Factors Determination MOOCs Continuance Intention: A Proposed Conceptual Framework

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Factors Determination MOOCs Continuance Intention: A Proposed Conceptual Framework

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Abstract. Massive Open Online Courses (MOOCs) recently start to gain its popularity at most universities and the number of MOOC has increased. Despite its popularity, previous study shown that low course completion rate and limited amount of studies in examining antecedents which influence students’ continuation intention in using MOOCs. Thus, this study aims to propose a conceptual framework to figure out the factors determinant of MOOCs continuance intention among students in Malaysian higher education. By reviewing the related studies, factors namely perceived ease of use, perceived usefulness, attitude, motivation and continuance intention were identified.

1. Introduction
In recent years, MOOCs have emerged tremendously. Since MOOCs are mostly open and free to all, they have attracted millions of users’ enrollment [1], which overcomes the structural limitation of traditional education system [2], improve the modern education, disseminate science around the globe and equip new informants of data [3-4]. In Malaysia, the implementation of MOOCs has been outlined in the preliminary Malaysian Education Blueprint for Higher Education under the 10th chapter called “Globalized Online Learning”. As mentioned by Ab Jalil et al. [5] in Mohamad and Ab Rahim [6], Ministry of Education advocates Malaysia’s intention to leverage on MOOCs as a way to improve quality and widen access to education.

In past decades, MOOCs have become one of the education revolution with a massive number of participants since its existence in 2012. This is proven as in the year of 2012, a total of 160000 enrolled in the courses. However, how far is the student’s continuation intention to use MOOCs in perspective of learning has not yet been identified [7]. Even though the number of the students who enrolled in 2012 is 160000, the total of students considered completed the courses are only 20000. It shows that the success rate of the student completion is only 1/8 whereas the drop-out rate is the other 7/8. Based on the past reviews of MOOCs are focused on identifying trends and categorizing MOOCs studies rather than the purpose of using MOOCs in the midst of students [7] and it is infrequent for continuation intention in using MOOCs being the point for this research [8]. Thus, the continuance intention use of MOOCs is a huge problem as nowadays trends is to learn at a scale is more important than the education itself [9] and this could be contributed to the high number of the drop-out rate among the students who enrolled.

Although MOOCs is gaining its popularity and it is also quite popular among the Malaysian students and worldwide students, there is only a minimal number of study that investigate the antecedents which effect the adoption of MOOCs among the students [10]. As UMP students also consist of different races and religion, previous researcher also suggest to include different cultural background is interesting as
it can help to generalize the findings [10-11]. Recently, the different factors related to attrition has been highlight as the focus to research on MOOCs [12] and there are fewer studies that have been done to figure out the factors [13]. This prove that there is not much research done about factors that influence students to use MOOCs for learning and this is why this topic is chosen to research on. Therefore, this research aims to propose a conceptual framework which capable to determine which antecedents will affect MOOCs continuance intention among students at universities. This paper is organized into several parts as follows: part two: describes about MOOCs, Technology Acceptance Model (TAM) and related work in prior study, section three: describes about research methodology, section four: describes about proposed conceptual framework and development of hypotheses, section five: describes about discussion, and last section number six: conclusion and recommendation.

2. Literature Review

2.1 MOOCs

In order to support the information age and revolution changes among society, several alternatives have been made in order to increase the popularity of higher education sector [14] and MOOC is one of the example for that. Since 2012, MOOCs has gained so much popularity and it is one of the best platform as it doesn’t charge any fee, it can be used by all generations to study at any time, places and they learn by themselves using the modules that available [11]. While for every person that completes the modules, they can obtain a certificate with a minimal fee is charge for it [15]. It’s been 11 years since MOOCs is introduced to the public and 7 years since MOOCs is popular all around the world. The growth of MOOC is increasing rapidly across the year from 2012 to 2018 for the number of subjects that is offered to the students. However, as the number of students that use MOOCs is increasing, the rate of the dropout is also increasing, thus this brings the biggest question of what is the reasons behind the increasing rate of dropout students. Two kinds of MOOCs were introduced which is known as xMOOCs and cMOOCs. xMOOCs which is an instruction based with all contents are predefined by the instructor and have a stronger tie with older established educational technology approaches [9, 11, 16]. Meanwhile, cMOOCs is a connectivity based with the student content and course materials is derived during the course [11, 16]. MOOCs Malaysia is found to be the following the x-MOOCs as most of Malaysian students use MOOCs under the supervision of their lecturer and also register under their university account.

