Motivational Factors and Completion Rate of MOOCs Among University Students in Malaysia

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Abstract

MOOC's have advantaged many people through the provision of a variety of free online courses with zero learning commitment by prestigious universities around the world. It has attracted the enrolment of millions of people. Despite the millions of participations, drop-out rates are high and this has become the main issue regarding the effectiveness of MOOCs and its delivery system. This study therefore, is a quest to identify motivational factors that have contributed to the completion rates among MOOC course participants in Malaysian context. A descriptive-correlation research design was employed and simple random sampling technique was used to select 100 students from the Faculty of Education from a public university to participate in this study. The response rate of 73% was satisfactory. Results of this study revealed only motivation factors (r=.602, p<.05) was found to be a significant contributor to MOOC completion rates; while gender, ethnicity and program of study were not determining the differences in the use of the MOOC. The findings have provided some insights for lecturers and course administrators to plan and design the use of MOOC in higher education.

Keywords: Massive Open Online Course, Completion Rate, Motivation Factors

INTRODUCTION

As emphasized in the Malaysia Education Blueprint 2015-2025 (Higher Education), infusing creativity and innovation in learning science, technology and engineering has become a priority in redesigning the local education agenda. Thus, former Malaysia's Higher Education Minister, Datuk Seri Idris Jusoh has urged higher education institutions to tap into the resources available from advancing technological changes (The Star Online, 26 March 2017). Recognizing that Massive Open Online Courses (MOOC) will disrupt higher education, especially in terms of access, accreditation and the way students learn, the ministry is optimising the application of these disruptive tech advances to allow students free access to discussion, blogs, video lectures and other social media tools Harun et al., 2021). In fact, redesigning higher education in Malaysia has activated students and universities readiness for disruptive tech. Sooner and later, these disruptive challenges would come from full implementation of existing technologies and methods across the education system. Hence, the successful redesigning of the higher education system requires the full participation and commitment of educators, administrators, ministry and students.

LITERATURE REVIEW

1. Massive Open Online Courses (MOOC) in Malaysia

Malaysia has a collaborative agreement with Open Learning, founded by Adam Brimo to initiate a nationally-coordinated MOOC programme for all public higher education institutions. A total of 20 local public universities have participated in this program and over 60 blended courses have been offered. To date, over 220,000 students from over 170 countries have participated in Malaysia's MOOC courses. Participants from Australia and the USA make up the highest foreign enrolment in Malaysia's MOOCs (The Star Online, 26 March 2017). MOOC is a free web-based course that is open to everyone around the world and can be accessed anytime anywhere (Jansen & Schuwer, 2015; Kop, Fournier, & Mak, 2011). According to Lang and Pirani (2014), MOOCs are a model for delivering learning content online to any person who wants to take a course, with no limit on attendance. MOOC offers university-level courses without any need to complete the program of study and takes on a student-centred approach and enabling both students and educators with social elements. It combines both traditional and modern techniques and learning materials such as videos clips, digital text, project assignments, quizzes and many more. In fact, MOOC learners can also interact with other students in the same course via online forums, discussion, blogs and other social media provided within the MOOC platform (Lang & Pirani, 2014).

MOOCs transcend common major challenges in education such as cost, distance, time and quality of programs. Hence, MOOCs create a new trend in education by offering flexible learning opportunities and globally widening student participation through institutional visibility (Jansen & Schuwer, 2015; Jenner & Strawbridge, 2015). Higher education institutions see MOOC as a way of pioneering new platforms (Jenner & Strawbridge, 2015) and offering interdisciplinary courses (Prades et al., 2015) to students in order to enhance institutional reputation and marketability. Thus, strengthening the quality of programs offered through MOOC is essential to attract promising global learners (Chiam, 2016; Pscheida et al., 2015). Although MOOC has its known advantages, still it has challenges when comes to the implementations. As identified by Chiam (2016), the main challenge of MOOC is the high non-completion rate (high drop-out rate). Learners' readiness is another challenge for MOOC providers in identifying learners before participation in online learning. Hence, MOOC developers and researchers have to look into motivational factors that could urge participants to enrol in MOOCs study.

