# A QUALITATIVE ANALYSIS OF THE FACTORS INFLUENCING THE ADOPTION OF MOOC IN HIGHER EDUCATION

**Dr. Nour Awni ALBELBISI**
ORCID: 0000-0002-7800-6483
School of Management
University of Malaya
Kuala Lumpur, MALAYSIA

**Dr. Ahmad Samed AL-ADWAN**
ORCID: 0000-0001-5688-1503
Department of Business Technology
Al-Ahliyya Amman University
Amman, JORDAN

**Dr. Akhmad HABIBI**
ORCID: 0000-0001-7687-2858
Fakultas Ilmu Pendidikan dan Keguruan
Universitas Jambi
Jambi City, INDONESIA

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## ABSTRACT

The purpose of this research is to highlight the factors influencing the adoption of MOOCs in the Malaysian context. This qualitative study was designed using focus group discussions (FGs) with fifty postgraduate students from two Malaysian Universities. The thematic analysis revealed two major themes, opportunities, and challenges. The findings revealed 12 sub-factors influencing the adoption of MOOCs, seven sub-factors for the opportunities for using MOOC, namely, improve the higher education system, support lifelong learning, the accessibility, interactivity, flexibility, individualized instructions, and the positive attitude toward using MOOC. The challenges included 5 sub-factors, namely, lack of openness feature, lack of knowledge and skills, poor technology infrastructure, low self-regulated learning skills, and lack of instructor' support. Such findings are important for improving the implementation of MOOCs in the Malaysian higher education system for MOOC learners and related stakeholders.

**Keywords:** Focus group discussion, higher education, MOOCs, thematic analysis.

## INTRODUCTION

Massive Open Online Course (MOOC) is a new trend for modern higher education, designed to provide opportunities for the enormous number of participants around the world to attend free online courses without any admission requirements, its open up learning offer a wide range of choices in different disciplines (Abu-Shanab & Musleh, 2018). MOOC is a platform for communication and collaboration where the participants have the ability to exchange information and improve their knowledge (Zhang, Gao, & Zhang, 2021). MOOC aims to offer high-quality education to interested learners all over the world (Azevedo & Marques, 2017).

MOOC has received significant attention in the higher education literature (e.g., Duncan, 2022). Many studies suggested that MOOCs have the capability to increase the accessibility to high-quality education and decrease higher education costs (Al-Adwan, 2020). MOOC consider the best development in higher education in decades; it provides free and high-quality classes to students anywhere in the world (Meet & Kala, 2021).

Despite these potential benefits, there are some problems with the learners' acceptance of MOOC. It is found that the dropout rate of MOOCs is very high (Al-Adwan, 2020). For instance. Fu, Gao, Zhou, and Zheng (2021) indicated that the completion rates in MOOCs courses are below 10%. The completion rate is a measure used to describe the people who passed the course or got a certificate (Albelbisi & Yusop, 2020).

Zhang et al. (2021) studied the reasons why learners drop the MOOC courses. They noted that lack of incentive, failure to understand the content material, and having no one to turn to for help were the main causes for not completed MOOC courses. Thus, to realize the full potential of MOOCs as new learning opportunities, it is necessary to figure out why many students do not complete MOOCs courses. Understanding the factors that encourage learners to adopt MOOCs is a critical issue in the MOOC environment (Al-Adwan et al., 2020). Exploring such significant factors that influencing the adoption of MOOC offer insights for MOOCs providers into the possible solutions for improving their services in order to increase learners' satisfaction, engagement, motivation, as well as completion rate (Fu et al., 2021).

### Background of the Study

MOOC has been growing quickly, many famous universities and institutions supported this initiative. In 2016, over 23 million learners signed up for at least one MOOC, making the total number of learners 58 million and the total number of MOOC courses 6,850 from over 700 universities (Shah, 2016). Today, MOOC is attracting millions of learners and covering huge regions around the world.

Literature indicated that MOOC is a recent initiative in Southeast Asia, and participation in MOOCs from developing world regions such as Africa and Asia are relatively few compared with the vast participation from North America or Europe (Albelbisi, Al-Adwan, & Habibi, 2022).

In the Malaysian context, the Malaysian Ministry of Education paid serious attention to the MOOC initiative. MOOC increasingly achieved attraction among higher educational institutions, and many Malaysian universities have joined the MOOC movement by creating their own MOOC courses (Ayub, & Leong, 2017) to meet the domestic learning demand.

Though due to the recent introduction of the MOOC in Malaysia, MOOC is still in its growing phase and it is clear that there are many issues to identify and gaps to close (Albelbisi, Al-Adwan, & Habibi, 2021). Currently, gaps in the Malaysia MOOC initiative indicate that there is still an area for development (Mansor, Latifah, & Amina, 2015). Malaysia MOOC is still struggling between what it should have been and what it actually is, particularly when it is in the presence of the traditional-prone educational system.

