

TECHNOLOGY ACCESS AND SUPPORT SYSTEM FOR MOOCS IN THE HIGHER EDUCATION: A CASE STUDY

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Abstract: *Open education (OE) permits easy access to knowledge through an internet enabled learning environment. The basic tenet of OE is to have access to the internet as the core tool in an online learning environment. Technology enables learners to seek information around the globe in the process of gaining knowledge. Therefore, OE learners should have access to technology and possess standard technology skills to ensure quality online learning. However, it is a hindrance for those who do not have the capacity nor the capability to gain access to technology and support systems in order to participate in an online learning environment. In regard to this, a descriptive-correlation study has been conducted involving 125 students from a higher learning institution. The findings indicated a moderate level of learners' capacity to access technology, online skills, and online assessment and support system among the students in higher education. Nevertheless, the finding also showed a positive, moderate and significant relationship among the variables investigated. Therefore, technology access and a good support system among instructors and learners does create a higher tendency for using MOOCs at higher education in Malaysia.*

Keywords: *MOOCs, Technology Access, Online Courses, Online Skills, Support System*

Introduction

Background of The Study

Learning in the 21st century requires students to be able to create, evaluate and effectively utilise information, media and technology. Hence, Malaysia Education Blueprint (Higher Education) has stressed the importance of learning using technology as an innovation and

transformation initiative in learning and teaching (MOE, 2015). This has been stated in Shift 9 of Malaysian Higher Education Blueprint, which urges teachers to move from a mass production, delivery model to a technology and innovation enabled system so that democratic access to education could be achieved. Undeniably, learning in a technology and innovation rich environment offers for a more personalized learning experience for all students, especially students at higher education institutions (MOE, 2015). Therefore, Massive Open Online Courses (MOOCs) were introduced to students and it has become an increasingly significant feature of the Malaysian higher education model. Moreover, MOOCs can serve as a platform of inherent features for higher education institutions' openness and reputation building which are significant elements of institutional branding.

MOOCs are referred to as free online forms which mean it is open to anyone to join, free to contract and delivered entirely online (Murray, 2014; Li & Powel, 2013; Lindsey, 2012). Typically, student engagement with a MOOC last for a period between five to ten weeks. Generally, MOOCs are based on connections, supporting collaboration and sharing resources in which its delivery and learning system has little or no tutor input (Murray, 2014). Due to its greater acceptability and applicability, MOOC is a novel program for continuous online learning in different learning environments. Furthermore, it provides flexibility for students' learning expectations and accessibility in continuing training and professional development context (MOOCs, 2013).

To note, the effectiveness of MOOCs relies on some critical factors such as technology access, online skills and online assignments & support system. Obviously, the readiness for online learning is determined by access to the internet, functional Information and Communication Technology (ICT) skills and appropriate independent learning skills that influence meaningful learning in any self-directed, self-regulating learning environment (Fakinlede et al., 2014). Hence, student readiness to use MOOCs is a defining criterion for the efficient implementation of MOOCs in higher education.

Statement of Problem

Despite the increased figure of students enrolled in online courses since 2011, Malca (2015) has identified the challenges of MOOCs implementation with regards to students' engagement and drop-out rates. She highlights that MOOCs have achieved a veritably high satisfaction feedback. Nevertheless, studies have also indicated that less than ten percent of scholars who have enrolled in MOOC courses have actually finished the course (Jordan, 2014; Ho et al., 2014; Kolowich, 2013; Breslow et al., 2013). According to Jordan (2014) and Ho et al. (2014), completion rate may not be the best indicator to evaluate MOOCs, but lower rates of completion raise the inquiry on the effectiveness of MOOCs (Chafkin, 2013; Marcus, 2013).

In spite of massive changes in higher education brought by new learning technologies, the effective deployment of online learning poses both problems and challenges for traditional universities. Hence, the concerns for online learning in Malaysia should include online learning readiness of students and the faculty, increased difficulties in the development of specialised administrative structure and the adoption of appropriate technology infrastructure (Fakinlede et al., 2014). Since there is scant empirical research conducted in Malaysia regarding student readiness to learn MOOCs, hence, this study aims to examine students' readiness towards MOOCs in higher education in terms of technology access, online skills and online assignments & support system.