2.2 TAM

Since this research is aiming to determine the antecedents related to students’ continuance intention in using MOOCs in learning, TAM is found to be one of the simplest yet versatile model to show the relationship of every factors that is chosen as in finding the factor that influence MOOCs. TAM is the model that is chose to use among others technology acceptance theories as TAM is the frequently adopted theory and most influential theory for individual’s acceptance information system [17]. Davis [18] is the first to proposed the TAM which contains the antecedents mainly for user motivation such as perceived usefulness, attitude towards technology and perceived ease of use. The example for the original model is shown in the Figure 1. In a diverse settings and samples, TAM has been found reliable to use [19-20]. However, previous researcher has recommended for new research to provide a stronger model of context and setting with extend TAM with other variables [21-22].
2.3 Related Work in Prior Research

In order to identify the determinant antecedents related to students’ continuance intention in using MOOCs, a systematic literature review was conducted where 15 publications from Science Direct, IEEE, Web of Science and Springer database were found to be related to this research. The literature founds (refer Table 1) that TAM was the most frequently and predominantly applied model in confirming the utilization of information system in various field [23].

From the prior studies, it shows that the most frequently introduced variables related to continuance intention are perceived usefulness (PU) [8, 10, 14, 24-26, 28-29, 31], perceived ease of use (PEOU) [10, 14, 24-26, 28-29, 31], attitude (AT) [10, 13, 24, 26, 31] and motivation (M) [10, 11, 13, 29]. Thus, this four variables (PU, PEOU, AT and M) will use for this research as dependent variables to identify the continuance intention for using MOOCs for learning.

Table 1. Related work by prior research.

| No. | Author | Aim | Theory | Factors |
|-----|--------|-----|--------|---------|
| 1.  | Scherer et al. [24] | To identify how far does the teacher accept the technologies in their teaching practice. | TAM | PU, PEOU, AT, behavioral attention. |
| 2.  | Joo et al. [25] | To examine students’ motivation in using K – MOOCs. | TAM | Self – determination, PEOU, PU, satisfaction, continuance intention. |
| 3.  | Jung & Lee [14] | To investigate learners’ engagement and persistent in using MOOCs. | TAM | Academic self – efficacy, teaching presence, PU, PEOU, learning engagement, learning persistent. |
| 4.  | Khan et al. [11] | To examines the antecedents that influence students’ acceptance of using MOOCs. | TTF | Social recognition, social influence, perceived autonomy, perceived competence, behavioral intention, reputation. |
| 5.  | Lemay et al. [26] | To predict behavioral intention and use of technology. | TAM | AT, behavioral intention, facilitating conditions, fidelity, PEOU, PU, self-efficacy, subjective norms. |
| 6.  | Tawafak et al. [8] | To develop a model in improving assessment techniques and student satisfaction. | TAM | Effective, behavioral intention, support assessment, academic performance, student satisfaction, continuance intention, PU. |
| 7.  | Mohamad et al. [27] | To propose the level of users’ Internet Self-efficacy would affect the factors in identifying students continuance intention. | - | Usefulness, enjoyment, internet self-efficacy, continuance intention. |
| 8.  | Fianu et al. [32] | To examine the antecedents which influence MOOC adoption in Ghana universities. | UTAUT | Performance expectancy, effort expectancy, social influence, facilitating conditions, computer self-efficacy, system quality, instructional quality, MOOC usage, MOOC usage intention. |
| 9.  | Khan et al. [11] | To find the antecedents that influence the usage of MOOCs adoption. | TTF | Social motivation, social recognition, social influence, self-determination, behavioral intention. |
| 10. | Jun & Lee [28] | To investigate learners’ engagement and persistence in MOOCs. | TAM | Learning engagement, learning persistence, self-efficacy, teaching presence, perceived usefulness, perceived ease of use. |
| 11. | Wu & Chen [10] | To investigate the continued use of MOOCs. | TAM, TTF | PEOU, PU, AT, M, openness, reputation, continuance intention. |
| 12. | Hakami et al. [29] | To identify students’ perspectives on factors that will be affecting the continuance intention towards MOOCs. | TAM | PU, PEOU, continuance intention, perceived reputation, intrinsic motivations. |
| 13. | Junjie [30] | To determine influential factors on continuance intention for online learning using MOOCs. | ECM | Confirmation, PU, satisfaction, continuance intention. |
| 14. | Yang & Su [31] | To investigate the correlation between perceptions, behavioural intentions, and actual behaviour in practicing course distributed using MOOCs platform. | TAM, TPB | PEOU, PU, AT, subjective norm, perceived behaviour control, behaviour intention. |
| 15. | Zhou [13] | To research on antecedents that affects student’s decision to use MOOCs. | TPB | AT, M, behavioral control, subjective norms, controlled. |

