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STUDENT PERCEPTION OF TEACHING AND LEARNING BASED ON M-LEARNING REGARDING STUDENT INTEREST AND MOTIVATION IN THE SUB-TOPIC OF ENCRYPTION

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ABSTRACT

This study aims to survey students' perceptions of application-based teaching and learning in the subtopic of Encryption for the DFT 20083 Security Basic and IT Professional course. This study was conducted on 50 Diploma in Information Technology (Digital Technology) students at Seberang Perai Polytechnic. The sampling technique used is the stratified cluster random sampling technique. The instrument used in this study is a questionnaire that uses a Likert scale. The results of the pilot study show that the instrument used has a very high reliability value of 0.952. The study data were analysed to obtain the mean, standard deviation, frequency and percentage. Descriptive analysis of the perception of students' interest and motivation towards teaching and learning based on m-learning in the Basic Security and Professional IT course is at a high level with a mean value of 3.60 for interest and 3.53 for motivation. This finding shows that teaching and learning based on m-learning in the Encryption sub-topic for the DFT 20083 Security Basic and IT Professional course has a positive impact on students. In conclusion, learning based on m-learning revealed to students can create a fun atmosphere in learning DFT 20083 Security Basic and IT Professional courses and can improve learning skills among students.

Introduction

M-Learning is a flexible learning concept that can happen anywhere and is not limited to just the lecture room. According to (Gautam, 2018) m-Learning is part of technology that combines elearning which provides a learning environment using mobile devices in learning. Based on research (Eynon, 2021), learning using mobile devices can improve students' skills in the world of education and includes a learning process that goes beyond the physical space of the classroom.

According to (Bobkov et al., 2021), m-Learning is a preparation for education which involves the use of laptops and mobile phones giving a good effect. According to (Henderson & Corry, 2021) also stated that the use of m-Learning can attract students' interest and stimulate students' creative thinking. Apart from that, according to d (Alt & Raichel, 2020), learning using mobile devices in education has great potential to support in improving the quality of teaching and learning. The emergence of m-Learning acts as an improvement in learning and has advantages over conventional materials (Lutfi & Al-Khasawneh, 2023).

Problem Statement

The DFT 20083 Security Basic and IT Professional course is a core course that must be taken by students of the Diploma in Information Technology (Digital Technology) semester 4, in the Department of Information and Communication Technology at Polytechnic Malaysia. In the Security Basic and IT Professional course there are many theories that students need to understand. Apart from that, there is a sub topic where students have to make a solution to encryption and decryption. Problem-based learning and practical exercises are also the basis of developing students' skills in mastering theory and practice for each sub-topic in the Security Basic and IT Professional course. Students also find it difficult to understand the concept of encryption and cause every semester there will be students who fail to master the course.

Objectives

The objectives of the study are as follows:

i. Studying student’s perceptions of teaching and learning based on m-learning on students' interest in the encryption sub-topic.
ii. Studying student’s perception of teaching and learning based on m-learning on student motivation in the sub topic of encryption.

Scope of the Study

The scope of this study involves semester 4 students. These students consist of students from the Department of Information and Communication Technology (JTMK).

Literature Review

Mobile Learning

M-Learning is a learning process that emphasizes the ability to move the learning process without being bound to a physical location when a learning process occurs (Ching et al., 2023). According to (Yahaya et al., 2021) m-Learning is ICT-assisted learning that uses mobile devices, especially the latest mobile devices such as PDAs, mobile phones, laptops and tablet PCs. According to Murat (2020) stated that m-Learning is the use of wireless devices to enable learning to happen anytime and anywhere. m-Learning is part of e-Learning and distance learning. This is because, if m-Learning is linked to the internet and wireless, the concept of m-Learning is not much different from the original concept of eLearning. Therefore, the ability of learning to take place regardless of where the student is or wherever their goal is regardless of time is an advantage of m-Learning. Based on study Qashou's, A. (2021), also stated that M-learning can increase flexibility and accessibility in education. According to the study (Al-Rahmi et al., 2022) students can access learning materials anytime, anywhere, building an easier learning experience and individual and group learning can be done. Apart from that learning using m-learning can promote active involvement and interactivity. Interactive features, such as quizzes, simulations, and collaborative tools, contribute to a more dynamic learning environment (Atawneh et al.,2020).According

to learning studies using m-learning can improve understanding and access information faster. However, in m-learning there is also a problem where internet access cannot be achieved and considering the needs of students.

Methodology

This study is a survey study that uses a descriptive quantitative approach to identify and empirically and systematically examine students' perceptions of teaching and learning based on m-learning in the DFT 20083 Security Basic and IT Professional course. The focus of this study is to examine students' perceptions of the effect of m-learning applications in the teaching and learning of the DFT 20083 Security Basic and IT Professional course on student interest and motivation.

Population and sampling

The population in this study consisted of 80 Diploma in Digital Technology (DDT) students, Department of Information and Communication Technology, Seberang Perai Polytechnic. The study sample consisted of 50 students to be respondents through a random sampling method in groups. This sample was selected to answer a questionnaire to survey students' perception of teaching and learning based on student perception of teaching and learning based on m-learning in the sub topic of encryption against m-learning applications for DFT 20083 Security Basic and Professional IT.