Literature Review

Overview of Massive Open Online Education (MOOC)

Massive open Online Courses or known as MOOCs, are free and open access online higher education courses. The aim of MOOCs is to provide a platform for world-class education to a massive number of students through online learning with very minimal, or no fees (open) (Aboshady et al., 2015). The courses consist of pre-recorded video lectures, slideshows, computer- graded tests and discussion boards that enable the students to share their thoughts, get clarification and create a sense of community, as in a traditional classroom (Hoy, 2014). With the emergence of this open and free online learning, instead of attending the traditional classrooms, students can engage in online learning by watching pre-recorded lecture videos and taking quizzes that are readily prepared for them to test their comprehension. This learning method provides students with frequent knowledge checks by giving prompt feedback to students and letting them know if they have missed the key concepts (Hoy, 2014). Hence, through the usage of technology, this online learning path provides a strategic opportunity to better the calibre of education and becomes a potent medium for knowledge sharing and capacity building of a big number of learners (Tasnim, 2015).

A study conducted by Babson Survey Research Group, Massachusetts, USA in 2012 reveals that the number of students' enrolling in online education has significantly increased by ten times as against the 2 per cent growth rate in the overall number of higher education students. Subsequently, in 2015, Babson Survey Research Group states that the number of higher education students taking at least one online course has been increased to 3.9 percent from the previous year. The survey further indicates that even though enrolments in higher education institutions has decreased, the number of student enrolment in online programmes continues to increase. This shows a robust growth in online professional programmes as learners begin to focus more on "employability and career advancement" (Babson Survey Research Group, 2015).

Online Skills and Online Assignment Support System

Generic online skills and completion of online jobs are part of the requirements that are needed to engage Massive Open Online Courses (MOOCs). According to Stamenka & John (n.d), online learning refers to the way of delivering educational content knowledge by using the internet as a medium. One of the skills required for a student is online study skills since student might have not experienced online learning before (Stamenka& John, n.d). Most people might have a misconception that online learning requires minimal support by facilitators while in reality it requires no less support than a traditional class. In fact, student centered learning is one of the individualised learning styles that help students to become a more versatile learner (Mya & Martha, 2010). Furthermore, online skills enable students to explore more into internet content.

The support for online learning comes in various formats and media, for example, digital textbooks, video, audio materials through informal teaching such as Massive Open Online Courses (MOOCs) as mentioned in some of the previous research. Through online or online web, students can obtain as much information as they can without having to go physical repositories to search for material. As stated by Mya & Martha (2010), students can easily access online databases and the subject matter experts in an online classroom. Besides that, the interesting part in online learning is the alignment with the 21st century educational trends. A research report by the Pacific Policy Research Centre (2010) emphasized that students engaged in 21st century education should be media literate, which is to have the ability to access,

understand, and analyze media and message. The research report also mentioned about technology literacy, which is a skill that emerges as learners immerse themselves in technologies such as computers, smart phones and web 2.0 and embraces the collaborative, participatory learning made possible through Web 2.0. Literature review had also provided evidence about online skills which are a requirement for learners to engage in 21st century education. Since online skills and online assignments are part of the education, the impact of student readiness towards online education can be immense.

Previous studies have stated that support skills are also important for online student, since online courses are new concepts. These support skills include time management and study schedules, assistance to balance education and life demands, peer assistance, collaboration, assistance to work with digital materials and also information about plagiarism and how to avoid it. Not only that, support system for online assignment should also be in place.

Technology Access

Technology has become an important element both in developed or developing countries whereas access to technology is one of the main concerns among citizen. Currently internet technology is easily accessible to many individuals. This is because of its capabilities to access a variety of entertainment, academic and information sources. Based on previous research, learners in 21st century education use technology and they find out that by using technology, the learning process has become more dynamic. According to Cher et. al. (n.d), students use different technologies to seek and provide resources and information, express themselves, communicate with peers as well as many other activities. The accessibility of technology among students is developing at an explosive rate as stated by Fauzi, Hamzari& Mokhtar (2014), and 44.8% of the internet users are from Asia. Hong, Abang Ekhsan and Zaimuarifuddin Shukri (2005) stated that most undergraduate students spend 9.2 hours per week on average on internet usage. The Malaysian Communication and Multimedia Commission (2010) reports that most internet users are youths within the age range of 15 to 19 years old and 20 and 24 years old. In addition, advances in computer technology have enabled the internet to be used by individual as a platform to seek information, exchange idea, receive emails, chatting and etc.

