

THE IMPACT OF ARTIFICIAL INTELLIGENCE ON EDUCATION AMONG
PUBLIC UNIVERSITIES STUDENTS DURING COVID-19 PANDEMIC



UNIVERSITI TEKNIKAL MALAYSIA MELAKA

VERIFICATION BY SUPERVISOR

I hereby declare that I had read this thesis and, in my opinion, this thesis is adequate in term of scope and quality for the award Bachelor of Technology Management

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THE IMPACT OF ARTIFICIAL INTELLIGENCE ON EDUCATION AMIONG
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MOHNIESHA A/P SURES



Report submitted in fulfilment of the requirement for the degree of Bachelor of
Technology Management (Hons) in Innovation Technology

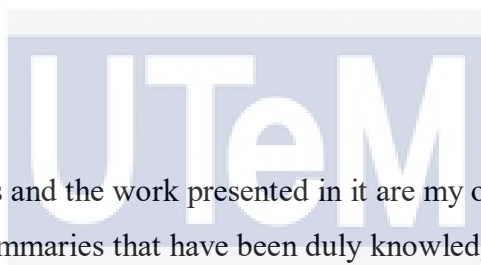
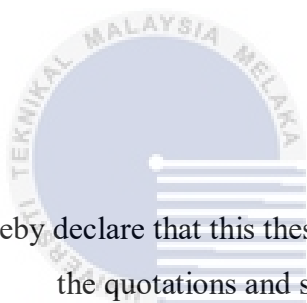
Faculty of Technology Management and Technopreneurship

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JANUARY 2023

DECLARATION OF ORIGINAL WORK

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“I hereby declare that this thesis and the work presented in it are my own except for the quotations and summaries that have been duly knowledge.”

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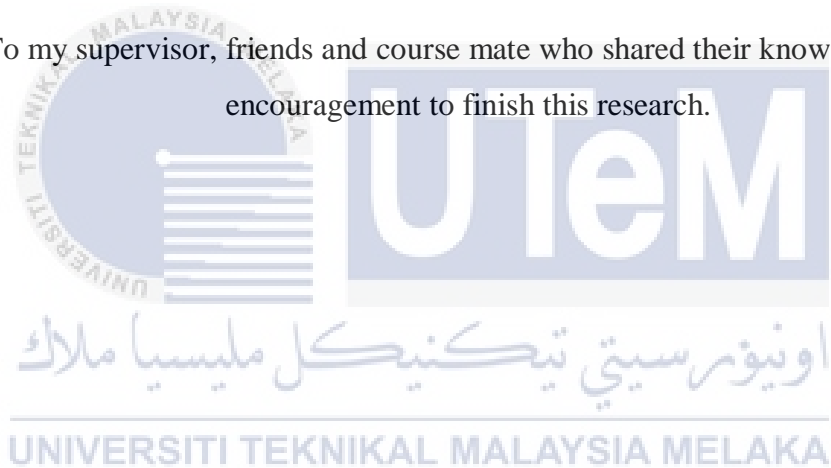
DEDICATION

This research paper is dedicated to my beloved parents and to my siblings.

A special feeling of gratitude to my loving parents and caring siblings for being the sources of my inspiration and motivation.

I will always feel grateful and appreciate them for giving us strength and continually provide their endless love, support and guidance.

To my supervisor, friends and course mate who shared their knowledge and encouragement to finish this research.



ACKNOWLEDGMENT

I would like to begin by expressing my gratitude to my supervisor, Dr. Mohd Fazli Bin Mohd Sam, for his patient care, counsel, and support. I am thankful to have had the opportunity to study from Dr. and I feel I was taught by the greatest. Without Dr. Mohd Fazli's assistance and direction, this project could not be effectively accomplished.

In addition to expressing my gratitude to my supervisor, I would also want to thank UTeM for offering a learning atmosphere that is favourable to learning, competent learning materials, and insightful information that benefited me in doing my study. I would also want to use this opportunity to extend my heartfelt gratitude to Mr. Mukhiffun Bin Mukapit, my panel for this research, for providing a helpful suggestion and an honest assessment of this research.

In conclusion, I would want to express my gratitude to my parents, my siblings, and my friends for providing me with the support and motivation I needed to finish my study.