### Significance of the Study

The current study tries to identify the factors affecting the adoption of MOOC in the Malaysian context from two Malaysian Universities. Recognizing the factors' affecting MOOC is significant to realize how best to leverage on MOOC and to maximize the gains of this innovation in the Malaysian higher education context.

This paper describes an effort to document the factors affecting the adoption of MOOC in the Malaysian context to guide educators, researchers, and instructional designers to develop effective MOOC environments. The results of this study could provide a comprehensive picture for the parties concerned to develop strategies to guide the adoption of MOOCs in the Malaysia context and other countries sharing a similar interest in institutionalizing their MOOC.

## LITERATURE REVIEW

### Adoption of MOOC

Students have a growing need for flexible ways of learning in which the use of modern technologies in teaching and learning can be provided (Abu-Shanab & Musleh, 2018). Institutions and universities are looking into the possibilities of moving from traditional teaching methodologies to more innovative student-centered,

self-directed learning by learners. Practices and research have shown that adopting MOOCs offers great opportunities for improving higher education by providing high-quality learning (Azevedo & Marques, 2017).

The millions of learners around the world appreciate the MOOC's ability to provide learning for everyone without worries about their gender, ethnicity, or financial background. MOOC has the view to offer free and accessible education to anyone, particularly to people from developing countries (Alhazzani, 2020). Using MOOC allow a learner to improve their knowledge without being on campus regularly, they can join MOOC and keep their employment or even seek employment while studying (Duncan, 2022).

Albelbisi et al. (2021) indicated that the adoption of MOOCs covering a national curriculum can be seen as a contribution in solving the educational challenges in countries with a lower level of formal education or countries that need a rapid educational enhancement.

Despite the potential of MOOCs, there have been some critical considerations. For example, Fu et al. (2021) indicated that a huge number of learners had enrolled in MOOC, however, only a few of them complete the course successfully and get certificates. Abu-Shanab and Musleh (2018) also noted that accreditation, MOOC quality, and sustainability are some limitations of MOOC. Alhazzani (2020) indicated that investigating MOOC restrictions is needed to understand the factors that responsible for the implementation of MOOC successfully. Thus, this research tries to provide a better understanding of the factors affecting the adoption of MOOCs in the Malaysian context.

## MOOC Adoption Studies

Most previous studies have focused on understanding the factors influencing the adoption of MOOCs by using quantitative methods. For instance, Gao and Yang (2015) examined learners' adoption of MOOCs by applying the TAM model with additional factors. They found that ease of use, perceived usefulness, and mimetic pressures were significantly associated with learners' intention of adoption. Ma and Lee (2019) investigated the influential factors underlying learners' adoption of MOOC by integrating innovation resistance theory (IRT) and indicated the main barriers to adoption of MOOC are usage barrier, value barrier, and tradition barrier. Yet, investigating learners' adoption of MOOCs using qualitative methods is surprisingly rare (Al-Adwan, 2020). Thus, understanding the adoption of MOOCs using qualitative methods such as focus group discussion would provide in-depth data that will give a better understanding of this issue.

## MOOC in Malaysia

The Ministry of Education Malaysia (MOE) released a Malaysian Education Blueprint for Higher Education (2015 to 2025) that involves MOOC as a crucial initiative in the Malaysian educational system. It declared that Malaysia's intention to take advantage of MOOCs by improving the quality of the higher education system and providing free and flexible learning to interested learners to obtain the best education (Ministry of Education Malaysia, 2015).

In October 2014, the Second Education Minister, Datuk Seri Idris Jusoh had been declared launching Malaysia MOOC in all public universities in Malaysia. Thus, Malaysia becomes the first country in the world that implement MOOC for credit in their universities and the only country where MOOC is implemented on a national scale through government initiative (Ministry of Education Malaysia, 2015). To support this initiative, the government proposed a budget of 500 million MYR (138.6 million USD) for the upcoming 11th Malaysia Plan (2016-2020) (Albelbisi, 2019).

The first stage of the MOOC initiative in Malaysia began with four MOOC courses developed successfully in the MOOC platform OpenLearning, namely (i) Islamic and Asian Civilisations (developed by University Putra Malaysia- UPM) (ii) Ethnic Relations (developed by Universiti Kebangsaan Malaysia- UKM) (iii) Entrepreneurship (developed by Universiti Teknologi Mara -UiTM), and ICT Competence (developed by Universiti Malaysia Sarawak- UNIMAS) these courses were launched for first-year undergraduate students.

In the next stage, six higher education institutions in Malaysia were engaged in MOOC development. One of them is Open University Malaysia (OUM), one is a private university (Taylor's University), and four are public universities (i.e., UPM, UKM, UiTM, and UNIMAS). In this stage, the total of MOOC courses offered by the six universities in Malaysia increased to 36 MOOC courses (Mansor et al., 2015). All of these 36 MOOC courses are presented via "OpenLearning" a MOOC platform established in Sydney, Australia. A majority of participants in these MOOC courses are students from public and private institutions in Malaysia.