Kevin (2014) in his research mentions about students who start to be conversant with the utilization of technology tools as part of their academic course of study, whereas instructors use technology to support the teaching and learning process. Technology use in the academia has proven to have a positive impact on teaching and learning. Van Meter (2009) stated that, schools have reported that there was an evolving atmosphere of respect, creativity, collaboration and connection. Technology use can also improve students' confidence level. Therefore, it does not come as a surprise that, developing countries commonly have high access to technology to ensure that they are capable to compete with developed nations. While in higher education, such as in Malaysia, technology facilitates students and lecturers in enhancing their academic excellence by providing information and access to information. In rural areas technology appears to be an excellent alternative medium for communication when face-to-face contact with family and friends is not readily available.

Overall, previous finding shows that, technology has a positive effect on student learning prediction and achievement. Hence, technology integration had become common in higher education institutions as with the technology use, it is very effective to be used among different age groups especially in learning.

Conceptual Framework of The Study

This study seeks to investigate students' readiness towards MOOCs in higher education in terms of technology access, online skills and online assignments & support system. Based on the literature review discussed above, it shows all these variables have a positive effect on students' e-learning prediction and achievement as shown in a Conceptual Framework of the Study in Figure 1.

Fini (2009) examines lifelong learners' attitudes towards learning network technologies. Findings from a survey of 83 respondents indicate that among the factors that affect the students' course completion are time constraints, language barriers, and ICT skills. Participants of this online learning course are expected to have some basic competencies, namely online skills such as sending an email with a file attached, communicating effectively using online technologies (FB messenger, twitter, WhatsApp), surfing the internet, using a computer or laptop etc. The study of Fini (2009) indicated that participating in MOOCs online courses requires learners to have at least basic online skills for effective participation in MOOCs. Due to this reason, students who have a low level of online skills might face difficulty in using the platform, thus lose interest to continue learning.

