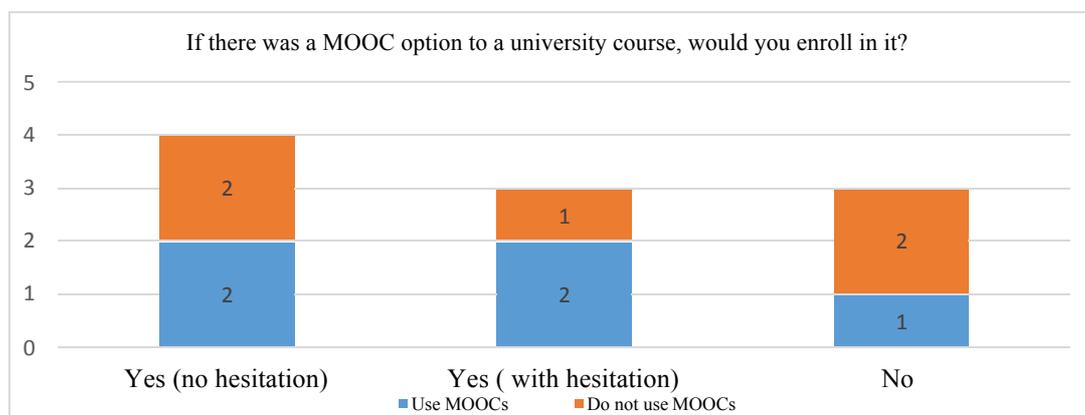
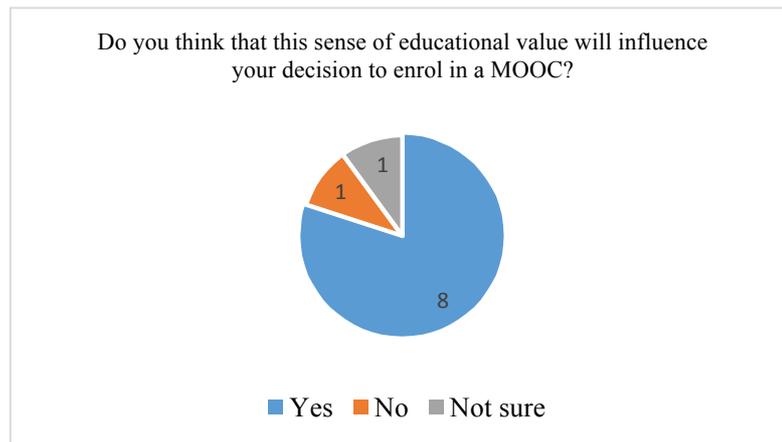
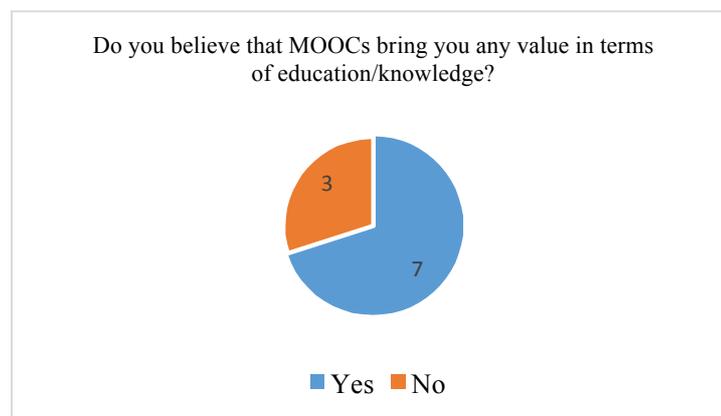


Figure 3.2. Statistic of the result of question three in the preliminary study

In regards to the perceived value of MOOCs, seven of ten students agree that MOOCs would bring them value in terms of education/knowledge. While three students said they do not believe that MOOCs bring them value in terms of education/knowledge, shown in Figure 3.3. Eight of the ten students believe this perceived value will influence their decision to enrol in MOOCs, shown in Figure 3.4. These results show some students despite having minimal to no experience with using MOOCs still believe that MOOCs do have educational value, and this would influence their decision in enrolling in a MOOC.