2. Completion Rate of MOOCs

Learners' completion rate is a main issue for MOOC providers and hence, completion rate can be considered as one of the measurements for course success (Chiam, 2016). Barcena et al. (2014) have identified learners' profile such as language, education background, age and gender as factors that contribute to MOOC completion rate. According to Barcena et al. (2014), from a geographical and linguistic perspective, MOOCs have attracted students from fairly homogenous areas, well-educated groups (most of the participants were undergraduates and 10% were postgraduates), half of the participants were aged between 36-45 years and 61% were females.

Studies by Ho et al. (2015) and Koller et al. (2013) have highlighted a very low rate of course completion among enrolled learners. Besides, previous studies have identified factors such as the lack of peer-to-peer feedback and professional learners working full time as key factors which have contributed to MOOC participants' dropout rate (Morris, Hotchkiss, & Swinnerton, 2015; Colman, 2013; DeBoer et al., 2013). Perhaps, demanding work schedules and time constrains of learners did attribute to high learner non-completion rate. Besides, lack of interaction with peers was also identified as a significant factor that has affected MOOC completion rates. Studies by Ferguson and Clow (2015), Jordan (2014) and Rodriguez (2012) found that MOOC learners' who mingle and communicate with peers were less likely to dropout. Furthermore, to some extent, social engagement such as small face-to-face groups has contributed to a positive effect on MOOC completion (Li et al., 2014).

3. Motivational Factors That Affect MOOC Usage

Motivational factors are a favourite concern in education when it comes to engaging learners' full participation in the learning process. Identification of personal goals is important as it drives individuals to accomplish the objectives. Glynn et al. (2011) and Brophy (2004) identified various motivation factors which have influenced the learning process. In line with this, understanding a MOOC participants' profile is also inevitably important in ensuring that a MOOC course fulfils their initial learning objectives. Learners' intrinsic motivation, the use of learning resources, learners' engagement and feedback are among the key criteria to be understood in designing and running MOOC programs. Besides, other motivational factors such as job relevancy, career advancement and meeting new friends online will predict behavioural patterns of MOOC learners' (Kizilcec & Schneider, 2015). Specifically, MOOC participants who learn with friends tend to engage course materials more diligently compared to their counterparts who participate by themselves (Kizilcec & Schneider, 2015).

RESEARCH DESIGN AND METHODOLOGY

This correlational study used a survey questionnaire to glean information associated with completion rate and motivational factors among MOOC learners at a local public university in Malaysia. Out of 100 questionnaires, 73 were completed and returned from the Faculty of Education. This formed 73% response rate. A response rate above 70% is adequate to get the information from a target population and can be used effectively for statistical analyses (Draugalis, Coons, & Plaza, 2008). The items of this questionnaire were mostly adapted from the study of the University of Southampton and Onah, Sinclair and Boyatt's (2014) instrument. The instrument has been validated by two senior lecturers from the Faculty of Education. These two lecturers have suggested to rephrase some items to make it more accurate, however, no items have been deleted. The reliability of the questionnaire used in this study was identified as .94, which was determined by the Cronbach's alpha analysis. Specific Cronbach's alpha values for each variable have been identified 0.89 for motivation factors, and .93 for completion rate. Completion rate was set as the dependent variable while motivation factors and learners' profiles (age, gender, ethnicity, program of study) were set as independent variables. There are five research objectives that have listed to be answered in this study:
1. To describe the completion rate in MOOC
2. To identify the factors that have contributed to MOOC completion
3. To identify motivational factors to participate in MOOC
4. To identify the differences in the completion rate of MOOC based on gender, ethnicity and program of study
5. To identify the factors that have contributed to the completion rate of the MOOC.

Descriptive analysis such as mean and standard deviation have been used to analyse the data for research objectives 1 to 3. Oneway analysis of variance (ANOVA) has been used to analyse the differences in the MOOC completion rate based on gender, ethnicity and program of study. However, multiple regression has been used to identify the most important factors that have contributed to the completion rate of MOOC.