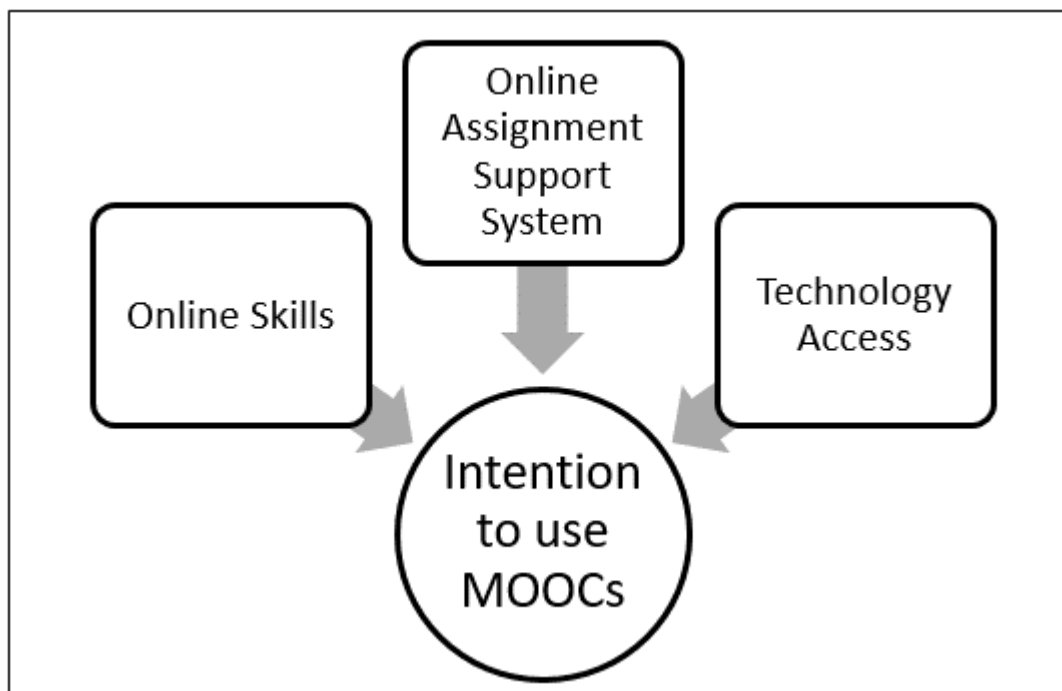


Figure 1: Conceptual Framework of the Study

In a study conducted by Rai and Chunrao (2016), it was found that one of the reasons for success in MOOCs is the support system such as getting instant feedback from the instructor. Students prefer to receive instant feedback about the assignments or answers submitted. This has been proven to be the best way to learn and make progress. In addition, in MOOCs students are allowed to pause, rewind, speed up/down the video. By doing this they are able to listen and watch the video repeatedly, which is impossible to do in real classrooms. Aside from that, it is reported that most students learn best from their peers, and have the choice of participating in thousands of discussions and online forums.

Technology access is also one of the factors that will affect students' intention to use MOOCs. According to Nielson (2014), a technology that is not functioning properly will quickly

contribute to frustration and thus, hinder the success of MOOCs and decrease the completion rate of MOOCs. Therefore, MOOCs designers need to carefully select tools so that users will go through a smooth online learning experience rather than detracting from it. With the emergence of this open and free online learning, instead of attending the traditional classrooms, students nowadays can engage in online learning by following pre-recorded lecture videos and taking quizzes which are readily prepared for them to test their comprehension. Nevertheless, lack of technology access can be one of the barriers for the student to participate in this online learning platform.

Methodology

The study was conducted at the Faculty of Education of a public university in Selangor. A total of 125 students were randomly selected to participate in the questionnaire survey. Since this study has employed a more quantitative based research method to obtain the information, hence, the research instruments used for this study consist of a set of questionnaires and interview questions to gather data from the students. The 5-point Likert-scale questionnaire was adapted from the Online Learning Readiness Questionnaire developed by the University of North Carolina (2010). Open-ended questions have been added to the questionnaire to gauge the students' readiness towards MOOCs in higher education in terms of technology access, online skills, and online assignments and support systems.

A descriptive-correlation research design was used to analyse the quantitative data collected from the questionnaires distributed to the respondents. The data collected was analysed to investigate the descriptive features of the three research variables, namely technology access, online skills, and online assignments and support systems. Besides that, in an attempt to investigate the relationship between these three research variables, a Pearson Product Moment Correlation analysis was employed. The qualitative data were analysed thematically to identify important messages relating to technology access, online skills and online assignments and support system in higher education.

Findings and Discussion

This section presents the demographic factors, quantitative data and qualitative data collected from the questionnaires. Overall, the data had been analysed using descriptive and inferential statistical analysis.

Respondent Profile

The study was conducted at one of the campuses of a public university in Malaysia. A total of 125 students were randomly selected to participate in this study. The respondents included 49 male students (39.2%) and 76 female students (60.8%) from various programmes at the Faculty of Education. Table 1 shows the distribution of the demographic data of the respondents.

The result shows that the majority of the respondents were aged between 22-25 (75.2%), followed by respondents aged under 21 (15.2%), and only a small number of respondents (7.2%) aged 26-30 (7.2%) and 31-35 (0.8%) respectively. The majority of the respondents involved were Malays (94.4%) followed by a small number of Bumiputera Sarawak (4.0%), and Indian (0.8%) and Bumiputera Sabah (0.8%). In terms of the mode of study, the data shows that most of the respondents were full time students (98.4%), followed by one part time student (0.8%) and one student following a blended learning programme. In terms of the distribution of the current year of study, the data indicates that the highest number were the fourth-year students with 68 (54.4%), followed by the second year with 28 (22.4%), the third year with 23 (18.4%), the fifth year with 5 (4.0%) and the first year with 1 respondent (0.8%). On the other

hand, the distribution of CGPA among respondents indicated that 22 students scored CGPA below 2.50 (17.6%), 67 students (53.6%) scored CGPA between 2.51-3.00, 9 students (7%) scored CGPA between 3.01-3.50 and 19 respondents (15.2%) scored CGPA between 3.51-4.00.