Notes:
- **TTF** - Task-technology fit
- **ECM** - Expectation confirmation model
- **TPB** - Theory of planned behaviour
- **UTAUT** - Unified theory of acceptance and use of technology
- **PEOU** - Perceived ease of use
- **PU** - Perceived usefulness
- **AT** - Attitude
- **M** - Motivation

3. Methodology

As suggested by Fisher et al. [33], the framework for evaluating MOOCs continuance intention among university students is derived from a systematic literature review by following guidelines from Sekaran [34]. The guideline consists of five components which are: (i) identifying and defining variables; (ii) discussing the relationships between variables; (iii) specifying causal relationship between
variables; (iv) explaining the reason of the relationship existence and (v) developing a schematic diagram.

Various studies have reported the most commonly used variables and their relation with MOOCs continuance intention. The chosen variables that are found to be applicable for this research are then defined and the relationship between the variables explained in the literatures are also discussed in order to construct the hypotheses for this study. The hypotheses guided the development of the proposed conceptual framework to outline the correlation between all the antecedents with the continued use MOOCs.

4. Conceptual Framework and Hypotheses

The conceptual framework is proposed and developed according to constructs and relevant causal links taken from previous studies. From a systematic literature review done on the factors that contribute to acceptance of MOOCs, the constructs that display most frequent significant correlation with continued use MOOCs intention are from the TAM which are PU, PEOU, followed by attitude, and motivation factor [29, 30, 35, 36]. Therefore, this research decides to develop the framework based on TAM. Figure 2 illustrates the proposed framework for evaluating MOOCs continuance intention in this research. Next, the relationship between the chosen variables are discussed.

4.1 Perceived Usefulness (PU)
Davis [18] derived the concept of perceived usefulness from TAM. Perceived usefulness is also known as the users’ assumption according to new technology will aid users to know better or perform effectively [18]. By using selective system, it would increase and improve job performance and would reflect the users’ subjective assessment [37]. Perceived usefulness considered as an antecedent that was proven that effecting attitude and according to several studies, it also has a significant effect on the continuance use [1, 38-39]. Thus, perceive usefulness is one of the important variable which suggest ways to help the learners recognize and enhance their learning persistence and the value of learning. Given these considerations, we intend the first hypotheses as following:

H1. Perceived usefulness appropriately influences students’ continued use intention in using MOOCs.

