

MEASURING BARRIERS OF MASSIVE OPEN ONLINE COURSE (MOOC)
ADOPTION AMONG UNDERGRADUATE STUDENTS AT UNIVERSITI
TEKNIKAL MALAYSIA MELAKA (UTeM)

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MEASURING BARRIERS OF MASSIVE OPEN ONLINE COURSE (MOOC)
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This thesis is submitted in partial fulfilment of the requirements for
Bachelor Degree of Technology Management (Technology Innovation)

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APPROVAL

I/ We hereby declare that I/ we have read this dissertation/report and in my opinion,
 this dissertation/report is sufficient in terms of scope and quality as a partial
 fulfillment the requirements for the award of Bachelor of Technology Management
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DECLARATION

I hereby declared that this thesis entitled
**“MEASURING BARRIERS TO MOOC ADOPTION AMONG
UNDERGRADUATE STUDENTS AT UNIVERSITY TEKNIKAL MALAYSIA
MELAKA (UTeM)”**

Is the result of my own research except certain explanations cited with sources clearly.
The thesis has not been accepted for any degree and is not concurrently submitted in
the candidature of any other degree.

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DATE :

DEDICATION

I would like dedicate the appreciation to my precious husband and family who supported me mentally and physically, give me education and motivation until I reached this level. Not to forget, my beloved supervisor, Dr Nurulizwa Binti Abdul Rashid for her valuable guidance, support, information and opinion throughout this research. Without their blessing and encouragement, this research is impossible to be completed in short period of time.

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ABSTRACT

Massive Open Online Courses (MOOCs), an online learning platform has become one of the new educational approach in higher education. This platform benefits the universities especially to the learners as the MOOC itself offered a new kind of education tools for them. As it addressed in the Malaysian Education Blueprint, 9th Shift: Globalised Online Learning, MOOC has become the main platform for all the education institutions in Malaysia especially for public institutions. However, MOOC are still low in adoption rate while the drop out is getting higher. Therefore, this study aimed to measure the barriers of MOOC adoption among undergraduates students at Universiti Teknikal Malaysia Melaka (UTeM) in order to identify the most critical factor that affects the MOOC adoption. Drawing the conceptual framework of MOOC barriers, this study conducted survey questionnaires to 144 students. The findings showed that the main barriers of MOOC adoption encountered by the student are psychological, technological and cognitive factor. It is revealed that sociological factor is not the critical factor of MOOC adoption due to the evolving technology trend and lifestyle. Hopefully, this research will be beneficial to MOOC platform users so that they can cope with the barriers effectively in the future.

Keyword – *Massive Open Online Courses (MOOC), online learning, MOOC platform, education, learning development, barriers*

ABSTRAK

Massive Open Online Courses (MOOCs) adalah salah satu platform pembelajaran dalam talian yang menjadi satu pendekatan baharu dalam pendidikan tinggi. Platform ini memberi kelebihan kepada universiti terutamanya kepada pelajar kerana MOOC menawarkan satu alat pendidikan yang baharu kepada mereka. Seperti yang telah dinyatakan dalam “Malaysia Education Blueprint (2015-2025)”, Shit ke 9: Mengglobalisasikan Pembelajaran dalam Talian, MOOC merupakan platform utama untuk semua institusi pendidikan di Malaysia terutaman sekali untuk institusi awam. Malangnya, penerapan MOOC masih ditahap rendah manakala kadar keciciran semakin tinggi. Oleh itu, kajian ini dijalankan bertujuan untuk mengukur halangan penerapan MOOC kepada pelajar sarjana muda di Universiti Teknikal Malaysia Melaka (UTeM) supaya faktor kritikal yang menghalang penerapan MOOC dalam kalangan pelajar. Melalui kerangka konseptual bagi penghalang penerapan MOOC, kajian ini dijalankan melalui kaedah borang soal selidik kepada 144 pelajar. Hasil kajian mendapatkan penghalang utama penerapan MOOC adalah faktor psikologi, teknikal dan kognitif. Hasil kajian juga mendapati bahawa faktor sosiologi bukan penghalang penerapan MOOC ekoran berkembangnya trend and gaya hidup berteknologi. Diharap, kajian ini dapat memberi kebaikan kepada pengguna platform MOOC supaya mereka dapat mengatasi halangan penerapan MOOC secara berkesan pada masa akan datang.