ABSTARCT

Today, many students use AI in education for academic purposes. As a result, traditional education has been forgotten owing to the presence of AI, which might result in a worldwide educational system shift. Meanwhile, this study is to examine the factors that affecting public universities students' intention to use AI on education. The purpose of this quantitative study was to use Technology Acceptance Model (TAM) and Technology Readiness (TR) as a proposed framework to examine the factors that could affecting public universities students' intention to use AI on education in enhancing student's life. There are four factors such as perceived ease of use, perceived usefulness, perceived innovativeness and perceived optimism in associated with public universities student's intention to use AI on education. A quantitative research design was chosen to investigate the research problem and associated questions. The total population for this study was 584576 public students as the research location was chosen at Malaysia and target respondent are especially students which from public universities. Besides that, the researcher used the minimum sample size for SEM and the minimum of 120 respondent was selected for this study. While for the data collection and analysis, the researcher will be using SmartPLS and SPSS to analyse. According to the conclusions of this study, there is a significant relationship between perceived innovativeness and perceived optimism with the public universities students' intention to use AI on education. For future reference, this study is thought to be useful for the students and education sector.

Keywords: AI, education, Covid-19 pandemic, TAM, TR

ABSTRAK

Hari ini, ramai pelajar menggunakan AI dalam pendidikan untuk tujuan akademik. Akibatnya, pendidikan tradisional telah dilupakan kerana kehadiran AI, yang mungkin mengakibatkan peralihan sistem pendidikan di seluruh dunia. Sementara itu, kajian ini adalah untuk mengkaji faktor-faktor yang mempengaruhi hasrat pelajar IPTA untuk menggunakan AI dalam pendidikan. Tujuan kajian kuantitatif ini adalah untuk menggunakan Model Penerimaan Teknologi (TAM) dan Kesediaan Teknologi (TR) sebagai rangka kerja yang dicadangkan untuk mengkaji faktor-faktor yang boleh mempengaruhi niat pelajar IPTA untuk menggunakan AI dalam pendidikan dalam meningkatkan kehidupan pelajar. Terdapat empat faktor seperti persepsi kemudahan penggunaan, persepsi kebergunaan, persepsi inovasi dan persepsi optimis yang dikaitkan dengan hasrat pelajar universiti awam untuk menggunakan AI dalam pendidikan. Reka bentuk kajian kuantitatif telah dipilih untuk menyiasat masalah kajian dan persoalan yang berkaitan. Jumlah populasi bagi kajian ini adalah seramai 584576 orang pelajar awam memandangkan lokasi kajian dipilih di Malaysia dan sasaran responden adalah terutamanya pelajar dari universiti awam. Selain itu, pengkaji menggunakan saiz sampel minimum untuk SEM dan sekurang-kurangnya 120 responden telah dipilih untuk kajian ini. Manakala bagi pengumpulan dan analisis data, pengkaji akan menggunakan Smartpls dan SPSS untuk menganalisis. Mengikut kesimpulan kajian ini, terdapat hubungan yang signifikan antara persepsi inovasi dan persepsi optimis dengan hasrat pelajar universiti awam untuk menggunakan AI dalam pendidikan. Untuk rujukan masa hadapan, kajian ini difikirkan berguna untuk pelajar dan sektor pendidikan.

Kata kunci: AI, pendidikan, pandemik Covid-19, TAM, TR

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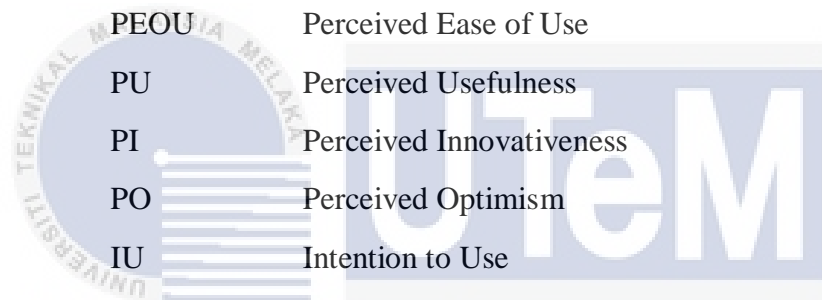
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LIST OF ABBREVIATIONS