Table 1: Demographic Data of the Respondents

Item	Frequency	Percentage (%)
Gender	125	100
Male	49	39.2
Female	76	60.8
Age	123	98.4
<21	19	15.2
22-25	94	75.2
26-30	9	7.2
31-35	1	.8
Ethnicity	125	100
Malay	118	94.4
Indian	1	.8
Bumiputera Sabah	1	.8
Bumiputera Sarawak	5	4.0
Program of study		
Bachelor degree	125	100
Mode of study	125	100
Full time	123	98.4
Part time	1	.8
Blended learning	1	.8
Current year of study	125	100
First year	1	.8
Second year	28	22.4
Third year	23	18.4
Fourth year	68	54.4
Fifth year	5	4.0
CGPA	117	93.6
<2.50	22	17.6
2.51-3.00	67	53.6
3.01-3.50	9	7.2
3.51-4.00	19	15.2

Table 2 shows that 52 respondents (52.5%) stated that they have experience in MOOC before, however 47 respondents (47.4%) admitted that they have no prior experience in learning from a MOOC.

Table 2: Students' Experience in MOOC

Item	Frequency	Percentage (%)
Yes	52	52.5
No	47	47.4
Total	99	100

Technology Access

Table 3 shows the descriptive data of the technology access of students in higher education. The findings indicated that most of the students agreed that they have access to a computer (M=4.22, SD=.758), computer software (M=4.22, SD=.736), and computer/laptop each week for their course (M=4.10, SD=.777), but they reluctantly agreed that they have headphones or speakers and a microphone to use if a class has a video conference (M=3.67, SD=1.162) and access to the printer (M=3.67, SD=1.162).

Nevertheless, most of the students agreed that they put in more effort when assignments are due (M=4.13, SD=.718) and researched online for relevant and current materials for completion of assignments (M=4.06, SD=.704). However, most of the students were reluctantly to agree that they like doing assignments that involved field work (M=3.62, SD=1.052), and enjoy doing assignments that required critical thinking skills (M=3.58, SD=.986).

Table 3: Students Technology Access to Online Courses (n = 125)

Technology Access of Students to Online Courses	Mean	Std. Deviation
I have access to a computer with an internet connection	4.22	.758
I have access to a computer adequate software (e.g:Microsoft word, Adobe Acrobat)	4.22	.736
I put in more effort when assignments are due	4.13	.718
I have regular access to a computer/laptop each week for my course (4 to 5 times a week)	4.10	.777
I search for relevant and current materials for my assignments	4.06	.704
I have headphones or speakers and a microphone to use if a class has a video conference	3.67	1.061
I have access to a printer	3.67	1.162
I like doing assignments that required field work (e.g: case studies)	3.62	1.052
I enjoy doing assignments that require which demand critical thinking skills	3.58	.986

Table 4 presents the findings on the online skills of the students in higher education. Most of the respondents concurred that they can send email to course mates and instructors (M=4.24, SD=.723), communicate effectively using technology (M=4.22, SD=.706), surfing the internet comfortably (M=4.18, SD=.763), able to use browsers (M=4.13, SD=.772), very good at using a computer (M=4.08, SD=.779), can relate the substance of the video (M=4.03, SD=.729), and able to utilize online tools (M=4.02, SD=.889).

Table 4: Online Skills of Students to Online Courses (n = 125)

Online Skills of Students to Online Courses	Mean	Std. Deviation
I can send an email with a file attached to course mates and the instructor	4.24	.723
I can communicate effectively with others using online technologies (e.g.: FB messenger, twitter, WhatsApp)	4.22	.706
I am comfortable surfing the internet	4.18	.763
I am able to use browser/search engine to navigate the internet (e.g.: Firefox, safari, internet explorer, google)	4.13	.772
I am very good at using the computer/laptop (e.g.: saving files, creating folders) and surfing the internet (using browser/search engine such as Firefox, safari, internet explorer, google)	4.08	.779
I can relate the content of short video clips (1-3 minutes typical) to the information I have read online or in the books	4.03	.729
I think that I would be able to use online tools (e.g.: Adobe, collage, YouTube, movie makers) to work on assignments with students in different places	4.02	.889
I am able to understand course related information when it's presented in video formats	3.99	.798
I am comfortable conducting searches, setting bookmarks, and downloading files	3.97	.782
I am able to ask questions and make comment in clear online writing	3.97	.772
I am able to express myself clearly through my writing (e.g: emotions, humours, icons)	3.89	.854
I am comfortable installing software and changing a configuration setting on my computer/laptop	3.82	.901