1. MOOC Learners' Profiles

Majority of the respondents were females who made up of 79.5% (n=58) and males made up of 20.5% (n=15). Most of the respondents were aged between 20-24 years which formed 69.9% (n=51) followed by respondents aged around 25-29 years, who formed 23.3% (n=17), respondents aged 35-39 years formed 5.5% (=4) and the least were respondents aged 30-34, who formed 1.4% (n=1). Clearly, respondents below 30 years old were the majority in this study. As for ethnicity, Malay respondents were the largest group in this study (89%, n=65) followed by indigenous respondents from Sabah (5.5%, n=4). However, another 5.5% (n=4) refused to state their ethnicity. Based on program of study, bachelor degrees were the majority (58.9%, n=43) followed by master's degree

holders (41.1%, n=30). Full time students formed the majority in this study (98.6%, n=72), while part timers were the least (1.4%, n=1). Last but not least, 49 respondents stated that they were active learners (67.1%), while 24 respondents were passive learners (32.9%).

2. MOOC's Completion Rate

As depicted in Table 1, the overall mean of MOOC completion rate was high (mean=3.79, SD=.52). Table 2 shows the descriptive analysis of MOOC's completion rate factors. The results revealed that the top reasons to complete the course were as follow: MOOC has provided them with useful information for the courses they were undertaking at the university (mean=3.85, sd=.74), the online course was easy to understand and it has sufficient support from instructors and peers (mean=3.85, sd=.84), MOOCs are closely related to participants' course in the university (mean=3.82, sd=.86), and the topics were relevant to participants' course (mean=3.81, sd=.81). Other reasons identified were (a) because the participant wants to learn more about the course as it met their expectation (mean=3.77, sd=.95), (b) the participants have been required to complete the course by their instructors (mean=3.68, sd=.98), (c) the course was presentable and provided much information (mean=3.67, sd=.90), (d) the grading was given by the university lecturers/course expert (mean=3.63, sd=.83), (e) the course has shorter life span to finish (mean=3.56, sd=.9) and (f) impressive MOOC's interface/web (mean=3.51, sd=.96). Other than that, the reasons participant completed the course were the topics offered by prestigious university/platform (mean=3.47, sd=.96) and small courses (not more than 200 enrolment) design (mean=3.42, sd=.90).

Table 1 MOOC's completion rate

Variable	Mean	Standard Deviation
MOOC Completion Rate	3.49	0.59

<1.66 = Low   1.67-3.33 = Medium   3.34-5.00 = High

Table 2 Descriptive analysis for each item of MOOCs' completion rate factors

No.	Statements	Mean	SD
1.	I completed MOOCs because it is closely related to my course in the university.	3.82	0.86
2.	I completed MOOCs because it provides useful information for my course.	3.85	0.74
3.	I completely viewed all MOOC topics that are relevant to my course.	3.81	0.81
4.	I completed MOOCs because my friends/colleagues have completed it.	3.30	1.04
5.	I completed MOOCs because it has impressive interface/web design.	3.51	0.96
6.	I completed MOOCs because instructors ask for it.	3.68	0.98
7.	I completed MOOCs as the course has shorter life span to finish.	3.56	0.90
8.	I completed MOOCs as the course has been offered by a prestigious university/platform.	3.47	0.96
9.	I completed MOOC because it was a small course (not more than 200 enrolments).	3.42	0.90
10.	I completed MOOCs because the grading was given by university lecturers/course expert.	3.63	0.83
11.	I completed MOOCs because the course was presentable and provided much information.	3.67	0.90
12.	I completed MOOC because I want to learn more about the course (the course meets my expectation).	3.77	0.95
13.	I completed MOOC because the course is easy to understand and it has sufficient support from instructors and peers.	3.85	0.84
	Overall mean	3.49	0.59

Overall, MOOCs' completion rate in this study was identified at a high level. Also, this study revealed that the reason MOOC participants complete the course due to its provision of useful information and it met their learning expectations. They also completed the course as it was easy to understand and required a short duration to finish. Other factors that have influenced the completion

rate of MOOCs have been identified as the MOOC has sufficient support from instructors and peers, the course resembles to that offered by university, and the topics relevant to their studies, the grading system was administered by the university lecturers/course experts, and the MOOC had an impressive interface/ web design.