Kata Kunci - *Massive Open Online Courses (MOOC), platform MOOC, pembelajaran dalam talian, pendidikan, perkembangan pembelajaran, halangan*

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LIST OF ABBREVIATIONS

ABBREVIATION	MEANING
Ho	Null hypothesis
ANOVA	Analysis of Variance
UTAUT	Unified Theory of Acceptance and Use of Technology
MOOC	Massive Open Online Courses
E-Learning	Electronic learning
M-Learning	Mobile learning
PSTP	Pusat Sumber Teknologi Pengajaran
PSPTN	Pelan Strategik Pendidikan Tinggi Negara
MOHE	Ministry of Higher Education
SF	Sociological Factor
PF	Psychological Factor
TF	Technical Factor
CF	Cognitive Factor
PEU	Perceived Ease of Use
UTeM	Universiti Teknikal Malaysia Melaka
UPM	Universiti Putra Malaysia
UKM	Universiti Kebangsaan Malaysia
UiTM	Universiti Teknologi Mara
UNIMAS	Universiti Malaysia Sabah
UTM	Universiti Teknologi Malaysia
FKM	Fakulti Kejuruteraan Mekanikal
FTK	Fakulti Teknologi Kejuruteraan
FPTT	Fakulti Pengurusan Teknologi & Teknousahawan
PBPI	Pusat Bahasa & Pembangunan Insan

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CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter will provide the information about the background of the research subject, discussion of the recent problem and the objective of the research together with a research question. This chapter also will explain about education development in Malaysia including the latest education trend.

1.2 Research Background

According to (Martinez-Lopez *et al.*, 2017), technology and skills could influence the learning achievement of a student. Technology is very useful for the process of teaching and learning as it helps the student to use new powerful resources, implement new ways of learning and make use technology as a great tool for innovation. Hence, it will make the student more successful with the existence of technology. For now, information technology has been a current style in this recent way of teaching and learning (Rai and Chunrao, 2016). The growth of multimedia and information technologies together with the internet as a new practice of teaching has made the traditional procedure of teaching tremendously changing.

Information and communications technology (ICT) and communication networks deal new opportunity that is transforming the traditional way of learning areas. It is gradually common to look for a virtual-world which pair to direct teaching through hybrid or blended- learning approaches. According to Legault (2014), almost

every people unconsciously completed some type of e-learning as web-based training, online learning or computer-based training is under the one roof. She also states that e-learning delivers knowledge or training content to the user learner by the use of electronic devices such as computers, tablets or phones. E-Learning gives learners freedom to learn at their own suitability which right for them due to its flexibility.

1.3 Education Review

Education is a process of teaching and learning by gaining the knowledge, skills, values, and beliefs. Education includes storytelling, discussion, and training. It usually takes place under the guidance of educators or teachers. It can be informal or informal ways. The methodology of teaching is called pedagogy.

When it comes to formal way, educations starts from preschool, kindergarten, primary, secondary and university or college. Formal education takes place in structured environments such as at schools, buildings, and classrooms. Its teaching method usually standardizes and the learners will be taught by the certified teacher. Not only teaching, formal institutions include educational activities, curriculum, and sports that help in adding values and motivation to the learners. An examination is also carried out in the formal education system in order to measure the level of effectiveness of learning and ability to understand the knowledge that they had learned.

The extension of acquiring knowledge can be done at the higher institution by taking a different type of education levels such as pre-university, diploma, degree, Master, and Ph.D.

1.3.1 Education Development in Malaysia

Ministry of Higher Education (MOHE) is an official corporate government unit that responsible for anything related to higher education. It is recreated again officially on 28th July 2015 for the Federal Cabinet reshuffle by the Prime Minister which accordance to the provisions of the Act that related to the MOHE itself. The role of MOHE is to create a higher education ecosystem which includes Public Universities (UA) and Private Higher Educational Institutions (PHEIS), Polytechnics and Community College.

According to Malaysia Education Blueprint in Higher Education 2015-2025 (2015), the ministry of Malaysia has made a significant movement in enhancing the education of Malaysia, especially in higher education by expanding access and system towards quality. Malaysia has increased the access to higher education enrolment with 70 % in a decade which includes all the type of universities offered in Malaysia. Malaysia also has an impressive number of student in Bachelor degree enrolment. Besides that, Masters and Ph.D. enrolment number ranks Malaysia as the third number of ASEAN country behind Singapore and Thailand.

Malaysia Educational Blueprint 2015-2025 (Higher Education) is adopted by Ministry of Higher Education in order to transform and prepare for the upcoming challenges as the jobs tomorrow will require a greater emphasis on STEM area which is science, technology, engineering, and mathematics. Besides that, proficiency in English is needed to support job with higher income and raise competitiveness. With this blueprint, the government and private sector are working together to provide a suitable framework for education growth in Malaysia.

The blueprint development started with the development approach by reviewing the National Higher Education Strategic Plan or “Pelan Strategik Pengajian Tinggi Negara (PSPTN).

i. PHASE 1 - PSPTN Review (February 2013 to February 2014): The Ministry started to establish a robust facet base on its strength and weaknesses with a comprehensive review of current performance and progress on PSPTN.

ii. PHASE 2 - 10 Shifts Conceptualization (March 2014 to September 2014): After review are made with the team's findings and in consultation with the stakeholders, the Ministry identified 10 Shifts that would need to take the Malaysian higher education system to the next level. The Ministry also carefully aligned these Shifts with existing national plans, most importantly the Malaysia Education Blueprint 2013- 2025 (Preschool to Post-Secondary Education).

iii. PHASE 3 - Malaysia Education Blueprint (Higher Education) Finalization (October 2014 to March 2015): The details of these 10 Shifts were finalized, following another extensive round of public consultation, and guidance from the Cabinet.