In September 2014 the Malaysia MOOC OpenLearning ( https://www.openlearning.com/ ) was launched officially and considered the MOOC platform for all institutions of higher education in Malaysia.

So far, OpenLearning includes over 681 courses (OpenLearning, 2017). The number of participants is varied significantly from one course to another, and it could reach up to tens of thousands for some courses such as *Tamadun Islam dan Tamadun Asia* (TITAS) course which is successfully attracted 67,702 learners. Table 1 displays the progress of OpenLearning.

**Table 1.** Progress of OpenLearning

| Progress | Number |
|---|---|
| Micro-credentials issued globally | 700 thousand |
| Enrollments in courses around the world | 1.8 million |
| Peer interactions between students | 20 million |

**Source:** https://www.openlearning.com/ Nov 2018

Typically, OpenLearning courses are divided into modules. Each module involves theoretical materials, interactive activities, assignments and quizzes, and the final project. The participants are collaborated through using the built-in galleries, wikis, and blog pages. OpenLearning is a MOOC platform that allows any interested lecturer around the world to create, run, and teach a free course. It provides a tool for creating MOOC courses that allow lecturers to generate their own learning community.

## METHOD

Based on the research purpose and to understand the factors affecting the adoption of MOOCs in the Malaysian context, a qualitative design was applied. Qualitative method is the best way to explore more thoroughly the participants' attitudes, belief, and experiences (Creswell, 2014). The research methodology has been designed based on two main steps. In the first step, collecting data has been conducted based on a focus group discussions method. In the second step, thematic analysis for identifying and classifying the factors influencing the adoption of MOOC was applied.

The justification for choosing the focus group discussions approach was to highlight the differences in perspective between groups of individuals as well as provide information about a range of ideas and feelings that individuals have about certain issues (Klimova, Pikhart, Cierniak-Emerych, & Dziuba, 2021). The questions of this focus group were shaped based on the research objectives. The focus group discussions consisted of three main questions. The interviewees were asked to answer the following three questions: (1) What are the main opportunities that encourage the adoption of MOOCs in Malaysian universities? (2), What are the main challenges that hinder the adoption of MOOCs in Malaysian universities? and (3) What are the main factors that could lead to the successful implementation of MOOCs in Malaysian universities?

The goal of thematic analysis is to identify patterns(themes) in the data that are important or interesting and use these themes to address the research. This technique is commonly applied for qualitative studies because it allows for inductive discovery and subsequent interpretation of themes and subthemes (Braun & Clarke, 2014).

## Participants

The number of participants in the qualitative research is not definite, they can be one or more (Creswell, 2014). The sampling (n=62) was done based on a convenience sampling process to select group of students for this study by taking into account some criteria such as gender, willingness to participate, and complete as a minimum one MOOC course from OpenLearning, the MOOC platform in Malaysia.

We contacted the participants via email. An e-mail with an invitation to participate in the study was sent to sixty-two postgraduate students from two public universities in Malaysia (University A, University B). Ten postgraduate students did not respond to the invitation while two postgraduate students were not able to attend due to some conditions such as health problems. Accordingly, fifty postgraduate students finally attended the focus group discussions (FGs).

## Data Collection

The presented qualitative data were collected in July and October 2018. The FGs started with the designing phase, developing theories, and setting discussion with four Malaysian educational technology experts. The consent forms have been distributed and filled by the participants. For the places, rooms from the head of research centers of University A and B had been borrowed to conduct the FGs. We divided the FGs into two groups (Instructional Technology (IT), Educational Management (EM)). The discussions lasted for 1 to 1:30 hours. Table 2 displays information on the FGs, the majors, participant initial, university, and length of the FGs' time.

**Table 2.** Information on the FG

| FG | Majors | Participant initial | University | Length |
|---|---|---|---|---|
| 1 | Instructional Technology | IT1, IT2, IT3, IT4, IT5, IT6, IT7, IT8, IT9, IT10, IT11, IT12, IT13, IT14, IT15. (15) | A | 1: 27: 10 |
| 2 | Educational Management | EM1, EM2, EM3, EM4, EM5, EM6, EM7, EM8, EM9, EM10, EM11, EM12, EM13, EM14, EM15. (15) | B | 1: 29: 40 |
| 3 | Instructional Technology | IT16, IT17, IT18, IT19, IT20, IT21, IT22, IT23, IT24, IT25, IT26. (11) | A | 1: 25: 30 |
| 4 | Educational Management | EM16, EM17, EM18, EM19, EM20, EM21, EM22, EM23, EM24. (9) | B | 1: 22: 20 |

# DATA ANALYSIS

Thematic analysis is a process for analyzing texts and transforming diverse data into rich and detailed information. It is one of the efficient methods and common forms of qualitative analysis ((Braun, & Clarke, 2014) used for classifying, analyzing, and reporting patterns in qualitative data. Thematic analysis is believed to be one of the most common methods of content analysis, where the coding scheme is based on categories designed to capture the dominant themes existing in the text (Albelbisi, Yusop, & Salleh, 2018). Thus, thematic analysis was used in this study as the classification technique for the factors influencing the adoption of MOOCs in several dimensions.

