





THE EFFECT OF IMPLEMENTING E-LEARNING TOWARDS ACADEMIC
PERFORMANCE AMONG THE STUDENTS OF UNIVERSITY TECHNICAL
MALAYSIA MALACCA.



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This thesis is submitted in partial fulfillment of the requirements for the award of
Bachelor of Technology Management (Technology Innovation) with Honors (BTMI)



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DECLARATION OF ORIGINAL WORK

I hereby declare that all the work of this thesis entitled “THE EFFECT OF IMPLEMENTING E-LEARNING TOWARDS ACADEMIC PERFORMANCE AMONG THE STUDENTS OF UNIVERSITY TECHNICAL MALAYSIA MALACCA.” is original done by myself and no portion of the work encompassed in this research project proposal has been submitted in support of any application for any other degree or qualification of this or any other institute or university of learning.

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DEDICATION

I would like to express my gratitude for my loving family members' effort to educating and motivating me to complete my education to the degree level. Also, I want to express my gratitude to Dr Amizatulhawa Binti Mat Sani, who is also my supervisor for my final year project, and my fellow classmates. Throughout my research, they have offered me complete guidance, support and counsel. This research would be impossible to complete in a timely manner without their blessing and encouragement.



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ABSTRACT

In today's educational landscape, e-learning is quickly becoming the new standard. The e-learning industry has seen steady expansion across the globe. Students at University Technology Malaysia Malacca will be studied in this study to see what impact implementing e-learning has on academic performance. The study's goal is to determine the relationship between the availability of ICT facilities, time and place flexibility, and students' belief in their own ability to succeed academically when using e-learning. Students from the University of Technology Malaysia Malacca will be selected to participate in the current study. The data results are analysed using descriptive analysis. Correlation analysis explain that how strong a linear relationship between two variables really is. As a resource for the university, this study may be helpful in boosting the academic performance of students at the university level.

Keyword : E-Learning, Academic Performance, ICT, Flexibility, Self-Efficacy

ABSTRAK
BAHASA MALAYSIA VERSION

Dalam landskap pendidikan hari ini, e-pembelajaran dengan cepat menjadi standard baharu. Industri e-pembelajaran telah menyaksikan perkembangan yang mantap di seluruh dunia. Pelajar di Universiti Teknologi Malaysia Melaka akan dikaji dalam kajian ini untuk melihat apakah kesan pelaksanaan e-pembelajaran terhadap prestasi akademik. Matlamat kajian adalah untuk menentukan hubungan antara ketersediaan kemudahan ICT, fleksibiliti masa dan tempat, dan kepercayaan pelajar terhadap keupayaan mereka sendiri untuk berjaya dalam akademik apabila menggunakan e-pembelajaran. Pelajar dari Universiti Teknologi Malaysia Melaka akan dipilih untuk menyertai kajian semasa. Hasil data dianalisis menggunakan analisis deskriptif. Analisis korelasi menjelaskan betapa kuatnya hubungan linear antara dua pembolehubah sebenarnya. Sebagai sumber untuk universiti, kajian ini mungkin dapat membantu dalam meningkatkan prestasi akademik pelajar di peringkat universiti.

Kata Kunci : E-Pembelajaran, Prestasi Akademik, ICT, Fleksibiliti, Efikasi Diri

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Chapter 1

INTRODUCTION

1.0 Introduction

The Internet of Things, sometimes known as IoT, is a pervasive technology that enables communication and cooperation between virtual and actual objects. As it matures, it increases in size and scope, having an effect on several facets of our lives, including the educational system (Bayani and Vilchez, 2017). Kevin Ashton, who was working in the Auto-ID lab at MIT at the time, introduced the Internet of Things to the world in 1999. In his presentation, he outlined the technologies that underpin the Internet of Things, such as radio frequency identification devices (RFID) and wireless sensor networks (WSNs). The Internet of Things is predicated on the premise that all items that acquire an IP address will be able to communicate with one another both in the real world and online (Parashar, Khan, and Neha, 2016). The information gathered by sensors, tags, or actuators is passed on to a cloud computing platform via a gateway as the primary building block of the Internet of Things' fundamental architecture. There are three different kinds of interactions that can take place within the Internet of Things: machine-to-machine, object-to-machine, and object-to-object. The Internet of Things has led to the development of a wide variety of applications, ranging from simple home systems to complex surgical equipment. The internet of things encompasses a wide variety of facets of human existence, including but not limited to "smart cities," "smart enterprises," "smart energy use," etc. According to Tianbo (2012) and Maksimovi (2017), education is one of the most noticeable human activities that the Internet of Things (IoT) has an influence on, and this influence is converting the form of education into an innovative structure in the near future. The Internet of Things (IoT) is a rather widespread concept that encourages creative expression across a variety of industries. One of these fields is education, namely online instruction (e-education). Because IoT can be combined

