# Technology Acceptance of Massive Open Online Course (MOOC) Among Students at Public University: a Pilot Study

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**Abstract:** The use of Massive Open Online Course (MOOC) has been widely spread, especially at a higher learning institution. Nowadays, MOOC has been used broadly as online learning and e-learning method that act as a tool in teaching and learning. As technology growth the process of teaching and learning can be achieved by using a variety of tools to enhance the learning process, especially as we move to Industrial Revolution 4.0 (IR 4.0). MOOC also can promote educational information, autonomous learning and lifelong learning. This pilot study attempted to observe the elements that influenced the behavioural intention to use MOOC technology among students at Universiti Kebangsaan Malaysia (UKM) in their teaching and learning. The instrument used is a survey questionnaire and then data are collected and analysed. The descriptive analysis, then presented by using Statistical Package for Social Science (SPSS). This research is a basic finding in term of pre-test study where a set of questionnaires were distributed to students that had used MOOC in one or more courses. The Cronbach Alpha test for all items in the construct used in this study has been conducted. The results show that all items were in the high reliability, which is in the range of 0.8 until 0.9.

**Keywords**: *e-learning, MOOC, Utaut, higher learning institution, lifelong learning.*

## 1. Introduction

Nowdays, online learning has become one of the main channels for online teaching and learning between lecturers and students, especially in colleges and universities. MOOC or formerly known as Massive Open Online Course are the course provided to learners in the way of at distance. These scenarios have viewed the appearance of Massive Open Online Courses (MOOC) as learning trends in the field of open distance education. It is an emerging trend practice in e-learning. The culture of teaching and learning is often challenging and changing by the passage of time. MOOC is an e-learning concept that is open for any interested participants attended and access courses with materials that are free of charge. It brings thousands of participants register for MOOC courses every day. Although these concepts of learning are still growth, it is important to inspect the technology acceptance of MOOC especially at higher level of institution. The Malaysian government is very supportive of the use of MOOC and sees it as a platform to integrate learning technology, lifelong learning and concurrently lead the way towards a new direction in teaching methodologies for undergraduate programmes (Kumar & Al-Samarraie 2018). The objective of this research is to observe the technology acceptance of MOOC by using a Unified Theory of Acceptance and Use of Technology (UTAUT).

### 1.1 MOOC

Currently, MOOCs adoption in Malaysia is developing in tandem with several important national plans, e.g. the upcoming 11th Malaysia Plan (2016-2020), the National Economic Model, Economic Transformation Programme and the anticipated Malaysian Education Blueprint for Higher Education; the last of which has specifically addressed MOOCs in its preliminary discussion document. Online learning, as an essential component of the delivery mechanism in MOOCs, is also addressed in the soon-to-be-released Blueprint (Fadzil et al. 2016). MOOCs in Malaysia are likely to see various developments in the next several years, as we can anticipate greater involvement from higher education institutions in response to the Malaysian Government's recent statements that have revealed several national objectives for MOOCs in the next few years (Gamage et al. 2015). In addition to the apparent advantage of broader access to potentially high quality instruction and instructional material, some believe a MOOC can help revolutionize higher education pedagogy (Canbek 2015).

If the Malaysian Government and local higher education institutions intend to adopt MOOCs on a large scale, this will inevitably have significant repercussions on the entire national higher education landscape, especially if they are made a part of the delivery approach in higher education institutions (as currently explored by public universities), as a means for branding and internationalisation, or even as part of the advancement of online learning and ODL (Fadzil et al. 2016). MOOCs popularity is growing rapidly despite its novelty and age. Large numbers of participants are enrolling continuously in massive number of courses. MOOCs attracted attention quickly and acquired interest of academics (Abu-Shanab & Musleh 2018). In general, MOOC can be divided into two categories. cMOOC and the xMOOC are two different types ofMOOCs (Haron, Hussin, Samad, et al. 2019). The cMOOC (CCK08 course) was created based on the learning theory of Connectivism, a concept that has principles developed by George Siemens (Fianu et al. 2018). Meanwhile the second category was xMooc. xMOOCs are online versions of traditional learning formats applying a knowledge transmission model using video recordings of classroom lectures or custom-produced mini-lectures (Kocdar et al. 2017). xMOOC was a course designed by instructor like a traditional classroom converted into online class (Haron, Hussin, Yusof, et al. 2019).