## Development of Themes

After doing the FGs (four sessions), the data was transcribed. The transcription of the recording was done manually using Microsoft word. Pseudonyms were given to the participants when quoting them in the analysis.

Each FG of this study that lasted around one to one and half hours resulted in more than 100 pages of transcripts. Therefore, an efficient way to analyze the data was a good investment. Researchers informed

specific programs that can be utilized in qualitative data analysis, and finally, we decided to use Macros in Microsoft Word software due to its efficiency and functionality. The Macros created a new document and extracted all comments; minor adjustments were made to the styles used.

For this study, after we coded the transcription using the "new comment" feature in Microsoft word, we extracted the comments. The extracted comments included a header within some information; full name of the document, date of creation, and name of the document creator. We filed the metadata and comments into tables. For each comment, the table informs the page number, comments, and text.

The process of development the themes was conducted based on three steps. First, by reviewing the literature, the general and primary concepts of MOOC were extracted. Then, new and detailed concepts were identified. Utilizing the Macros allowed put the items into groups based on conceptual similarity.

Second, the researcher identified the concepts based on his perception and understanding of the issue, expert opinions and guidelines were also considered. Then, the concepts were classified as themes and sub-themes. This process continued until all the concepts were allocated. This step has been done based on understanding the studies domain and using existing MOOC classification by Abdel-Maksoud (2019); Ma and Lee (2019) as references to test reliability. For instance, Abdel-Maksoud (2019) classified the factors affecting MOOC adoption into benefits and barriers to use MOOCs. The sub-factors of benefits of MOOCs were: the material of MOOCs was valuable, the MOOCs' structure was flexible, and participating in MOOCs developed the technological competency. The barriers to use MOOCs were: unreliable internet connection cause problems to access MOOCs materials, lacking the proficiency to use different tools in MOOCs, and the instructor was not there to help.

Finally, the themes and sub-themes were refined several times, and some were combined, separated, added, or deleted. This process continued until the outline of the thematic network was obtained. The thematic network in this study consisted of 2 main themes and 12 sub-themes as shown in Figure 1.