with other IT technologies, it has the potential to provide a wide range of e-educational technologies that have the potential to transform the educational systems of the future. The upcoming education centre will have technologically advanced furniture and fixtures. In order to validate their status as users and gain access to the school's automated administration system, both students and teachers must first scan their fingerprints and present their RFID ID cards in front of a scanner. Mobile verification is also an option. The Internet of Things classrooms of the future will feature sensors to verify the identities of both the instructors and the pupils. Using the smart classroom in a smart city, students and teachers can communicate and collaborate (E-Leap, 2016). Connecting all physical and virtual things via the Internet of Things can be done more efficiently. An effective e-learning environment can be created in a large-scale virtual classroom by allowing students to connect online to labs, libraries, instructional materials, exams, and administrative chores. As an added benefit, all of the tasks and activities associated with e-learning in this format will be designated as objects (Sok-Pal and Jeom-Goo, 2016).

E-learning refers to the process of acquiring formal education through the utilisation of various online resources. E-learning relies heavily on the utilisation of computer technology and the Internet as its primary teaching tools (Aboagye et al.2020). Teaching can take place either inside or outside of traditional classroom settings. E-learning can be described as a method of learning that is facilitated by the use of extensions, carefully crafted content, and mentor support. Finally, e-learning can be defined as any type of technology-based learning, whether in a virtual or physical classroom setting. This can be a transition away from traditional learning techniques and toward ICT-based customised, flexible, and singular self-composed, cooperative learning in the light of "many" learners, trainers, facilitators, and specialists (Jethro, Grace & Thomas, 2016). Using the latest in Internet technology, e-learning aims to improve students' access to and mastery of material. In addition, E-learning is the educational design that combines ICT with the existing type of education in order to improve the validity of learning methods and procedures.

E-learning. There are three primary levels of e-learning: informative, integrative, and transformer. Data from the Informative level can be used in other forms of literature, modules, and external resources to make programme decisions. During the integrative level, students and teachers are connected in ways that were not possible in the traditional classroom. To sum it all up, the transformer level makes it possible to begin using authentic resources in educational frameworks that produce an online learning world. The term "E-learning" encompasses a wide range of concepts, including computer-assisted instruction, distance education, and other forms of online instruction (Aljawarneh, 2020; Lara et al. 2020; Yengin et al. 2011). In most cases, it is a web-based education system that uses technology to educate students. Because the costs of adopting web-based technologies have dropped so dramatically, their application in education has grown rapidly. E-learning is now widely accepted as a critical component of many academic institutions' curricula.

Many comparative studies have been conducted to answer the question of whether face-to-face or traditional teaching strategies are more productive, or whether online and hybrid learning is preferable (Lockman & Schirmer, 2020; Pei & Wu, 2019; González-Gómez et al., 2016). According to data, students in online courses outperform those in traditional classrooms. Henriksen et al. (2020) highlighted the difficulties that instructors face when migrating from traditional education to virtual learning environments. Some of them are learning that web-based instruction is more effective than traditional instruction (Angiello, 2017). The study found that synchronous communication is preferable to asynchronous communication for students. Asynchronous communication involves a pause in the flow of information between the sender and the recipient, whereas synchronous communication refers to the exchange of data without a pause. In web-based learning, for example, discourse discussion and email are examples of asynchronous interaction. Realized synchronous understudies need to practice using the new innovations.

This study will identify factors that impact the students performance in UTeM, particularly in e-learning implementation.

1.1 Problem Statement

Studying whenever you want is increasingly common in today's society. It's becoming increasingly popular for people to participate in online education because they believe it will make their lives easier in acquiring knowledge. Academics face numerous challenges as a result of online education's widespread adoption and widespread success. There is a high upfront cost for online education, and there is also a high production cost for the materials used in online training. Instructors need to be absolutely certain that the benefits of delivering a course online outweigh the additional costs. Educators must also contend with a low level of computer literacy such as when attempting to implement an e-learning system in the classroom (Tarus, Gichoya & Muumbo, 2017).