However, the results indicated that the students were reluctant to agree on certain things such as able to understand course information when presented in video format (M=3.99, SD=.798), comfortable of conducting searches (M=3.97, SD=.782), able to ask questions in online writing (M=3.97, SD=.772), express themselves through writing (M=3.89, SD=.854) and comfortable with installing software and varying configurations on their computer (M=3.82, SD=.901).

Table 5: Online Assignment and Support System of Students to Online Courses**(n = 125)**

Online Assignment and Support System	Mean	Std. Deviation
I think prior experiences with online technologies (e.g.: email, internet chat, online readings) are important to my success in online courses	4.05	.670
I can carry on a conversation with others using the internet (e.g.: internet chat, instant messenger)	4.04	.723
Quick technical and administrative support is important to my success in online courses	3.98	.724

I prefer to have more time to prepare responses to my question	3.94	.755
The ability to immediately apply course materials is important to my success with online courses	3.92	.779
I can follow along the online conversation (e.g.: internet chat, instant messenger)	3.91	.843
I am comfortable receiving constructive feedback for my online learning	3.90	.705
Frequent participating throughout the learning process is important to my success in online courses	3.89	.686
Regular contact with the instructor is important to my success in completing online courses	3.83	.704
I am willing to have several discussions taking place in the same online chat even though I may not be participating in all of them	3.78	.867
I keep a record of what my online assignments are and when there are due	3.71	.905
I plan my work in advance so that I can turn in my online assignments on time	3.60	.880

Table 5 shows the descriptive data of the online assignment and support system of the students in the online courses. Most of the students agreed on two key facets of online assignment and support system. They believed that their prior experience in online technology is significant to their success ($M=4.05$, $SD=.670$), thus, enable them to carry on online conversations ($M=4.04$, $SD=.723$). In addition, most of the students were only moderately agreed that students can follow the online conversations (e.g.: internet chat, instant messenger) ($M=3.91$, $SD=.843$).

However, most of the students disagreed that they plan for their work in advance so that, they can turn in online assignments on time ($M=3.60$, $SD=.880$). Besides that, most of the students were also reluctantly to agree with most of the items of online learning and support system namely:

- Quick technical and administrative support ($M=3.98$, $SD=.724$),
- more time to prepare responses for question ($M=3.94$, $SD=.755$),
- apply course materials immediately ($M=3.92$, $SD=.779$),
- follow along the online conversation ($M=3.91$, $SD=.843$),
- receiving constructive feedback ($M=3.90$, $SD=.705$),
- frequent participation throughout the learning ($M=3.89$, $SD=.686$),
- regular contact with the instructor ($M=3.83$, $SD=.704$),
- willing to have several discussions taking place ($M=3.78$, $SD=.867$),
- record online assignment ($M=3.71$, $SD=.905$)
- plan their work of online assignments ($M=3.60$, $SD=.880$).

Relationship between Technology Access, Online Skills and Online Assignment and Support System

Table 6 presented the relationship between technology access, online skills and online assignment and support system for the use of MOOCs in higher education. A strong, positive and very significant bivariate relationship has been identified between certain pairs of variables such as technology access and online skills ($r=.670$, $p<.01$); technology access and online assignments and support system ($r=.652$, $p<.01$); and online skills and online assignment and

support system ($r = .738, p < .01$). The findings indicated in order to make a success in the implementation of MOOCs in higher education, the students should have acquired certain level of online skills, and the university itself should provide good technology access to students. Besides that, the university should have also a good online assignment and support system to enhance the teaching and learning in the university.