Figure 1.1: 10 Shifts of Higher Education Blueprint (Source: Ministry of Education (2014))

From the figure 1.1, the 10 Shifts of Higher Education Blueprint is:

1. Holistic, Entrepreneurial and Balanced Graduates
2. Talent Excellence
3. Nation of Lifelong Learners
4. Quality Technical and Vocational Education and Training (TVET) Graduates

5. Financial Sustainability
6. Empowered Governance
7. Innovation Ecosystem
8. Global Prominence
9. Globalised Online Learning
10. Transformed Higher Education Deliver

As we are focusing on MOOC, the 9th Shifts of Globalised Online Learning (GOL) will be the focus of this research as it mentions that MOOC in higher education is a disruptive force globally. These shifts aim to make GOL as a premium education hub. GOL and MOOC have created a dramatically different model for the world student's engagement with another with high quality instruction. Hence, this transforms higher education by providing a new platform.

To achieve globalized online learning, the ministry of higher education will work with Higher Learning Institutions to build the academic community ability and explore the formation of e-learning national platform to coordinate and lead the content development. The initiatives that developed by both of the party is:

1. Launching MOOCs in subjects of distinctiveness for Malaysia such as Islamic banking and finance, in partnership with high-profile international MOOC consortiums like EdX and Coursera in order to build Malaysia global brand
2. Making online learning by using MOOCs as a based platform as a crucial component of higher education and lifelong learning, starting with the conversion of common undergraduate courses into MOOCs, and requiring up to 70% of programmes to use blended learning models
3. Establishing the required cyberinfrastructure (physical network infrastructure, infostructure, platform, devices, and equipment) and make the capabilities of the academic community to deliver online learning at scale stronger.

1.3.3 E-Learning Policy

The National e-Learning Policy or Dasar e-Pembelajaran Negara (DePAN) was launched on April 16, 2011, under the National Higher Education Strategy Plan or Pelan Strategik Pengajian Tinggi Negara (PSPTN). DePAN provides the framework for Malaysian quality e-learning deployment at Higher Learning Institutions and is made up of five domain (infrastructure, a structure of an organization, curriculum and content, professional development, and enculturation) to enable Higher Learning Institutions (HLIs) to implement their e-learning initiatives.

E-learning Policy will be revised and updated according to the globalized online learning agenda in order to enhance the teaching and learning quality. This will help in developing the Malaysia education brand, positioning and increasing the visibility of Malaysian HLIs in the global education area. The party who responsible to revise the e-Learning Policy is National e-Learning Centre (NeLC) with the help of the ministry to incorporate the latest MOOCs strategy. NeLc will also encourage HLIs to keep up with current practices and technologies for the implementation of GOL (Education Malaysia, 2015).

DePAN 2.0 is the extension of DePAN purposely to support the PSTN by having a six instead of five domain which is

1. Infrastructure and Infostructure
(Internet and Wi-Fi, E-learning platform and ICT equipment and software)
2. Governance
(Policy and Action Plan, Leadership and E-learning and Human resource, and financial allocation)
3. Online Pedagogy (organized learning, open courses, and e-assessment)
4. e-Content (original e-content, open e-content, and standard e-content)
5. Professional Development (knowledge, Skills, and practice)
6. Enculturation (culture, recognition and publication equality)

1.4 Massive Open Online Course (MOOC)

Massive Open Online Courses (MOOC) is one of the latest innovations in the field of education in the form of an open source learning system that offers short and free online courses to anyone who has access to the Internet (Ejreaw and Drus, 2017). MOOC are large in scale, open in access of classes taught by the faculty of the university with the existence of internet by using different tools such as video/webcasts, online assessments, discussion forums, and even live video chat discussions and help sessions (Shapiro *et al.*, 2017).

MOOC as an innovative educational model that has emerged in the last few years, has made both researchers and practitioner's attention. This new model is beyond traditional education as learners are able to access the knowledge through this online platform at anytime and anywhere as long as there is an internet connection. Due to that condition, the teachers and learners will connect more interactively not only in the classroom but also outside the classroom.

Malaysia MOOC is initiated by Malaysian Education Blueprint for Higher Education, National Economic Model and Economic Transformation Programme and It was pre-launched on 19 September 2014 by the then Second Education Minister, Datuk Seri Idris Jusoh (Nor Fadzleen, Rose and Naoki, 2015). According to Malay Mail Online (2014), MOOCs act as a milestone for Malaysia higher education to be the first country in the world implemented MOOCs for public universities. The Malaysia MOOC initiative is part of the Ministry of Higher Education strategic plan in assist the quality and making the Malaysian higher education rising to a global scale.