**Figure 3.3. Statistic of the result of question number 4**



**Figure 3.4. Statistic of the result of question number 5**

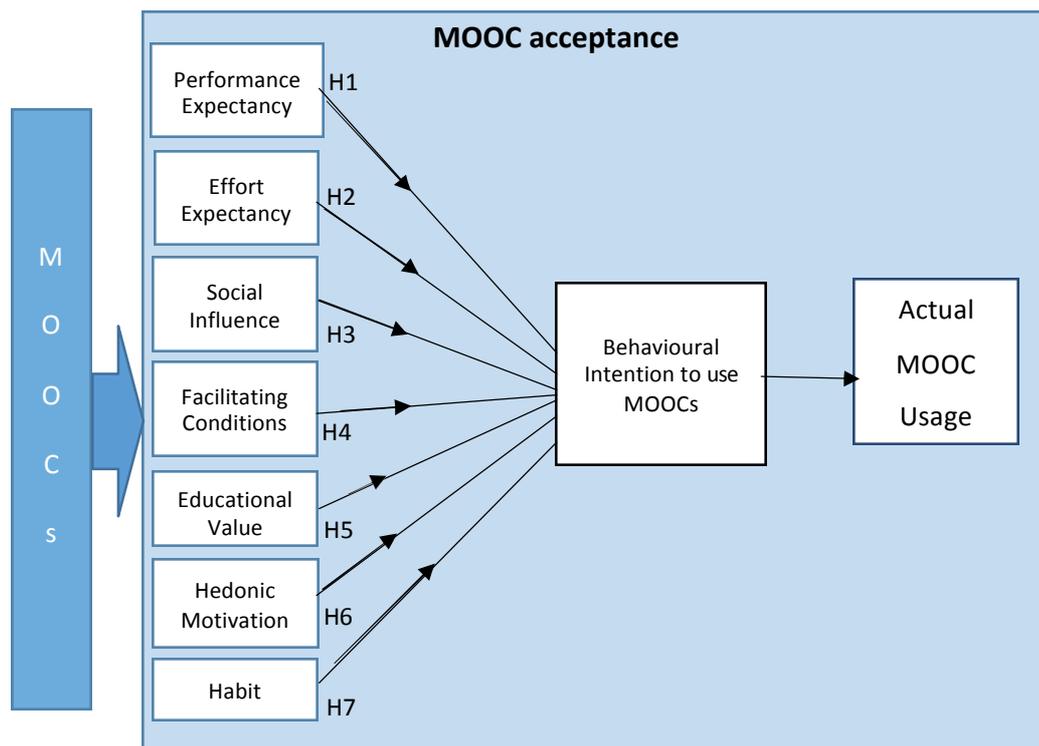
### 3.3 The Proposed Model

This study has adopted the UTAUT2 model of technology acceptance and incorporates an additional construct of perceived Educational Value in the model in order to replace Price Value and account for the characteristics and differences in technology context when specifically referring to MOOCs. All the constructs found in UTAUT2 model were included in this study except for Price Value. Instead, this study proposes perceived Educational Value as the measure of cost and benefit in MOOCs. That being said, with the majority of MOOCs having free and easy access

to the majority of their resources, taking Price Value in the context of MOOCs can be ignored. Moreover, the moderators of age, gender, experience and voluntariness of use which were also removed from the proposed model as these were considered the control variables in the study and thus are left out from the proposed model.

In the UTAUT2 model, an important distinction is made between behavioural intention to use a technology and its actual use, with the behavioural intention being considered as the nearest proxy for use behaviour (Verdegem & De Marez, 2011). That said, this study focuses on the influence of the variable on the behavioural intention. This is because, since measuring the continued use of a technology needs a longer time frame to observe, the 12 weeks provided for this study is insufficient to test and observe use behaviour. Thus, this study will focus on testing Behavioural Intention and the variables that influence it. In order to test the behavioural intention of MOOCs, a number of hypotheses have been constructed below, based on the determinants of the proposed model.

This proposed model is shown in Figure 3.5 below. The variables in the proposed model are Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Educational Value, Hedonic Motivation, and Habit.



**Figure 3.5. Proposed model of MOOC acceptance**

#### 4. Conclusion

Based on the existing model UTAUT2, this study aims to extend the factors affecting students' intention to use on the context of MOOCs. The proposed model to support the behavioural intention of using MOOCs by integrating the educational

value construct. In this paper, the initial phases of the study are described where the constructs and quantitative study instruments are defined. The quantitative study and analysis will be administered in further stages of this study. Thus, when completed, this study can be helpful for universities and schools introducing MOOCs to their students to benefit from this technology.

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