



**SMART HIGHWAY AND TRAFFIC APPS
(SMAHiTRA): AN ONLINE LEARNING
APPLICATION FOR SUBJECT DCC30103 TO
IMPROVE STUDENT'S ACADEMIC ACHIEVEMENTS**

JABATAN KEJURUTERAAN AWAM

SUPERVISOR:

DR AINUL HAEZAH BINTI NORUZMAN

NAME	NO MATRIKS	CLASS
MUHAMMAD MUZANI BIN MOHD KELANA	08DKA19F2008	DKA4A
NURUL AIN NABILAH BINTI MOHD ZAKRI	08DKA19F2003	DKA4A

WRITING	MUHAMMAD MUZANI BIN MOHD KELANA (F2003)	NURUL AIN NABILAH BINTI MOHD ZAKRI (F2003)
ABSTRACT	/	
BACKGROUND	/	
PROBLEM STATEMENT		/
OBJECTIVE	/	
SIGNIFICANCE OF THE STUDY		/
INTRODUCTION		
LEARNING CONCEPTS	/	
TEACHING CONCEPTS		/
TYPES OF LEARNING METHODS		/
PREVIOUS RESEARCH	/	
SUMMARY OF CHAPTER 2		/
RESEARCH GAP		/
INTRODUCTION	/	
FLOWCHART		/
RESEARCH DESIGN	/	

PREPARATION OF MATERIALS		/
SAMPLING METHOD		/
DATA COLLECTION	/	
INTRODUCTION		/
CONCLUSION	/	
PROPOSAL		/
ANALYTICAL STUDY	/	

TABLE OF CONTENT

ABSTRACT

CHAPTER 1

- 1.1 Introduction
- 1.2 Background of The Study
- 1.3 Problem Statement
- 1.4 Project/Study Objectives
- 1.5 Project/Study Questions
- 1.6 Scope of Study
- 1.7 Importance of The Project/Study
- 1.8 Definition of Terms/Definition of Operations
- 1.9 Expected Project/Study Findings (Proposal Paper)
- 1.10 Chapter Summary

Chapter 2

- 2.1 Introduction Chapter
- 2.2 Previous Study
- 2.3 Chapter Summary

Chapter 3

- 3.1 Introduction
- 3.2 Study/Project Design
 - 3.2.1 Project Type Of Study
 - a. Sampling
 - b. Data Collection Methods
 - c. Data Analysis Methods
 - 3.2.2 Real Type Projects
 - a. Project Production Methods/Processes/Techniques

- b. Materials and Equipment
 - c. Data Analysis Methods
- 3.3 Pilot Study
- 3.4 Summary

CHAPTER 4

- 4.1 Introduction Of Smahitra Application
- 4.2 Method To Install
- 4.3 How To Use Smahitra Applications
- 4.4 Analysis Of Questionnaire Form
- 4.5 Conclusion

CHAPTER 5

- 5.1 Introduction
- 5.2 Conclusion For Objective 1
- 5.3 Conclusion For Objective 2
- 5.4 Conclusion For Objective 3
- 5.5 Recommendations

REFERENCES

Abstract

The research explores the potential factors influencing students' academic achievements and satisfaction with online learning platforms. Generally, face-to-face during class is usually known as a traditional method. However, nowadays, teaching and learning online have become more significant due to the transition of the academic world to education digitalisation. Education line in digitalisation become relevant since pandemic covid. Due to these obstacles, institutions like Polytechnic slowly transformed into fully online learning platforms to accommodate the current situation. Apart from that, the teachers also need to find a way to solve an issue or problem regarding students performance in mastery in their programme. The study is aimed to investigate students achievement and satisfaction by using apps in Highway and Traffic (DCC..) as online education platforms. The method used in this study was used quantitative method and sampling technic using simple random sampling. The respondents sampling consist of 66 from the Diploma of Civil Engineering at Polytechnic Sultan Salahuddin Abdul Aziz Shah. The apps called **SMAHiTRA** was produced as online learning tools and would be tested soon. It is hoped that this app would help students learn better and benefit students performances in assessment.

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

Information and Communication Technology (ICT) is required for data and information processing. Technology refers to the hardware, software, and telecommunication systems used to manage and process information. Information results from processing, collecting, and analyzing data that can add knowledge to the recipient of information. At the same time, communication is a process of transferring information, feelings, ideas, and thoughts to another individual or group of individuals. ICT is a very important medium in daily work where human life is dominated by technology.