UTeM	Universiti Teknikal Malaysia Melaka
SmartPLS	Smart Partial Least Square
SPSS	Statistical Package for Social Science
AI	Artificial Intelligence
TAM	Technology Acceptance Model
TR	Technology Readiness
PEOU	Perceived Ease of Use
PU	Perceived Usefulness
PI	Perceived Innovativeness
PO	Perceived Optimism
IU	Intention to Use



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CHAPTER ONE

INTRODUCTION

1.0 INTRODUCTION

This chapter will discuss the background of the research regarding the impact of Artificial Intelligence (AI) on education among Public Universities students in Malaysia during the Covid-19 pandemic. This chapter focuses on the problem statement, which explains the problem that was required and needs to be solved, followed by the research questions and objective. Then followed by the scope of the study, which refers to the aspects of this study being investigated, a limitation which will be discussed about the boundaries and constraints faced. Then, a significant study will be conducted to explain the timeline and implications. Lastly, the preparations process and conclusion of the study will be addressed.

1.1 BACKGROUND OF THE STUDY

Malcolm X once remarked that education is the passport to the future, for tomorrow belongs to those who prepare for it today. From this, we can see how education plays a significant role in everyone's life, even around the world. The COVID-19 pandemic had an impact on the global population's health, economics, education and even social life stated by Mahdy in 2020. According to World Health Organization, Coronavirus disease which known as (COVID-19) is an infectious disease caused by the SARS-COV-2 virus (Coronavirus, 2020). Due to the alarming spread and severity of the diseases, the World Health Organization (WHO) has declared that COVID-19 as a pandemic for the entire world on March 11, 2020, and has urged for immediate social distancing measures and maintain personal cleanliness to prevent the spread (Listings of WHO's Response to COVID-19, 2020).

Besides that, the global had experienced the fast spread of the Covid-19 pandemic due to in China, a wet market that sold dead and living exotic animals as China's food. These animals such as birds, snake, frog and rat were suspected of being carriers of the virus that is presently endangering human's health in unprecedented way (Lan et al., 2019). On December 31, 2019, (Archived: WHO Timeline - COVID-19, 2020), well World Health Organization known as (WHO) reported a case of pneumonia in Wuhan City, which in China, with 44 same cases was reported within only in four days. Then, Chinese authorities had identified a new type of coronavirus which related to the previous pneumonia cases. Since then, the virus spread rapidly plus outreached 282 cases of infection within the same month, therefore all activities including educational activities been controlled and reduced.

According to the pandemic prevention guidelines proposed by UNESCO (2020), in order to spread virus rapidly and continuously, countries around the world had begun global school closure. Besides that, to prevent the virus to spread from one person to another person, local government had also issued relevant policies, calling on people to cut the travelling and gathering with others (Che Mat et al., 2020). On January 25, 2020, the first Covid-19 case in Malaysia was been recorded, which involved by three Chinese citizens from Wuhan (Che Mat et al.,2020) and had continued spread the virus swiftly on every week (Rampal & Liew, 2020), afterwards surging to the second wave with a total number of 8266 cases (DG of Health, 2020).

The situation changed as the Covid-19 cases expanded beyond imported cases to include members of the local population (Izhar et al., 2021). Furthermore, numerous cases indicated Covid-19's propensity to infect people who had no direct contact with the Wuhan market, where the virus originated (Lan et al., 2019; Malaysian Ministry of Health, 2020), thus it caused the restriction of all physical activities, which had included education. The field of Artificial Intelligence (AI) has formally entered the domain of higher education, both theoretically and in early practice (Muhammad Tanveer et al, 2020).

According to Global Market Insights, the size of the AI in the education market surpassed one billion dollars in 2020 and is anticipated to increase at a compound annual rate of more than forty percent between 2021 and 2027. Due to all this hype, there is inevitably a great lot of ignorance (as well as anxiety) over what AI is and what effect it may have on higher education. Artificial intelligence (AI) which may be defined as the development of computer systems that employ reasoning, logic plus other human attributed to execute tasks autonomously, provides businesses with the means by which they can automate and simplify their processes and workflows.

Total 8 public universities in Malaysia offers AI degrees and course which are Universiti Malaya (UM), Universiti Kebangsaan Malaysia (UKM), Universiti Pendidikan Sultan Iris (UPSI), Universiti Pertahanan National Malaysia (UPNM), Universiti Putra Malaysia (UPM), Universiti Saints Malaysia (USM), Universiti Teknikal Malaysia Melaka (UteM), and Universiti Utara Malaysia (UUM). According to Ministry of Higher Education, there are 20 of Public university, 36 of Polytechnics, 104 of community college, and last but not least, there are 434 of IPTS which know as Private Higher Educational Institutions.