Table 6: Technology Access (TA), Online Skills (OS) and Online Assignment and Support System (OASS)

Variables		TA	OS	OASS
TECHNOLOGY ACCESS	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	125		
ONLINE SKILLS	Pearson Correlation	.670**	1	
	Sig. (2-tailed)	.000		
	N	125	125	
ONLINE ASSIGNMENTS AND SUPPORT SYSTEM	Pearson Correlation	.652**	.738**	1
	Sig. (2-tailed)	.000	.000	
	N	125	125	125

Reflection on Online Learning and Suggestions for Improvement

Based on the findings obtained from 99 respondents in the open-ended questionnaires, a total of 52.5% of the respondents stated that they possess a full understanding of MOOCs, however 47.4% admitted that they possess no knowledge of MOOCs. Besides that, a significant number of the respondents concurred that they had attended some related online learning courses prior to this.

A total of 107 respondents had suggested different formats of delivering content to be made available online for e-learning. The highest response stated that they preferred PowerPoint (28%), followed by interactive course work (27.1%), video lecture files (22.4%), animated files (9.3%), 8.4% audio files, 2.8% PDF files (2.8%) and gaming format (2%).

In terms of frequency of meetings with instructor, a total of 92 responses has been attained from the respondents in the open-ended questions. Most of the respondents (43.5%) stated that, they prefer to meet face to face with their instructor 1 time a week, followed by 2 times a week (31.5%), 3 times a week (17.4%), 7 times a week (4.3%), 0 or no meetings at all in a week (1.1%), 4 times a week, (1.1%), 5 times a week (1.1%) respectively, but no respondents prefer to meet 6 times a week. From a total of 106 responses, 33% stated that, the easy accessibility is the number one benefit of online learning, followed by saving time 25.5%, various information can be obtained from online learning (17.1%), interesting learning environment (12.3%), use of technology (7.5%) and saving cost (4.7%).

In terms of obstacles faced by students in online learning based on 105 responses, 65.7% stated that lack of ICT facilities (internet connection, computer/laptop) is the major obstacle faced by most of the students in online learning, followed by the lack of internet skills (11.4%), absence of the instructors (7.6%), lack of student motivation (6.7%), financial issues (2.8%) and other social media distraction such as Facebook, twitter, and WhatsApp (2%).

In terms of suggestions to enhance online learning, 43.8% out of 80 responses suggested upgrading of ICT facilities (internet connection) in the university as the most critical criterion

to improve online learning. Other suggestions included various strategies such as easy accessibility (25%), impressive presentation of online learning websites (12.5%), active participation of students and instructor (7.5%), introducing new subjects through online learning (5%), schedule time for online learning and collaborative learning (2.5%), and to combine traditional and present learning method (1.2%).

Discussion

In general, the findings suggested that the students have acquired a moderate level of online skills. The other two key aspects of online learning, namely technology access, and online assignment and support system have also been identified at the moderate level. The finding also shows a strong, positive and very significant relationship between technology access, online skills, and online assignments and support system towards e-learning. According to Meredith (2013), Massive Open Online Courses (MOOCs) have been touted as the next great thing to happen in higher education since they were introduced in the higher education scene about a year ago. Their presence brought unprecedented challenges and opportunities to both academic and public libraries. Courses are taught by faculty from established colleges and universities are usually fairly high-ranking and selected ones. The idea that education from elite institutions would now be open to all--or at least to all who speak English, the language in which most classes are offered, and have access to a computer and broadband--is part of what helped MOOCs to capture the popular imagination. There are multiple potential roles for libraries in the MOOC development, support, assessment, and preservation process, some of which have been more fully explored than others in the few months since Coursera and EdX began rolling out offerings. However, not only the library has to play a salient role in online learning, the university and relevant faculties have to work closely to enhance technology access, online skills, and online learning and support system to the students.

Meredith (2013) further emphasised that faculty members need audio visual equipment to record their MOOCs. In addition, they also need software and computers to edit the raw footage. Therefore, they require proper training on 'how' doing both, as well as requisite time to the demand of adapting to the new teaching style, which must be strong, clear, and succinct enough to stand largely on its own without benefit of office hours, librarians, a question-and-answer period, or the ability to adapt in real classrooms as when an instructor sees puzzled expressions. These tools and training do not have to be centralized in the academic library, but it makes sense for them to be in a proper location. Unlike IT, the library is often already providing instructional support and access to the same technology for students and for staff who are experimenting with "flipping" their in-person classrooms, using video presentations to take the lecture out of class time, which can then be devoted to discussion.