3. Motivation Factors for Participating in MOOCs

Table 3 shows that the overall mean for motivation factors to participate in the MOOC was high (mean=3.79, SD=.52). The descriptive analysis in Table 4 revealed that most of the respondents participated in MOOC because it was free (no fee applied) (mean 4.22, SD=.67), due to easy access to materials (mean=4.00, SD=.78), the reason to enhance/refresh knowledge (mean=4.12, SD=.8), the nature of its' flexibility and fits their study schedule (mean=4.01, SD=.71) and interesting topics offered (mean=3.95, SD=.7). Besides that, learners were also motivated to participate in MOOC due to the prestigious nature of the university (mean, 3.81, sd=.81), no obligation to complete the course (mean=3.84, sd=.78), furthermore the MOOCs help to refresh study/starting university (mean=3.82, sd=.86), and a variety of courses offered by the MOOC platform that matches their needs (mean=3.86, sd=.75). The students were also motivated to participate in MOOC due to their interest in new technology (mean=3.77, sd=.85), because MOOC provides real-time tutorial sessions and/or tutor-monitored forum (mean=3.73, sd=.87), and also due to their friends/colleagues that have subscribed to the same MOOCs (mean=3.42, sd=.96). Table 4 presented the motivation factors to participate in MOOC.

Table 3 Motivation factors to participate in MOOC

Variable	Mean	Standard Deviation
Motivating Factors for Participating in MOOCs	3.79	0.52

<1.66 = Low   1.67-3.33 = Medium   3.34-5.00 = High

Table 4 Descriptive analysis of motivation factors for participating in MOOC

No.	Statements	Mean	SD
1.	I engage in MOOC because it free (no fee applied).	4.22	0.67
2.	I engage in because the topics offered are interesting.	3.95	0.70
3.	I participate in MOOC because the provider is a prestige university	3.81	0.81
4.	I engage in MOOcs because the materials are easy to access.	4.00	0.78
5.	I engage in MOOCs to enhance/refresh my knowledge.	4.12	0.80
6.	I participate in MOOCs because it has no obligation to complete the course.	3.84	0.78
7.	I engage in MOOCs because its flexible and fit my study time	4.01	0.71
8.	I participate in MOOCs to feed my need to start own business or for career change.	3.25	0.89
9.	I participate in MOOCs to refresh my studying / starting university.	3.82	0.86
10.	I participate in MOOCs to taster before choosing university to attend.	3.23	0.99
11.	I participate in MOOCs because I interested in new technology	3.77	0.85
12.	I participate in MOOCs because my friends/colleagues have subscribed to the same MOOCs.	3.42	0.96
13.	I engage in MOOC because this platform offers a variety of courses that match my needs.	3.86	0.75
14.	I participate in MOOC as it provides real-time tutorial sessions and/or tutor-monitored forum.	3.73	0.87
	Overall mean	3.79	.52

The independent sample t-test in Table 5 shows that gender [t(71)=-1.280, p-value >.05], ethnicity [t(71)=-1.370, p-value >.05] and program of study [t(71)=-1.617, p-value >.05] did not

contribute any significant difference to the completion rate. Hence, the findings show that gender, ethnicity and program of study did not influence MOOC course completion among higher education learners. The Levene's test has further assured that the equality of variance between the respondents based on gender, ethnicity and program of study.