If students and lecturers are not computer literate, then e-learning cannot be a comprehensive option for them. Time management become one of cause towards the academic performance as online courses require so much time and effort, it can be difficult for students to manage their time effectively. The fact that adults are more likely to prefer web-based learning programmes because they are able to access them from any location and at any time makes it difficult for them to complete courses. These students would greatly benefit from a regular schedule planner, which would allow them to set reminders for assignments and courses.

Because self-efficacy is connected to an individual's belief in their own skills to organize and carry out the sequences of action required to create certain attainments, it constructs a bridge of potential connections on the e-Learning acceptance. People who do not have a high level of self-efficacy in technology will not have a greater sense that it is beneficial to themselves to learn via the use of technology. In addition, people who have a low sense of their own self-efficacy have a negative perception of learning through technology, which could have a detrimental impact on their acceptance of e-Learning. It is imperative that this matter be resolved as soon as

possible since it has the potential to impede students' comprehension of and adaptability to e-Learning, whilst the self-efficacy component will determine whether or not students will really use e-Learning (Lwoga & Komba, 2015).

1.2 Research Objectives

The aim of the research is to determine the effect of implementing E-learning on the academic performance of students at University Teknikal Malaysia Melaka. The following are the study's objectives:

1. To investigate the relationship between the availability of ICT facilities for the implementation of E-learning and the UTeM students' academic performance.
2. To investigate the relationship between the ability to be flexible in terms of time and place when implementing E-learning and the academic performance of students at the University Teknikal Malaysia Melaka.
3. To investigate the relationship between self-efficacy in utilizing E-learning and academic performance among students at University Teknikal Malaysia Melaka.

1.3 Research Questions

The following questions are intended to be answered in this research :

1. Does the availability of ICT facilities in implementing E-learning at University Teknikal Malaysia Melaka have an impact on the academic performance of students?
2. Does the students of University Teknikal Malaysia Melaka had a statistically significant relationship between the ability to implement E-learning in a flexible manner at any time and any place and their academic performance.
3. Does a significant correlation between the student of UTeM students's self-efficacy in implementing E-learning and their academic performance ?

1.4 Scope of the Study

This research covers the impact of implementing e-learning towards academic performance among the students of UTeM. Furthermore, this research will be focused on people within the age of 18 to 25 who are studying in the University Technology Malaysia Malacca. The reason why the researcher choose UTeM as the research location is because of these two years, everyone going through the covid-19 situation. When having this situation, all of the UTeM's students experience the e-learning system as well. Therefore, as the researcher also one of the UTeM's students, this place should be the suitable place for the researcher to do the reserach study at here. Through this study,the research can determine the relationship between the availability of ICT facilities, time and place flexibility, and students' belief in their own ability to succeed academically when using e-learning.

1.5 Limitation of the Study

Data was collected from respondents from the students of University of Technical Malaysia Malacca who have been used the E-learning which has make an effect towards the academic performance. Respondents have witnessed the newborn stage of E-learning and are unaware of its true power. Students at UTeM are transitioning from offline to online mode. Due to a lack of awareness and resources, the study parameters and responses are limited. The obstacles when studying this research due to the very limited time constraints. It may face similar time constraints as the researcher do when it comes to submitting a manuscript to a journal or completing other research projects. This investigation uncovered a few flaws in prior work. Insufficiently worded inquiries may cause hazy reactions, leading to a smattering of hazy information. Because the investigation required only poll review information for related examination, the respondents was forced to choose from among a limited number of pointers. Members' willingness to answer honestly and completely also affects the precision of the responses. As a result, some respondents may not be prepared for a full concentration as they note down their responses. They simply

respond to the question and then have an effect on the accuracy with which information is gathered.