4.2 Perceived Ease of Use (PEOU)
Perceived ease of use considered as a standard level for individual who believed that when technology is used, they are freely from doing efforts [24]. For this study context, either directly or indirectly, perceived ease of use keep affect the learners’ intention in accepting MOOCs. Much research has implemented TAM in e-learning and has discovered that perceived ease of use have considerable effects individual continued use intention. According to Wu & Chen [10] in their study on MOOCs in China, perceived ease of use in using MOOCs affects the learners’ learning persistence indirectly through the perceived usefulness while learning persistence consequently considered affected by perceived usefulness. Given these considerations, we intend the second hypotheses as following:

H2. Perceived ease of use appropriately influences students’ continued use intention in using MOOCs.

4.3 Motivation (M)
By referring to the originality of TAM model, it is appropriate in order to analyze the motivation variable that may interfere the accepting of MOOCs among students’. The motivation variable has been addressed in the MOOCs situation and was found to be a predictor of the student acceptance and continuance of MOOCs [29]. In the rapid phenomenon of massive open online learning, motivation was considerable as great value to determine the antecedents that influence student acceptance to use MOOCs in learning. In keeping with this, we intend the third hypotheses as following:

H3. Motivation appropriately influences students’ continued use intention in using MOOCs.
4.4 Attitude (AT)
Attitude refers to the degree of the individual either perceived positive or negative feeling that is related to MOOCs. User often thinks that they have control over the use of it and this leads to the intention of use is increasing due to their attitude that they perceived. Past research have proved the continuance intention to use technology is predicted by the attitude [10, 13, 31]. Thus, we intend the fourth hypotheses as following:

H4. Attitude appropriately influences students’ continued use intention in using MOOCs.

5. Discussion
Theoretically, this study contributes to the general knowledge by enhancing the understanding regarding MOOCs by proposing a conceptual framework on students’ continued use intention in using MOOCs. Determinant antecedents in proposed framework covered are perceived usefulness, perceived ease of use, motivation, attitude and continued use intention. Both primary TAM constructs namely perceived usefulness and perceived ease of use are generally proven as the highest influential predictors for students’ continued use intention in using MOOCs even in different context. This is not a surprise for an already well-recognized acceptance model. Our results share a number of similarities with prior studies which indicated that perceived usefulness proved to be more imperative predictor for students’ continuance intention towards MOOCs [29, 30, 40]. The result also consistent with previous studies [10, 29, 31, 35] where perceived ease of use has been found points to be as a key indicator towards students’ continued use intention in using MOOCs.

Our findings corroborate with previous results in the studies conducted by Azami and Ibrahim [36] found that attitude has a significant positive between students’ continued use intention towards MOOCs. The same results were found in the studies conducted by Wu and Chen [10] and Yang and Su [31] whom all concluded that attitude is a significant determinant to students’ continuance intention towards MOOCs. Hence, this will have supported one of the hypothesis in our proposed framework. Lastly, motivation was identified as one of the determinant antecedent for students’ continued use intention in using MOOCs. This is in good agreement with previous findings [29] which marked that motivation has been conclude as one of important antecedents of students’ continued use intention in using MOOCs.

6. Conclusion and Recommendation
Our intention in this paper is to propose a conceptual framework from determinant factors on MOOCs continuance intention. The factors covered are perceived usefulness, perceived ease of use, attitude and motivation which shown as the most prominent indicator from a systematic literature review done to identify the common MOOCs continuance intention factors. However, it is recommended to incorporate other factors to obtain more comprehensive understanding on students’ continued intention to use MOOCs. The proposed framework hopefully will enrich the existing literatures regarding MOOCs continuance intention and provide a guideline for higher education institution and MOOCs designer in developing successful MOOCs.
Research on MOOCs continuance intention has received great attention all over the world. However, there are still a constrained number of potential exploration in the area of MOOCs that explored and examined the various antecedents which may affect continued use MOOCs intention particularly in Malaysia and to be specifically, focuses on MOOCs features. Therefore, there is a need to study in bringing the gap of the research in MOOCs continuance. As the implementation of MOOCs in Malaysia academia is still in its infancy phases, further research in this area is needed.

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