Table 5 Independent sample t-test of completion rate with gender, ethnicity and program of study

Variables		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Diff	Std. Error Diff	95% Confidence Interval of the Difference	
									Lower	Upper
Gender	Equal variances assumed	.432	.513	-1.280	70	.205	-.21970	.17169	-.56212	.12272
	Equal variances not assumed			-1.173	19.824	.255	-.21970	.18736	-.61075	.17135
Ethnicity	Equal variances assumed	.306	.582	-1.370	67	.175	-.41095	.29992	-1.00960	.18769
	Equal variances not assumed			-1.950	3.874	.125	-.41095	.21075	-1.00367	.18177
Program of Study	Equal variances assumed	1.188	.279	-1.617	71	.110	-.22449	.13884	-.50132	.05235
	Equal variances not assumed			-1.690	70.047	.096	-.22449	.13286	-.48948	.04050

* Dependent variable: Completion rate

A multiple regression analysis has been conducted to examine the contribution of predicting variables towards the variance of MOOC completion rate among the student respondents (Table 5). The independent variables such as gender (X_1), age (X_2), ethnicity (X_3), program of study (X_4) and motivation rate (X_5), were entered into a multiple regression model to observe the significant predictors for the MOOC completion rate. Thus, a proposed model for multiple regression was written as follow:

$$Y = a + bX_1 + cX_2 + DX_3 + eX_4 + fX_5$$

Table 6 shows that motivation factors (t=5.398, p=.00) were found to be the only significant contributor towards the variance for the completion rate of MOOCs. Hence, the final estimated multiple regressions model was:

$$Y = .603 + .563\ X_5$$

Multiple regression model also displayed that the value for adjusted R^2 which suggests that 30.3% of the variance in completion rate was predicted by the motivation factors.

Table 6 Multiple regression of predictors for MOOC completion rate

Coefficients[a]											
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B		Collinearity Statistics		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
A	(Constant)	.603	.527		1.144	.257	-.450	1.656		
X_1	Gender	-.008	.138	-.006	-.059	.953	-.283	.267	.864	1.158
X_2	Age	.009	.099	.012	.089	.929	-.189	.206	.575	1.740
X_3	Ethnicity	.323	.255	.130	1.264	.211	-.188	.833	.975	1.026
X_4	Program of Study	.054	.158	.045	.340	.735	-.262	.369	.594	1.684
X_5	Motivation Factors	.648	.120	.563	5.398	.000	.408	.888	.944	1.060

a. Dependent Variable: Completion rate

DISCUSSION AND RECOMMENDATIONS

The study showed that MOOC course completion was influenced by motivation factors but it was not influenced by either age, gender, ethnicity or program of study. The findings of this study suggest that if the MOOC has useful information and relevant course content, it will meet the participants' learning expectations. Other than that, the reasons MOOC participants complete their course is largely due to the fact that it is easy to understand, it has a short duration to finish, sufficient support from instructors and peers, the online course resembles the course offered by the university and the topics are relevant to their studies (Pratama et al., 2020). As stated by Rai and Chundrao (2016), Onah et al. (2016) and many other researchers, MOOCs have provided such useful information to its learners. Its rich-content which resembles university curriculum has successfully attracted students' enrolment. Rai and Chundrao (2016) emphasized that the reputation of a university and the instructors are the major factors that have motivated students to enrol in and complete a MOOC course. Even the findings in study found that gender, ethnicity and program of study did not affect the differences in the use of MOOCs. Different findings have been identified by other researchers. For example, Jordan (2015) found that course length and assessment type did significantly affect MOOC completion rate. According to Jordan (2015), shorter courses provide better guidance and benefit to students who prefer to direct their own learning and allow for their achievement to be recognised. Hence, the result of this study did not support Jordan's study with regards to course duration and completion rates.