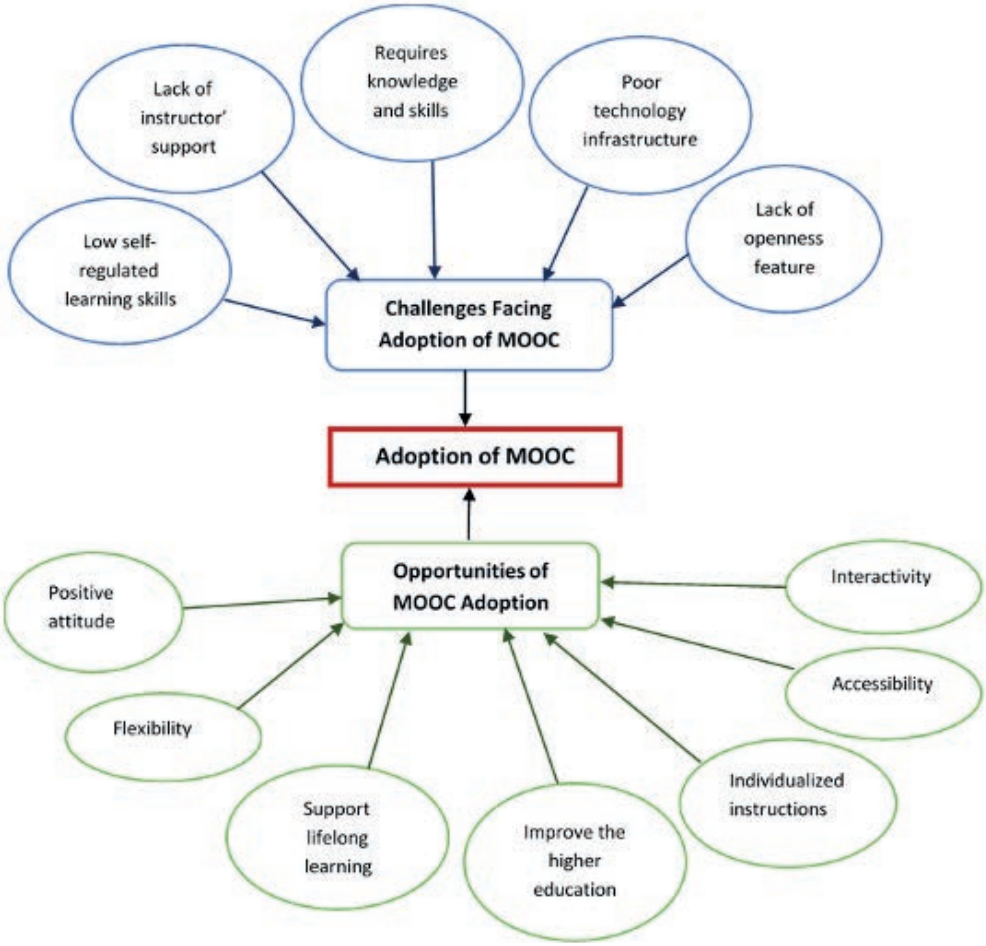


**Figure 1.** Outline of the thematic network

## Trustworthiness

To establish trustworthiness and to verify the accuracy of the data, findings, and interpretations, several measures have been conducted (Creswell, 2014). First, after transcribing the data in the data analysis, the transcription gave back to the participants of the FGs to ensure what they said is right, as a system of checks of the data or member checking. Second, we conducted a reflexivity to strengthen the trustworthiness. Through reflexivity, we became more self-aware to control the biases such as hid the names of the participants to keep their confidentially (Miles, Huberman, & Saldana, 2018). In addition, we conducted a three round of inter-rater reliability (IRR) (Garcia-Loro, Martin, Ruiperez-Valiente, Sancristobal & Castro, 2020). The transcripts were distributed to two independent researchers from the Malaysian university. The calculation of the initial capability was conducted through percentages. The method of the negotiated agreement in order to reconcile the disagreement was applied.

# FINDINGS

The findings of this study include two major themes, opportunities and challenges, as factors affecting the adoption of MOOC in Malaysia.

## Findings Related to Opportunities of MOOC

Opportunities in this study are defined as factors that support the adoption of MOOCs in Malaysia. The findings indicated that there were seven categories (subthemes) developed through the data analysis regarding the opportunities of MOOCs in Malaysia. Table 3 showed a definition of each subtheme.

**Table 3.** Subthemes of opportunities and their definition

| Subthemes | Definition |
|---|---|
| Improve the higher education system | - Students find that using MOOC has a positive effect on their studies.<br>- Students find that MOOCs allow them to improve their learning by getting advanced courses. |
| Support lifelong learning | - Students find that MOOCs help them to catch up with their study progress.<br>- Students prepare for class by reading up on relevant learning materials available in MOOC. |
| Accessibility | - Students find that they would enhance their studies when e-resources are readily available via MOOC. |
| Interactivity | - Students actively participate in MOOC activities.<br>- Students interact with teachers and peers while learning via MOOC. |
| Individualized instructions | - Students find that MOOCs provide a desirable learning environment.<br>- Students find that learning via MOOCs meets their individual needs. |
| Flexibility | - Students review the recorded lecture videos and study the course materials during their own time.<br>- Students manage their assignments, tasks, and assessment deadlines with different tools. |
| Positive attitude | - Students adopt a positive and proactive approach toward learning via MOOC. |

The seven categories (subthemes) revealed from the data analysis are:

- Category one was "Improve the higher education system," which represented when the learners indicated that MOOC brings a positive effect on the educational system in Malaysia. Many respondents noted that MOOC offers courses from top universities of the world for free. For example, IT5 stated that "MOOC enables us to acquire knowledge from the best professors and scholars of the modern era." IT16 also stated that "I registered in MOOC because I wanted to get knowledge from best lecturers in my learning field."
- "Support lifelong learning" was another category and counted anytime the learners mentioned that MOOC provides the self-motivated pursuit of knowledge. For instance, EM2 stated that "MOOC offers the chance to develop my knowledge and enhance my learning experience."
- Category "Accessibility" was marked anytime a learner responds that they enjoyed being able to access all the MOOC course materials easily. EM17 and IT20 stated that "MOOC could be helpful for graduates as they do not have to go back to their universities to continue their educations." EM3 also stated that "anyone can access MOOC courses if the internet connection is available."
- Category "Interactivity" was counted any time the learners respond that they become more engaged and involved in the learning via MOOC. For instance, EM16 pointed out that "MOOC offers social media tools such as wikis, blog pages, and forums to discuss topics and ideas among learners." IT10 also stated "OpenLearning has an interesting feature called "Kudos" or karma points that are obtained when positive comments from peers or when a specific goal is achieved. This means you can receive badges automatically."
- Category "Flexibility" was calculated at any time the learners answered that they were able to study and review MOOC course materials during their own time. For example, EM13 and IT19 mentioned that "I can download MOOC videos and show it as many times as I want, which is difficult to do through normal on-campus lectures."
- Category "Individualized instructions" was marked when a learner reported that content and pace of learning via MOOC is supported different learning styles and needs. For instance, EM18 stated, "MOOCs offer me the courses that could be beneficial for me." IT14 mentioned, "I registered in MOOCs just because I am curious about MOOCs courses." EM8 also pointed out "I'm interested in collecting certificates, that's why I join to MOOC."
- The last category was coded as" Positive attitude " counted when a learner mentioned that they expect favorable results when they are using MOOC. For example, EM11 pointed out that "I plan to join MOOC courses as much as I can." IT8 stated, "I enjoy using MOOCs for my studies."