### 1.2 UTAUT Model

The UTAUT model which aims to explain technology acceptance, is based on eight technology acceptance theories or model (Khalid et al. 2014). In particular, the UTAUT draws on the Theory of Reasoned Action (TRA), the Technology Acceptance Model (TAM), the Motivational Model, the Theory of Planned Behaviour (TPB), the combined TAM and TPB, the model of Personal Computer Utilization, the Innovation Diffusion Theory and the Social Cognitive Theory (Hamdan et al. 2015). Diagram 1 illustrates the Utaut Model.
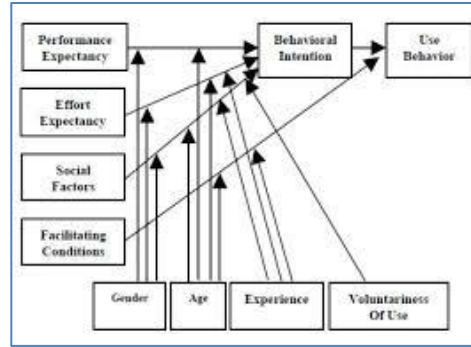
**Diagram 1: UTAUT Model**

## 2. Materials and Methods

The pilot study conducted in this research is a survey method like questionnaires that has been distributed to 100 students as a samples. The respondents were students at Universiti Kebangsaan Malaysia who had involved in one or more MOOC courses. Since MOOC has been deployed at the universiti starting 2014, the MOOC concept was implemented as a blended learning where the method of face-to-face was combine with the online material setup by instructor or lecturer. The Unified Theory of Acceptance and Use of Technology (UTAUT) is used in this research where a few variables act as independent variables and dependent variables (Venkatesh et al. 2016). Thus, the performance expectancy, effort expectancy, social influence and facilitating condition as independent variables and behavioural intention as dependent variables. As the study conducted is a pilot test for the researcher, the sample used is among students at Universiti Kebangsaan Malaysia (UKM) who had involved in MOOC for one or more courses. The framework of this research take place as follow:
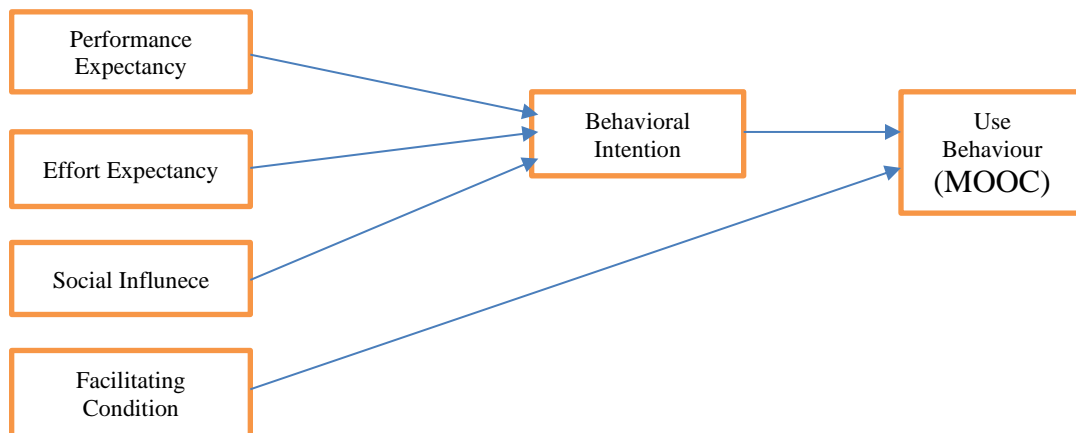


**Diagram 2: Research Framework**

Meanwhile, Table 1 below describe the construct and variables used in this Model.

Table 1: Four Variables of Utaut

| Construct/Variable | Description |
|---|---|
| Performance Expectancy | Performance expectancy is the degree to which an individual trust that using the system will help him or her in the work performance. (Venkatesh et al., 2003) |
| Effort Expectancy | Effort expectancy is the level of convenience associated with the use of the system. (Venkatesh et al., 2003) |
| Social Influnece | Social influence is the degree to which an individual sees the significance of others believes he or she should practice the new system. (Venkatesh et al., 2003) |
| Facilitating Condition | Facilitating condition is the amount to which individuals believe that organizational and technical infrastructure occurs to support the use of the system. (Venkatesh et al., 2003) |

## 3. Results and Discussion

The results are discussed according to the Utaut factors which is performance expectancy, effort expectancy, social influence, facilitating condition as independent variables and behavioural intention as dependent variable. At the moment, the instrument used for all variables is tested by doing a Cronbach Alpha to measure the reliability of the item conducted in the questionnaires. Table 2 illustrates the reliability of item used in the instruments.