The study also showed that motivation level among the respondents was at a high level. This finding is similar to a study conducted by Miri, Abeer and Hossam (2015) on Arab online learners. This suggests that learners' high motivation levels to participate in a MOOC could have triggered their intention to enrol in one. In addition, MOOC learners' motivation could also be influenced by zero cost (Rai & Chunrao, 2016; Onah et al., 2016), taught by professors from leading universities (Rai & Chunrao, 2016) and do not have enforced prerequisites (Grainger, 2013). In fact, there are various courses available in the MOOC platform. As an example, in 2012, MIT and Harvard University had decided to offer a wide-range of university-level courses through an online platform. A variety of learning materials are available online in the form of text files (PDF, Word, PowerPoint), audio and video lectures (Rai & Chunrao, 2016) which can be accessed online or downloaded from the course platform (Ryan, 2013). The availability of real-time tutorial sessions and tutor-monitored forums are among the motivational factors that encourage MOOC participation among students. Therefore, MOOC instructors and administrators needs to provide online learning materials which can be accessed by a multitude of participants (Onah et al., 2016). As emphasized by Ryan (2013) and Cross (2013) the use of the forum tool in a MOOC framework, not only provides online discussion between participants and instructor for further explanation of course topics, rather it can also be used for peer support as well. Moreover, learners can also communicate with their MOOC instructors via

various personal online learning media (Grover et al., 2013), as shown by this study such as blog, online videos, Facebook, google, skype and twitter. In addition, the online interaction can occur with regards to course material or with other course participants. According to Boyatt et al. (2013), certain universities are considering the incorporation of MOOCs into their standard curriculum, either by providing formal credit for a standard MOOC or incorporate it in blended learning mode (Tharindu et al, 2013).

The result of this study also supports a study by Rai and Chunrao (2016) which showed that job and career requirement are the motivating factor for participating in a MOOC. Some learners have participated in a MOOC either to improve their prospects in their workplace or to enhance their skills, which may boost their career choices. However, the motivation factors discussed in this study are not classified into intrinsic nor extrinsic factors. Thus, for future research, it is recommended that a more in depth study could be conducted to identify the type of motivation that affects MOOC course completion, and lower drop-out rates.

To reiterate, MOOCs are subscription based online learning platforms offered by the MOOC providers and this is associated to digital or e-learning. According to Hall (1997), e-learning is learning instruction delivered electronically via web browsers over a network. However, in designing smart e-learning for students, the barriers could be interactive course capability and the students themselves as they will be far from their instructors while studying online (Assareh & Hosseini, 2011). Nevertheless, MOOC has helped promote the concept of smart e-learning that enhances students' learning ability through guided online problem-solving processes. The model of smart e-learning which consists of students, educator and materials promotes maximum outcomes with minimum effort through effective collaborative team work (Gamalel-Din, 2010). Overall, the findings from this study have highlighted that student were interested in MOOC because it offers a variety of interesting courses and easy access to materials available online that can be used to enhance their knowledge or expertise. Moreover, respondents had reported that they were motivated to engage in MOOC as it provides real-time tutorial sessions/ tutor-monitored forums. Thus, the absence of face-to-face instructors can be overcome.

CONCLUSION

The findings showed that the moderate completion rate of MOOC among students in higher education has due to the motivational factors. However, the motivation to complete MOOC was not affected by the demographic factors of the students such as gender, ethnicity and program of study. The multiple regression has confirmed that only motivational factors have contributed to the completion of MOOC among the students. The findings of this study showed that higher education in Malaysia has reached a new milestone in bringing the best education to its students and consistently growing internationally. In fact, many prestigious universities such as Harvard, MIT and the University of New South Wales and so forth are offering MOOCs to their students in realisation of the benefits of MOOCs. In Malaysia, many public universities have already started to provide MOOCs as an online platform offering the best courses in order to attract new students recruitment while retaining current students in an effort to remain competitive in the education field. Moreover, MOOCs have facilitated the concept of smart e-learning through its capabilities in providing a new platform for learning online. Findings from this study support students' confidence and readiness for smart e-learning. Therefore, the vision of smart e-learning in empowering effective learning can be achieved. The current study has also revealed the contribution of motivation factors to MOOC course completion rates. Future studies could explore motivation components (intrinsic/extrinsic) that influence MOOC course completion. Also, this study might be replicated to other higher education settings to enrich and generalize MOOC completion and related motivation factors.

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DATA AVAILABILITY

Data will be made available on request.

CONFLICT OF INTEREST

The authors state that there were no commercial or financial ties that may be considered as a possible conflict of interest during the research.

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