ICT facilitates and eases human work and changes the way society lives today. Through this ICT facility, users can access and obtain information quickly and avoid wasting time and energy. Malaysia today (Unit Pelaksanaan dan Prestasi Pendidikan 2013) is in the era of ICT development by the year 2020. Malaysia will emerge as a developed country where today the government is working to implement various ICT programs to benefits Malaysia and society. Various innovations have been introduced in the ICT era, especially in the Public Service System (SPA). Changes and reforms in the SPA are much needed as the scenario at home and abroad becomes increasingly complex and challenging. The rapid process of globalization, liberalization and development of ICT requires SPA to make various efforts to reform and improve the system. Malaysia is not left behind in implementing the electronic government (EG) policy to leverage ICT as an agent of progress in the civil service. The electronic government aims to increase the productivity and effectiveness of public services towards greater achievement through ICT.

Malaysia also hopes that the implementation of the use of ICT will have a positive impact on the country development in terms of economic, political, social and administrative

of the country itself. According to (Asnuurien Najma 2019), the study on ICT use in teaching

and learning has long been introduced. However, Information Communication Technology (ICT) can still be considered new in Malaysian society. This era of globalization surprises us with various challenges that need to be overcome. Educators need to improve their skills to face the challenges ahead in this day and age. The use of ICT is very widespread and covers almost all matters of a country such as government administration, national development, forecasting an economy. Therefore, lecturers need to move forward in line with the changes needed by society to achieve national aspirations to get the status of a developed country based on the National Education Philosophy and Vision 2020.

Skills in using ICT are increasingly important to be mastered by every lecturer. Even more, challenged by the policies and aspirations of the Ministry of Higher Education Malaysia and the Department of Polytechnic Studies to produce competent lecturers and realise the transformation of polytechnics. Computers are said to be suitable tools to help lecturers because they can achieve the objectives of effective teaching and learning if used systematically. With advancements in telecommunications, computers connected to the internet will allow information to be obtained quickly and easily.

Innovation in information technology can disseminate all information to various levels of society more easily (Nik Azis 1996). The use of ICT that provides various types of information in various forms of media and approaches is said to help form more complex memory patterns and facilitate access to information. ICT has more potential to enrich teaching and learning (t & l) with the help of information and communication technology. The education system continues to grow rapidly to reach developed countries.

1.2 Background of The Study

ICT skills at the tertiary institution level are undeniably important in the country's education system. Therefore, ICT knowledge among lecturers is important for students to provide information and information. Disclosure of ICT skills to lecturers is the main agenda

of every educational institution to avoid being awkward with ICT applications and equipment. ICT knowledge does not only revolve around computer skills. Furthermore, ICT skills also include applications, simple devices and software. Nowadays, most students have been exposed to ICT tools indirectly before receiving formal education. Therefore, lecturers need to be better equipped with ICT skills to avoid lagging behind students.

1.3 Statement of Problem

There are many advantages and disadvantages of using ICT in learning. According to Heinrich (1995), skills in ICT use are a necessity for prospective teachers serving in schools. Several studies show that ICT in education has a positive effect, improving quality and achievement. Howel (2012) conducted a study among the respondents that showed the difference between ICT use in R & D. He saw that students are more interested in learning a subject (French) by using computers than conventional methods. Similarly, other researchers who see teaching aids (ABM) using ICT are more helpful in providing understanding to students than the use of ABM, which is not interesting (Instructional media and the new technologies of instruction 1996).

Therefore, lecturers and students must be sensitive to changes in this situation so that they do not lag behind the changes that are taking place in educational institutions. From the previous studies, many students have difficulty opening many notes and references during the learning process. Many institutions, including polytechnics, conduct online learning during the pandemic season. These reflections make students have difficulty when learning online. For example, students find it difficult to understand the concept of calculation because they have to open many notes at a time. In addition, students also have problems remembering and understanding formulas.

The students most often used formulas that were too long and difficult to remember. When studying online, students experience problems making calculations and determining the type of traffic. On the other hand, lecturers also have problems when it is difficult to monitor

students. For instance, during online classes, lecturers cannot monitor their students as the class takes place face -to -face. A lecturer cannot assess students' understanding of a topic they are studying. Finally, students need a long time to solve a question because they do not understand the calculation concept clearly. These implications will be detrimental to students when answering questions on exams at the end of the universe. The role change in the learning process is undeniably inevitable with the explosion of information and communication technology in education today.

These changes demand skills in using ICT in education to create more engaging learning. Information and communication technology have become a key component in teaching our country's education system. Approaches in learning and preparation in the delivery of teaching materials need to be modified according to technological changes. Indeed, ICT in higher education helps provide a foundation for students to the technological facilities available in life. In addition, the use of ICT also helps a lot in learning. Applications used in such learning will sink if the community lacks ICT knowledge and skills.