Figures 1.1 show that number of Higher Education Institute in Malaysia

Number of academic staff and student in public university

	Academic Staff	Student
Universiti Islam Antarabangsa Malaysia (UIAM)	1,979	29,254
Universiti Kebangsaan Malaysia (UKM)	2,094	30,844
Universiti Malaya (UM)	2,045	35,885
Universiti Malaysia Kelantan (UMK)	521	11,058
Universiti Malaysia Pahang (UMP)	764	13,607
Universiti Malaysia Perlis (UNIMAP)	1,109	13,176
Universiti Malaysia Sabah (UMS)	1,042	17,498
Universiti Malaysia Sarawak (UNIMAS)	830	16,551
Universiti Malaysia Terengganu (UMT)	668	10,323
Universiti Pendidikan Sultan Idris (UPSI)	872	26,554
Universiti Pertahanan Nasional Malaysia (UPNM)	382	4,972
Universiti Putra Malaysia (UPM)	1,837	28,587
Universiti Sains Islam Malaysia (USIM)	785	13,608
Universiti Sains Malaysia (USM)	2,064	31,674
Universiti Sultan Zainal Abidin (UniZA)	711	12,901
Universiti Teknikal Malaysia Melaka (UTeM)	866	14,937
Universiti Teknologi Malaysia (UTM)	1,697	32,900
Universiti Teknologi MARA (UiTM)	8,904	188,701
Universiti Tun Hussein Onn Malaysia (UTHM)	1,092	18,581
Universiti Utara Malaysia (UUM)	1,246	32,965

Figure 1.2 shows that number of academic staff and student in public universities in the year of 2022.

Source: Ministry of Higher Education Malaysia

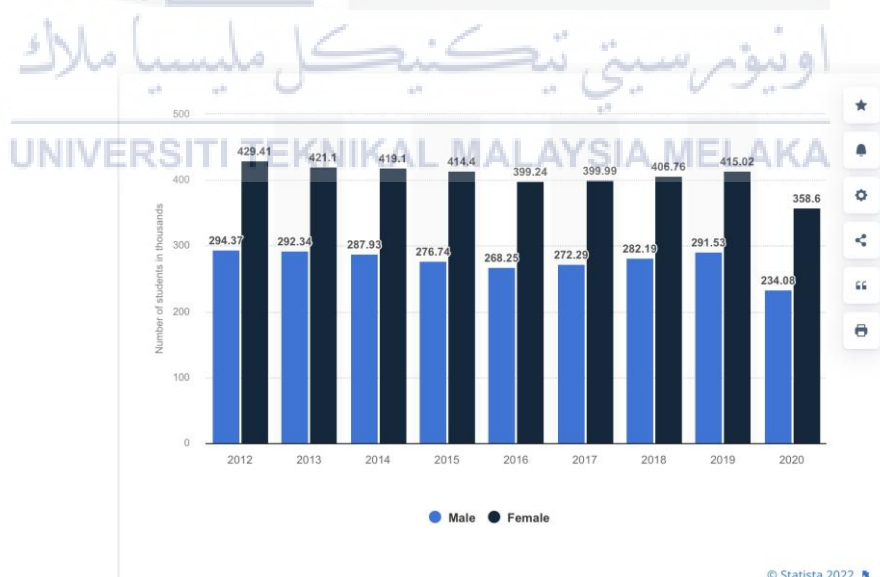


Figure 1.3 show the number of students enrolled in public higher education institutions in Malaysia from 2012 to 2020, by gender.

According to Statista published by R.Hirschmann, Jan 13,2022, There were around 234.08 thousand male students and 358.6 thousand female students enrolled in public higher education institutions in the year 2020. Although there has been a gradual decline in the number of male students enrolled since 2016, there were still a much greater number of female students than male students in 2019. This paralleled the global trend of more women than males enrolling in higher education programmes all around the globe.