Table 2: The Measurement of Variables Reliability

| Variables | Item | Cronbach's Alpha |
|---|---|---|
| *performance expectancy(JP)* | 3 | 0.837 |
| *effort expectancy(JU)* | 4 | 0.924 |
| *social influence(PS)* | 3 | 0.938 |
| *facilitating condition(MK)* | 3 | 0.899 |
| *behavioural intention(T)* | 3 | 0.952 |

All variables have been tested using Cronbach Alpha and the result show that the variables were in the high reliability which is in the range of 0.8 until 0.9. Its mean that the instrument is considerely acceptable to be used in this study in order to examine the technology acceptance of MOOC. Table 3 illustrate the value of mean and standard deviation of all item in the questionnaire.

Table 3: The Value of Mean and Standard Deviation of Item

| Variable | Item (SPSS Coding) | *Mean* | *Standard Deviation* |
|---|---|---|---|
| Performance Expectancy | JP1 | 4.10 | 1.069 |
| | JP2 | 3.88 | 1.195 |
| | JP3 | 3.88 | 1.236 |
| Effort Expectancy | JU1 | 4.10 | 1.037 |
| | JU2 | 3.85 | 1.117 |

| | | | |
|---|---|---|---|
| | JU3 | 3.95 | 1.126 |
| | JU4 | 4.03 | 1.073 |
| Social Influence | PS1 | 3.70 | 1.197 |
| | PS2 | 3.73 | 1.118 |
| | PS3 | 3.87 | 1.241 |
| Facilitating Condition | MK1 | 4.00 | 1.105 |
| | MK2 | 4.13 | 1.065 |
| | MK3 | 3.97 | 1.008 |
| Behavioral Intention | T1 | 3.88 | 1.209 |
| | T2 | 3.75 | 1.188 |
| | T3 | 3.68 | 1.321 |
| Use Behaviour | G1 | 3.85 | 1.325 |
| | G2 | 3.85 | 1.102 |
| | G3 | 3.82 | 1.200 |

Table 4: Pearson Correlation analysis

**. Correlation is significant at the 0.01 level (2-tailed)

| | Behavioural Intention | Performance Expectancy | Effort Expectancy | Social Influence | Facilitating Condition | Use Behaviour (MOOC) |
|---|---|---|---|---|---|---|
| *Pearson Correlation* | 1** | 1** | 0.813** | 0.877** | 0.841** | 0.849** |
| N | 100 | 100 | 100 | 100 | 100 | 100 |

Meanwhile Table 5 shows the result of regression analysis perform to the variables in this research. In this study also, several hypotheses were tested to determine whether the positive or negative relationship between independent variables and dependent variables. Nevertheless, all independent variables were found to have positive relationship and significant with Behavioural Intention.

Table 5: Regression Analysis

| Dependent Variable (DV) | |
|---|---|
| Independent Variable (IV) | Standardized Coefficients (Beta) |
| JP | .41 |
| JU | .30 |
| PS | .38 |
| MK | .12 |
| $R^2$ | .829 |
| Adjusted $R^2$ | .816 |
| F value | 66.597 |
| Sig. F | .000 |
| **p<.01, *p<.05 | |

The hypothesis test results in this research is shown in Table 6.

Table 6: Hypothesis Result

| Hyphotesis | Hypothesis Statement | Result |
|---|---|---|
| H1 | Performance Expectations (JP) are absolutely interrelated to behavioural intention. | Support |
| H2 | Effort Expectations (JU) are absolutely interrelated to behavioural intention. | Support |
| H3 | Social Influence are absolutely interrelated to behavioural intention. | Support |
| H4 | Facilitating Condition are absolutely interrelated to behavioural intention. | Support |
| H5 | Behavioural Intention are absolutely interrelated to Use Behaviour | Support |

## 4. Conclusion

As a conclusion, all variables which has been tested in this pilot study were found that as a factor that influence behavioural intention in order the students at University Kebangsaan Malaysia as respondent to use MOOC technology in their teaching learning practice. Since the MOOC technology has been introducing in public universities, for example in UKMs this method has been extensively used. Nevertheless, the concept conducted is in blended learning where face-to-face learning is still practiced alongside the online method on MOOC platforms. Although widely used in learning, from a pilot study, this MOOC method is acceptable to students who have taken their courses online. The results of this study can also guide researchers on the importance of reviewing a new technology and in particular the learning system so that improvements can be made in the future especially the content of a course. On the other hand, with the fast development in educational technology, many researchers and educators all over the world have recommended the use of technology through the curriculum as it produces good results in learning and understanding the concepts (Lopes & Soares 2017). This is in line with the purpose of the MOOC method used to make it online and can be used by anyone globally and for lifelong learning.

## 5. Acknowledgement

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