1.6 Significant of the Study

This study is beneficial to the university especially students. In point of fact, an increasing number of teachers are advocating for students to complete their educations online (UNESCO, 2020). As a result, it is imperative that people today acknowledge the value of online training. Many studies have been conducted to determine whether face-to-face or traditional teaching strategies are more effective than online or hybrid learning (Lockman & Schirmer, 2020; Pei & Wu, 2019; González-Gómez et al., 2016). The findings of the researchers show that students in online classes outperform those in traditional classrooms by a considerable margin. People, businesses, and society as a whole can benefit from e-learning, which promotes important, future-ready skills such as communication and teamwork. Everyone's best interest is served by making online learning accessible to students of all ages, from preschoolers to college graduates. As a result, this study will benefit in practical and theoretical knowledge whether in society or IPT. The study's goal is to determine the relationship between the availability of ICT facilities, time and place flexibility, and students' belief in their own ability to succeed academically when using e-learning. It is hoped that the effect of implementing e-learning will provide data on how e-learning increase the students' level of academic performance of university .

1.7 Key Definition of Terms

1.7.1 E-Learning

E-learning refers to the process of acquiring formal education through the utilization of various online resources. E-learning relies heavily on the utilization of computer technology and the Internet as its primary teaching tools (Aboagye et al.). Teaching can take place either inside or outside of traditional classroom settings (2020). E-learning is a method of education that uses electronic resources in conjunction with traditional teaching methods. As a network-enabled transfer of skills and knowledge, e-learning can also be described as a large-scale delivery of education to a large group of people at the same or different times. Previously, this system was not fully accepted because it was assumed to be devoid of the human element required for learning.

Many users of e-learning platforms have realized that online learning helps to ensure that e-learning is simply managed and that learners can easily access teachers and instructional resources (Gautam, 2020; Mukhtar et al. 2020). It also helped to reduce the amount of effort required, as well as travel expenses and other costs involved with traditional learning. E-learning considerably cut down on the administrative work, as well as the time spent on preparation and recording of lectures, as well as on attendance and exiting classes. Students and teachers alike recognize that online learning methods have made it possible to pursue educational opportunities regardless of location or the obstacles that stand in the way of attending traditional institutions of higher education. The student develops the skills necessary to become a self-directed learner and is able to learn in both synchronous and asynchronous fashion at any time.

The term "E-learning" encompasses a wide range of concepts, including computer-assisted instruction, distance education, and other forms of online instruction (Aljawarneh, 2020; Lara et al. 2020; Yengin et al. 2011). In most cases, it is a web-based education system that uses technology to educate students. Because the costs of adopting web-based technologies have dropped so dramatically, their application in education has grown rapidly. E-learning is now

widely accepted as a critical component of many academic institutions' curricula.

1.7.2 Academic Performance

The primary outcome measure in this investigation was academic performance, which was defined using a variety of concepts. There are several reasons for this, such as the fact that academic achievement has a direct impact on an economy's human capital development, as well as on the success or failure of an academic institution (Narad & Abdullah, 2016).

Several scholars have attempted to define and explain academic achievement. According to Narad and Abdullah (2016), a student's academic success is defined as the amount of knowledge they've acquired and how well they've used that knowledge over the course of a certain time period. Continuous assessment or examination outcomes can be used to measure these aims. There is also evidence that academic achievement is an indicator of educational outcomes, according to Annie, Howard and Midred (Arhad et al., 2015). That it reveals and measures to what extent an educational institution, teachers, and students have attained their educational aims was a major point of emphasis. Students' academic performance is defined as an objectively quantifiable behavior observed over time by Yusuf, Onifade and Bello (2016), according to the authors. It is made up of a student's performance on several assessments, such as class exercises, class tests, mid-semester mock exams, and the end-of-semester exams, among others.

1.7.3 Information and Communication Technology (ICT)

The terms information technology (IT) and communication technology (CT) converged to produce the term information and communication technology, which is abbreviated as ICT (CT). According to Khan et al. (2016), the term "information communication technology" (ICT) refers to a collection of technologies that make it possible to access information through various forms of communication. ICT is an acronym that stands for "information and

communications technology," according to Khan et al. (2016). In addition, information and communication technology (ICT) is a catchall term that refers to any device that can be used for communication. This includes radio, television, cell phones, computer and network hardware, satellite systems, and so on. ICT also refers to the various services and appliances that are associated with these devices, such as video conferencing and distance learning. There has been much discussion regarding the potential for information and communication technology (ICT) to serve as a significant catalyst for educational change and reform. One of the most important functions of information and communication technology (ICT), which cannot be emphasized enough in any culture, is its involvement in the dissemination, transmission, and indoctrination of admirable objectives and ideals through educational institutions. ICT is a driving force in the process of transmitting worthwhile goals from a teacher to expected learners in an educational system. These goals would make the learners useful both to themselves and to society as a whole. The information and communications technology (ICT) sector is very young, and its implications for the educational systems of the third world and the least developed countries have not yet been fully explored.