## Findings Related to Challenges of MOOC

Challenges in this study are defined as barriers or obstacles, which prevent or inhibit the adoption of MOOCs in Malaysia. The finding revealed that there were five categories (subthemes) developed through the data analysis regarding the challenges of MOOCs in Malaysia. Table 4 showed a definition of each subtheme.

**Table 4.** Subthemes of challenges and their definition

| Subthemes | Definition |
|---|---|
| Lack of openness feature | - Students find it difficult to sign up for the MOOC course when some lecturers would only upload the lecture materials for specific students. |
| Poor technology infrastructure | - Students do not have the appropriate or enough electronic devices for learning via MOOC. |
| | - Students experience connection problems with MOOC platforms due to poor internet. |
| Requires knowledge and skills | - Students find that they would delay their studies as they require more skills to access MOOC materials. |
| | - Students are troubled by a lack of clear instructions for MOOC tasks and assignments. |
| Low self-regulated learning skills | - Students find it rather impossible to complete all MOOC tasks by their own selves. |
| | - Students find it difficult for me to manage all MOOC course activities and tasks. |
| Lack of instructor' support | - Students find it hard to receive immediate feedback in learning by MOOC. |
| | - Students find it hard to consult their teachers while studying via MOOC. |
| | - Students find it hard to engage in discussions with teachers and peers in learning via MOOC. |

## DISCUSSION

As a result of this study that investigated the factors affecting the adoption of MOOC from two Malaysian Universities. Two themes that emerged from the analysis of the data are the opportunities, challenges with 12 sub-themes.

### Opportunities for MOOC in Malaysia

Introducing Malaysia MOOC considers one of the modern and useful tools used to offer free and high-quality education in the country. The findings of this study revealed that MOOC provides an interesting transformation in the teaching and learning pathway in the higher education system. MOOC has the ability to change the traditional classroom by providing high-quality learning to a huge number of learners. This finding is consistent with Zalli, Nordin, and Hashim (2019); Mansor et al. (2015) reported that MOOC brings a positive impact in the educational system in Malaysia through enhancing the educational institution branding, increasing institutional collaboration, and promoting educational development. MOOCs enables participants to engage in intellectual activities, such as making connections with previous knowledge, exploring knowledge actively, and develop critical thinking (Goh, Wong, & Ayub, 2018).

Further, many MOOC learners of this study noted the opportunity of MOOC to support lifelong learning. This result is supported by MOOC studies revealed that students and instructors in Malaysia positively accepted MOOC as a means of lifelong learning (Zalli et al., 2019). This finding is also consistent by Albelbisi et al. (2018) suggested four categories for learner motivations toward using MOOC (1) the learners interested in supporting lifelong learning, (2) they register in MOOCs courses for fun and enjoyment, (3) they find MOOCs courses convenience, and (4) they join MOOC for exploring as a new style of online learning.

The MOOC learners who participated in this study reported that they can get access to courses available in Malaysia MOOC by overpassing all barriers of time, place, and distance. The information in MOOC has been always available whenever the learners need to use it. MOOC learners can access educational content anytime and at anyplace. Abdel-Maksoud (2019) indicated that learners are able to access knowledge through MOOC on condition availability of the internet connection.

The results of this study also revealed that one of the MOOC opportunities is that MOOC learners can also interact with peers effectively and efficiently. MOOC provides interactive learning materials such as wiki, forum discussions, and blog pages to learners who are not physically present in the classroom. This finding is supported by MOOC literature. For example, Gameel (2017) noted that the success in the MOOCs environment is rely on participants' interaction in MOOCs activities. Ma and Lee (2018) also indicated that interactivity in MOOCs enhance learner's engagement in the topic.

Individualized instruction is another opportunity of MOOC adoption. The survey results indicated that MOOC provides learning methods that suitable to the need, abilities, learning styles, and interests of the learners that lead to self-learning. MOOCs have the opportunities to make the learning opportunities adaptable to the learners' requirements. This finding is supported by Al-Adwan (2020) indicated that the common reasons for the motivation to register and enroll in MOOC is that the learners are interested in the specific topic or discipline; they would like to get free learning opportunities, they desire for updating their knowledge, they would like to get the opportunity to enroll and take a class from a famous university, or they are interested to collect certifications.