The success of ICT application in learning depends heavily on the shoulders of polytechnic lecturers, especially how they will use ICT facilities to help students understand. All of these efforts are to support effective and efficient learning. If students and lecturers are good at using ICT facilities fully in online teaching and learning, this will provide a new learning experience. It will change the online teaching and learning paradigm and subsequently transform the Polytechnic in digital learning. This study is to see the extent to which lecturers and polytechnic students can use the application in their learning. Therefore, this study will identify the problems in the learning system and the use of applications that can help students in the online learning process and then see the effectiveness of teaching conducted.

1.4 Project/Study Objectives

The objective of the study

- I. To produce smart apps (**SMAHiTRA**) for students effective learning
- II. To evaluate student performance using smart apps (**SMAHiTRA**)
- III. To determine the satisfaction among students using smart apps (**SMAHiTRA**)

1.5 Project/Study Questions

This study was conducted to answer the following research questions:

- I. What is the learning style for each student? (visual, auditory, reading/writing and kinesthetic)
- II. What is student “interests “in terms of ways to learn?
- III. Does learning to use the application save time
- IV. Is it true that utilizing the app makes studying easier for students?
- V. What is the barrier when not using the application in online learning?
- VI. What software is used to produce an application in this highway and traffic subject?

1.6 Scope of Study

In this study, respondents are limited to students and lecturers of the Department of Civil Engineering at the Sultan Salahuddin Abdul Aziz Shah Polytechnic only. This study was carried out quantitatively. Quantitative research uses information/data that is quantitative. Sixty-six students will be involved in this study. This study cannot be generalised for all conditions. The results of this study are only applicable to the factors of place that the researcher is studying.

1.7 Importance of the Study

Each object or material that is researched must have its meaning. Similarly, we looked into the use of ICT in education. The study is to understand the level of effectiveness of the use of the application among students and lecturers. Other than that, to provide recommendations to organizations designing and providing computational application facilities at the Polytechnic to suit the current online learning situation. This innovation will indirectly provide positive input on the advantages of applying ICT in online learning. It is hoped that this study will give students and lecturers the importance of using applications in the education and learning system. This study is also expected to pioneer other researchers to conduct more in-depth and better research on ICT. Finally, education aligns with the government's vision to make Information and Communication Technology an important element in facing the new millennium, moreover, realizing a standard education system in the world.

1.8 Definition of Terms/Definitions of Operations

Here is the terminologies related to ICT term, software term, and learning terms

1.8.1 ICT Terms

Information and communication technology (ICT) is a term for information technology (IT) that emphasizes the role of Unified communications and telecommunications integration. These include telephone lines and wireless signals, computers and enterprise software, central software, storage, and audio-visual systems that allow users to access, store, transmit, and manipulate information. The term ICT is also used to refer to the convergence of audio-visual and telephone networks with computer networks over a single cable system or link. There are substantial economic incentives (substantial cost savings due to the elimination of telephone

networks) to combine telephone networks with computer network systems using a single system of cable unification, signal distribution and management. However, the definition, as “the concepts, methods and applications involved in ICT is constantly changing on an almost daily basis.” The scope of ICT covers any product that will store, retrieve, manipulate, transmit or receive information electronically in digital form, e.g. personal computers, digital television, email, robots.

1.8.2 Software Terms

Computer software or software is a collection of instructions and data loaded in a computer that can be generated and operated by a complete system in constructing a computer that acts as a platform. It can come in programs, documentation describing the usage and system requirements, and configuration data. The required data or “setting” parameters allow the software to operate, and the computer can perform a task-directed by the user or determined by the software developer.

Learning Terms

Generally, “Learning is a process of acquiring knowledge or skills”. According to (Gagne 1970) in *The Condition of Learning*, learning is “a change in a person’s behaviour or abilities that can be sustained, excluding changes caused by the growth process”. According to Woolfolk (1980), learning is seen as an internal change by forming a new relationship or potential willingness to produce a new response.

1.9 Expected Project

The expected results of the study at least the respondent do not have serious problems using ICT equipment, especially in teaching and learning. These findings are important to the school administration, especially to the stakeholders. The implication is that using ICT tools would help government education bodies strategically plan human resource development, especially training and school infrastructure development, including computer facilities.

1.10 Summary of Chapter

This chapter will briefly present the project/study's background and outline the questions before producing an application for educational use. The focus of the study is to focus on the objective aspects of the study, which is why the application is very helpful for learning not only for the learning of higher education students but also for primary and secondary school students.