On the other hand, the findings from the open-ended question show that, most of the students have some understanding of MOOCs. Some of them admitted that they had some prior experience in an online course. These students indicated that they preferred to use power point presentation as a common format in online learning. Meanwhile, the students also stated that, they preferred to meet their instructors once in a week for consultation on online courses. Most of the students agreed that the availability of online learning is one of the benefits of e-learning that has attracted them. However, the majority of the students stated that internet connection is still a major obstacle in the online courses in higher education. Thus, most of them suggested that higher education should upgrade the ICT facilities, especially internet connection and provides computer/laptop for students to improve the effectiveness of the online learning. Based on the findings, it can be concluded that students' readiness for online learning is still at the moderate level.

What is clear is that in the future universities will be developing and applying different approaches to blending technology with face to face learning (Clarke, 2013). The proliferation of technology and software tools provides a powerful platform which universities can apply just as well as the most advanced MOOCs to enrich students learning experiences to include Twitter, YouTube, Google Docs, Google Search, WordPress, Dropbox, Skype, PowerPoint, Facebook, Wikipedia, Moodle, Evernote, SlideShare, Prezi, and many others (Centre for Learning and Performance Technologies, 2012). Perhaps a Web 2.0 approach to business education as with other disciplines will flourish. Dede (2005, 2008) has called for higher education institutions to establish their strategic investments on developing emerging educational technologies to meet the increasingly neo-millennial learning styles of their students. Dede (2005, 2008) proposes the necessary strategic investment in technical infrastructure includes infusing wireless networking throughout the campus and creating multi-purpose habitats personalisable by students. Already many contemporary universities have adopted these approaches in large parts of their provision and across the campus. Essentially universities are gradually morphing into mass online campuses in their own right, though preserving the wonder of face to face encounters, and a role for the most flexible, interactive, intelligent, and responsive pedagogic technology of all – the teacher (Clarke, 2013).

The research by Anders (2015) stated online courses can enhance communication between students and instructors. Technology access can determine the readiness of the students towards online learning as advocated by Cole & Timmerman (2015). Furthermore, MOOCs provide positive impact to students in education because it is accessible to more students. Nonetheless, communication has always been identified as one of the major barriers in MOOCs learning, because it requires very limited conversation between the instructor and students (Cole & Timmerman, 2015). For all but the most self-reliant students, online learning can be lonely journey. Perhaps the largest challenge MOOCs face is that students lose interest when they don't feel engaged (Fowler, 2013). Hence, even when using the internet, students still need to hold a conversation and support from each other, either from friends, instructors or even the academic staff in the faculty.

Conclusion

Undeniably, education is a continuously changing process. The rapid change in the teaching and learning environment, and educational reform have caused a great deal of pressure on both teachers and students. In order to ensure success in online learning, both teacher and students must have acquired a certain level of online skills. To further ensure online courses can be an effective teaching method, a well-prepared plan should be implemented to assure that technology access and online support system are in place. The big idea is that putting lecture video and interactive course work on the Web will make it possible for top-notch university education to reach more students and allow for different styles of learning (Fowler, 2013). In previous studies, many scholars have stated that communication, accessibility, learning outcome, and learning content are the major challenges in the implementation of MOOCs. Thus, it is significant to overcome or reduce the challenges before implementing MOOCs in the university. This research provides meaningful insights about the elements that should be considered when implementing MOOCs. All parties in the educational organization must play their role to ensure the online courses run smoothly and effectively. Thus, it can benefit the students, teachers, educational institutions, and education development alike in Malaysia. However, by offering anytime-anywhere access to educational content across devices, MOOCs are disrupting the secondary education, higher education and continued learning markets. Nevertheless, MOOCs support learning pedagogies such as flipped classrooms and blended

learning, contributing to a great extent to the shift in learning trends and closing the gap between higher education and employment readiness. Educational institutions, meanwhile, can make the most of the opportunities offered by MOOCs by expanding enrolment and marketing their degree programs to a broader audience, beyond international borders (PR Newswire, 2017).

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