The flexibility of MOOC demonstrates another beneficial for the learners. Learners do not have to spend much time listening to the lecture as in the traditional classrooms; they can learn from short-duration videos that promote active learning. MOOC provides the flexibility of delivery media (such as Tablets, Laptops and Mobile Phones) and flexibility of type of courses available. This finding is supported by Alhazzani (2020) indicated that the major features that motivate the learners to participate in MOOCs are the flexibility and the openness of MOOC.

Thirty students out of 50 indicated that their attitude regarding using MOOC is positive. This finding is consistent with MOOC studies such as Zalli et al. (2019) indicated that most Malaysian learners perceived positive attitude toward MOOCs as they indicated that learning via MOOCs makes the learning more interesting and easier for them. Albelbisi and Yusop (2019) proposed a model to examine the factors that have a significant impact on the success of MOOC in Malaysia context. The findings exposed that the student attitudes and course quality were the most important factors influencing the success of MOOC.

## Challenges of MOOC in Malaysia

The findings of the study highlighted many challenges of MOOC in Malaysia. One of these challenges is lack of openness feature. Openness is offering a learning experience for any interested participants without worries about any restrictions such as time, geographic location, or financial hardship. The Malaysia MOOC that already in operation are not fully open, as many of these MOOCs are designed as complementary resources for existing on-campus courses in Malaysian universities, thus these MOOC courses are relevant to and of interest to Malaysian students. This indicates that the MOOC is targeted at a narrow group of learners and not the general public (Mansor et al., 2015).

Twenty students who participated in this study noted that they faced poor technology infrastructure. Technology ownership and bandwidth is considered additional challenges especially for learners from poor or rural areas. The internet access in remote and rural areas in Malaysia is still insufficient (Albelbisi et al., 2018) which will likely be a critical infrastructural obstacle for opportunities MOOC in these areas in Malaysia. Thus, it is suggested to establish a dedicated independent infrastructure network and any technology necessary for delivering MOOC especially in a rural area to confirm that all people have the same opportunities to participate in MOOC initiative in Malaysia. It is also significant to decrease the burden on MOOC learners who use their devices to view MOOC lecture videos that would consume a huge Internet data. Instead, it is recommended to permit them to download the MOOC's lecture videos and allow them to show it later at their convenience.

The finding of this study revealed that using MOOC requires knowledge and skills that maybe not all the learners have. Learning via MOOC require different knowledge and skills for the use of the features and services provided by MOOC (Al-Rahmi et al., 2019). Lack of knowledge and skills may cause an unsuccessful in taking advantage of the valuable services of MOOCs. This finding is consistent with Zhang, Chen, and Phang (2018) indicated that the inadequate learners' background knowledge and skills are a key factor of the

low completion rate in MOOC. Abeer and Miri (2014) also highlighted that learning skills such as learners' linguistic skills in English, communication skills, prior knowledge in the subject matter, open-mindedness, self-efficacy, and self-regulation have a significant effect on learners' participation and motivation in learning via MOOC. So, it is recommended that universities have to ensure that learners have practical skills by providing guidelines and training courses to learners on how to use MOOC effectively. Higher education institutions should also offer the required assistance for learners to overcome any difficulties facing them during learning via MOOC (Ma & Lee, 2018).

The results of this study revealed that low of students' self-regulated learning skills is one critical barrier that prevent the opportunities of MOOC in Malaysia. Self-regulated learning (SRGL) represents the way that the learners participate in the activities and make decisions about their learning in MOOC. MOOC learners have to be self-motivated and acquire the ability to regulate their own learning process (Zalli et al., 2019). However, many MOOCs learners are struggling for managing and regulating their learning while using MOOCs (Zhang et al., 2018) and not all of them have the motivation to control their learning effectively in an online learning context. Consequently, to achieve MOOCs' success, a high level of SRGL skills is required. Albelbisi (2019) revealed a strong relationship between self-regulation learning and success MOOC environments. Al-Adwan (2020) also indicated that low level of SRGL decreases learners' behavior intention to adopt MOOC.

Therefore, it is suggested to strengthen the learner's abilities to participate in MOOC and improve their SRGL skills. MOOCs learners should have the ability to engage in learning by setting learning objectives individually, identifying the effective techniques to learn, and monitoring the process of their objectives, all these factors are important in the online learning atmosphere especially in the MOOC environment (Zhang et al., 2018).

Lack of instructors' support demonstrates another challenge for the learners to use MOOC. MOOCs instructors have an active role in the processing of teaching and learning and encouraging collaborative learning (Zhang et al., 2018). Al-Rahmi et al. (2019) emphasized the importance of instructors' experiences in MOOCs environment and highlighted the influence of instructor in improving learners' engagement in MOOCs activities. MOOC instructors have to manage all the enormous numbers of participants, cope with diverse cultures, deal with technical difficulties such as lacking technologies in some areas and improving learners' interaction by using a variety of teaching methods (Garcia-Loro et al., 2020).