1.7.4 Flexibility of Time and Place In Implementing E-Learning

When we talk about content flexibility, we're talking about the freedom students have to decide when and how they want to learn a subject (Bergamin, Ziska & Groner, 2010; Bergamin et al., 2018). Face-to-face and campus-based learning, as well as e-learning, open and distance learning, and blended learning, all benefit from being flexible. E-learning is associated with the increasing use of technology in education because of its ability to accommodate a wide range of learning styles (Li & Wong, 2018). Flexibility is increasingly becoming a critical tool in e-learning due to its impact on elearning experiences and outcomes. Another study discovered that university students' perceived flexibility was a strong predictor of the usefulness of e-learning (Al-Harbi, 2011). In a study

conducted to evaluate an international distance learning program, Vietnamese academics gratefully received the adaptability of online discussion boards and the clear links to module materials, and they found the module content to be of great value to their career development and daily academic practices (Lewis et al., 2016).

Flexible learning is a complex concept, and it is difficult to pin down exactly what it comprises due to the wide range of properties that it possesses, according to study on the subject (Soffer, Kahan & Nachmias, 2019). According to a technology-oriented perspective, learners should have access to a variety of information and communication tools to support flexible learning. Furthermore, students should be provided with a variety of information and communication technology. From a pedagogically student-centered standpoint, students should be allowed freedom in terms of time, space, learning at their own speed, altering learning methodologies, and selecting learning resources and evaluation activities. (2018) (Nikolov, Lai, Sendova, & Jonker).

Flexible learning, as defined by Naidu (2017), is "a condition of being in which learning and teaching are increasingly liberated from the constraints of time, place, and speed of study." Students can learn at their own pace, in their own environment, and at their own pace using flexible learning. He argued that flexible learning is a value principle, not a technique of academic study. Furthermore, while technology is a key component of flexible learning, the phrase "flexible learning" refers to more than only the use of various technologies to lessen the amount of limitations placed by the learning environment (Li & Wong, 2018).

1.7.5 Self- Efficacy in Implementing E-Learning

In a broad sense, self-efficacy can be defined as an individual's belief in his or her ability to carry out a specific behavior. In the context of online learning, self-efficacy relates to an individual's perception of his or her capacity to use online learning in day-to-day activities, such as the utilization of the internet, computers, and web-based instructional and learning resources. E-Learning will be seen in a favorable light by those individuals who have a high level of self-efficacy in technological areas, and vice versa. Students' concern about using computers is one of the most important elements determining their level of contentment. In the event that they are unsatisfied, their conviction to use the technology as a medium will be directly impacted (Sun, Tsai, Finger, Chen, & Yeh, 2018). Students' intentions to use e-Learning are positively correlated with their levels of self-efficacy, which is a crucial factor in the equation (Al-Rahmi et al., 2018). In spite of the fact that students' sense of self-efficacy has the potential to act as a mediator in the adoption of e-Learning on their part, there is a dearth of research that tests this link. Therefore, it is extremely important to conduct this study in order to evaluate the mediating influence of self-efficacy between potential significant variables affecting e-Learning acceptance and the e-Learning acceptance itself.

Chapter 2

LITERATURE REVIEW

2.0 Introduction

This chapter includes a 2.0 introduction, 2.1 literature review, 2.2 the idea of independent variables, 2.3 the concept of dependent variables, 2.4 conceptual framework, and 2.5 research hypothesis of chapter 2 sections respectively. The researchers will talk about the relevant theories on the influence that applying e-learning will have towards academic performance and focus further on those theories. In this section, we will examine the conceptual framework, and we will also consider the aspects that, as well as the hypotheses for this study, we will present. Components of the research framework include information and communications technology (ICT), flexibility of time and place in applying e-learning, and self-efficacy in implementing e-learning. The researchers devised a conceptual framework in order to establish a correlation between the independent variables and the dependent variables. As a consequence of this, the researchers formulated hypotheses based on variables that were independent of the conceptual framework in order to attain and uncover the most important relationship that existed between the variables that were reliant on each other. A summary of Chapter 2 will be presented in this chapter's very last section, which closes out the whole thing.