1.2 Problem Statement

According to Bahar Moni et al., in 2021, the world is recently facing a pandemic due to the swiftly spread of coronavirus disease 2019 known as COVID-19, and it is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), (Esposito & Principi, 2020). Malaysia has recorded 334,156 confirmed cases, with 1,238 fatalities and a mortality rate of 0.4 per cent (Worldometer Coronavirus Statistics). According to Sundarasan S et al. in 2021 mentioned that even though the case fatality rate in Malaysia was modest when compared to other developed countries such as the United States, the United Kingdom and Canada, many were concerned and worried that the virus may spread quickly via direct or indirect contact.

On January 25, 2020, the first case of COVID-19 was discovered in Malaysia (Elengoe, May 31, 2020). A spike in cases led the Malaysian government to implement measures such as physical separation rules, social gathering restrictions, appropriate mask use, Movement Control Order (MCO), Conditional Movement Control Order (CMCO), extended movement control orders and border closures between mid-March and August-2020 in an effort to contain the disease's spread (Shah AUM, Safri SNA, Thevadas R, in 2020). According to Hamrouni et al., in 202, every element of our existence, from geopolitics to health care to culture events and even education was impacted by the Covid -19 pandemic. COVID-19 is the biggest obstacle that these national education systems have ever met.

The epidemic has affected the study of almost one billion pupils and students in 129 nations throughout the globe, according to the United Nations Educational, Scientific, and Cultural Organization (UNESCO). Most educational institutions

throughout the world have taken the initiative to stop in-school teaching and learning in order to stop the spread of the virus, according to Dhawan in 2020.

Discontinue the school and universities as became one of the safety measurements to stop the virus spreading between students and teachers. According to (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2020a), Mexico, Argentina, Chile, Paraguay, Brazil, South Sudan, Uganda, Somalia, Saudi Arabia, India, Myanmar, Cambodia and some other countries are continue closing schools due to COVID-19 until October 2020.

Accordingly, the Malaysian government has asked all educational institutions to shut on March 18th, 2020, until additional instructions (National Security Council, 2020). Numerous universities and colleges all around the globe have either postponed or cancelled all campus events in an effort to reduce the number of meetings and, as a result, lower the risk of viral transmission (Sharon, 2020). On the other hand, these policies have greater repercussions in terms of the economy, medical care, and social issues for both the undergraduate and postgraduate populations (Nicola M, 2020).

As a consequence of this, the only method that is both secure and feasible for carrying out activities related to online learning (Bozkurt, 2020) and teaching is known as online distance learning (ODL), (Bogdandy et al., 2020) which is more often abbreviated as e-learning (Baskaran, 2018). According to Yusuf in 2020, stated that online education is the most effective technique for everyone involved, including students and teachers, particularly throughout the extended MCO stages.

It's difficult to embrace or adjust to online learning in the face of a sudden epidemic like COVID-19 without running into several issues and hurdles, according to Al-Kumaim et al., 2021. Recent reports from researchers indicate that university students encounter a variety of challenges while attempting to carry out ODL activities utilising various ICT platforms stated by Al-Baadani & Abbas, in 2020. Al-Kumaim et al., in 2021, and Education: From School Closure to Recovery in 2022, marked that the challenges will be or may include issue like the unfamiliarity with the information technology platforms used, stress lack of experience using and dealing with online learning platforms such as online -learning and e-learning in terms of students' engagement and participation.

According to UNESCO, the number of students enrolled in tertiary institutions is expected to drop by around 3.5 percent, which would lead to a decrease of 7.9 million students overall. Next on the list is pre-primary education, where it is predicted that enrolments have dropped by 2.8 percent, which is equivalent to a loss of 5 million children (Daniel, 2020). According to (Dhawan, 2020), it is anticipated that elementary and secondary educational institutions would be considerably less impacted.

In a nutshell, university students are facing difficulties by the current pandemic where they could not get to access any source of face to face educations other than online learning and e-learning. Thus, involvement and implementation of AI into education have also been giving a good impact like time-saving nature and make problem solving more efficient as some university students still faces negative impact like human interaction decreases and laziness in the students due to limitation in reaching to AI systems. Traditional education has been forgotten due to the involvement of AI which could lead to an educational system chagement globally. Meanwhile, there is a requirement to study on the factors that affecting public universities student's intention to use AI on education due to adopt this new and advanced Artificial Intelligence technology in Malaysia's education systems in future.