Yet, to improve instructors' support, MOOC instructors have to ensure that they can provide instant feedback for the learning-related matter and offer on-time assistance for any technical issue for MOOC learners (Meet & Kala, 2021). It is also suggested to develop training programs for lecturers that encourage using of MOOC efficiency (Ayub, & Leong, 2017). Training will help lecturers to implement more effective and meaningful MOOC-based learning for learners (Gameel, 2017). Moreover, provide a guideline for lecturers that inspire them to develop a high-quality MOOC at the national level. This guideline may include topics such as planned for MOOC, producing high-quality videos for MOOC and optimizing existing features in the MOOC platform.

## CONCLUSION

The fast development of MOOCs can be noticed through the increasing number of MOOC platforms and the huge numbers of learners involved in the MOOC courses from every part around the world.

At the moment, MOOCs in Malaysia still in its growing phase and it is clear that there are many issues to recognize and gaps to close. Thus, the study indented to shed light on the adoption of MOOCs by highlighting the factors affecting the adoption of MOOC in the Malaysian context from two Malaysian Universities. The study has identified and discussed the factors that positively or negatively affect MOOC adoption. The two themes that emerged from the analysis of the data are the opportunities and challenges.

This study can be valuable to higher education administrators and instructors who are interested in making sense of the MOOC initiative in Malaysia and other countries sharing a similar interest in institutionalizing their MOOCs to increase the acceptance of MOOCs in their higher education system. The results of this study can also be leveraged to increase learners' enrolment rates and enable the effective design of MOOC platforms.

Based on our findings, there are many suggestions for future research. First, it would be interesting to investigate the factors affecting adoption of MOOC in other countries and compare the findings with the findings of this study. Second, a further study could validate the technology acceptance theories within the context of MOOC. Third, it is suggested that the correlation between learners' self-regulated learning and course completion is investigated in future studies. Finally, further investigation into influence of motivation on the learners' intention to accept MOOC is recommended. We expect that this research enables researchers to understand the related literature on the factors influencing adoption of MOOC from learners' perspectives and its directions and restrictions.

## BIODATA and CONTACT ADDRESSES of AUTHORS

**Dr. Nour Awni ALBELBISI** holds a Ph.D. in Instructional Technology from the University of Malaya, Malaysia. She is also holding a Master's degree in Instructional Technology from the University of Malaya. Her current research interests are online homework, Massive Open Online Courses (MOOCs), and online learning. She published many research articles in several well-recognized international journals. She has published high-impact journal articles including articles indexed in ISI, ESCI and Scopus.

Nour Awni ALBELBISI
Address: Department of Curriculum and Instructional Technology, Faculty of Education
University of Malaya, 50603 Kuala Lumpur, MALAYSIA
Phone: +601161870700
E-mail: noorbelbisi@gmail.com

**Dr. Ahmad Samed AL-ADWAN** is a distinguished academic and researcher in the field of Information Systems, currently serving as a Professor at the Department of Business Technology, Business School, Al-Ahliyya Amman University in Jordan. His educational background has equipped him with a strong foundation in both technical and business skills, enabling him to bridge the gap between the two disciplines and make significant contributions to the field of information systems. As a testament to his expertise and influence in the field, Prof. Al-Adwan is a member of many international affiliations. Furthermore, Prof. Al-Adwan has authored and published many research articles in several reputed international journals. His work has been widely cited and has contributed significantly to the development of knowledge in the field of information systems.

Ahmad Samed AL-ADWAN
Department of Business Technology, Business School
Hourani Center for Applied Scientific Research
Address: Al-Ahliyya Amman University, Postal Code, Amman, Jordan
Phone: +962795203021,
E-mail: a.adwan@ammanu.edu.jo

**Dr. Akhmad HABIBI** works for Universitas Jambi and earned his doctoral degree at the University of Malaya. Focusing on educational technology and statistics, he has published his work in 88 Scopus-indexed journals and 48 WoS-indexed journals. He is also a recognized reviewer for reputable international journals. In 2022, he was awarded the title of best researcher by his institution, Universitas Jambi. He is also an invited member of the research board of the Qatar National Research Fund (QNRF). Working and collaborating with researchers from the University of Malaya, the University of Malaga, Universiti Teknologi MARA, Universitas Terbuka, the Northern University of Malaysia, Jazan University of Saudi Arabia, Beijing Normal University, and Uniwersytet Jagiellonski in Poland, Habibi has been awarded funding for numerous research and publication projects at national and international levels.

Akhmad HABIBI
Address: Fakultas Ilmu Pendidikan dan Keguruan, Universitas Jambi, Jambi City, Indonesia
Phone: +6289639522622
Email: akhmad.habibi@unja.ac.id

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