Data Analysis

Table 1 shows the demographics of the respondents involved in this study, gender, age and race. A total of 23 male students which is 46% while 27 people which is 54% are female respondents. For the age of 18-19 years it refers to 90% while for the age of 20-21 years it is 10%. For the race involving 3 races namely Malay, Indian and Chinese. Malay respondents comprise 80% while Indian and Chinese respondents comprise 14% and 6% of students.

Table 1: Demographics

Category	Details	Frequency	Percent
Gender	Men	23	46%
	Female	27	54%
Age	18-19 year	45	90%
	20-21 year	05	10%
Race	Malay	40	80%
	Indian	07	14%
	Chinese	03	6%

Study Instrument

Instrument In this study, a set of questionnaires is used as a research instrument. This set of questionnaires is divided into two parts, namely Part A - Demographic Information and Part B - Student perception of teaching and learning m-learning for DFT 20083 Security Basic and IT Professional, which is student interest and motivation. Table 2 shows the distribution of items in the questionnaire for the two constructs. A Likert scale was used for this research instrument.

Table 2: Items in the Questionnaire

Item	Number Description	Section
A	Demographic Information	3
B	Students' perception of m-learning based teaching and learning in the encryption sub-topic of m-learning applications	
	Construct 1: The effect of m-learning based learning in the encryption sub topic on student interest	15
	Construct 2: The effect of m-learning based learning in the encryption sub topic on student motivation.	15

Study Findings and Discussion

The results of the validity test found that the set of questionnaires obtained high validity from two experts with an agreement percentage of 100% and 96.7%. Based on the results of the validity test, it was found that the items contained in the questionnaire are suitable to be used to obtain the perception of students' interest and motivation towards teaching and learning based on m-learning. The results of the reliability test analysis show that the reliability index value of the questionnaire items is 0.95. These results show that the level of reliability is very high. The findings of the actual study were analysed to obtain the average mean, standard deviation and mean level for both constructs in the questionnaire

Table 3: Mean, Standard Deviation and Mean Level for Constructs

Construct	Mean	Mean Standard Deviation	Level Min
1	3.60	0.331	High
2	3.53	0.446	High

The effect of m-learning based learning on the level of student interest in the DFT 20083 Security Basic and IT Professional course.

The first construct analysis that evaluates the effect of m-learning based learning on the level of interest in the DFT 20083 Security Basic and IT Professional course shows an average mean of 3.60 and is at a high level. This shows that students can accept m-learning applications in learning. Most students agree that the m-learning application makes the teaching and learning of the DFT 20083 Security Basic and IT Professional course less boring and attracts students to learn more. This is in line with studies conducted by Buckley & Doyle (2016) and Stringfield & Kramer (2014), where learning based on m-learning can increase student interest. This study shows that m-learning in learning can not only increase the fun in learning, but it can also increase the mastery of the content of the lesson among students, increase student interest and also change the perception of students towards the DFT 20083 Security Basic and IT Professional course.

Students' interest in learning can have a great impact on learning activities, students' attitudes and behaviours. Among the positive effects of m-learning based learning are increasing student academic achievement, increasing student motivation, increasing student engagement, speeding up the learning process and creating an interesting and entertaining learning atmosphere. However, there are a few students who do not agree with the application of m-learning in learning. According to Royo & Mahmood (2011) stated that the effect of a person's interest plays a very large role in determining his success. This is likely to happen when students have their own internal and external factors, including poor quality teaching content, student attitudes, environment and others (Kailani & Ismail, 2010). Overall, teaching and learning based on m-learning in the DFT 20083 Security Basic and IT Professional course is able to arouse students' interest because m-learning can increase student participation so that it helps them to

understand the lesson and thus encourages student involvement in the learning process DFT 20083 Security Basic and IT Professional.

The effect of m-learning based learning on the motivation level of students in the DFT 20083 Security Basic and IT Professional course

Analysis of the second construct that evaluates the effect of m-learning based learning on the motivation level of students in the DFT 20083 Security Basic and IT Professional course shows a mean average of 3.53 and is at a high level. The majority of students agree that the application of m-learning can create a more interesting learning environment. This is supported by a study conducted by Zuhriyah & Pratolo (2020), where fun elements are able to help students focus their attention during learning in class. In addition, the m-learning method also speeds up the learning process and creates a positive interaction atmosphere among players. M-learning has a positive effect on problem-solving abilities and engagement in completing assigned tasks. This method also proves that the m-learning method can have a positive effect on students' academic performance. In addition, a minority of students do not focus on learning through m-learning based learning if they face difficulties in understanding the teaching topics of DFT 20083 Security Basic and Professional IT. This shows that students are less motivated to understand topics that are not understood. This is likely to happen when the teaching materials used are insufficient or not suitable for the learning style, tendencies and abilities of the students. Overall, teaching and learning based on m-learning in the DFT 20083 Security Basic and IT Professional course is able to motivate students to study this course further. The use of m-learning-based learning can increase student motivation and involve students in a competitive atmosphere with other students.

Conclusions and Suggestions for Further Study

Overall, the average mean value for both constructs was obtained as 3.56 and the standard deviation value was 0.361. This shows that the students' perception of teaching and learning based on m-learning in the DFT 20083 Security Basic and IT Professional course is positive and at a high level. Nevertheless, the application of m-learning in the DFT 20083 Security Basic and IT Professional courses needs to be improved to maximize its effectiveness in increasing students' interest, motivation and understanding of the DFT 20083 Security Basic and IT Professional courses. In relation to that, this finding can provide input to lecturers about students' perceptions related to the application of m-learning in learning in order to make improvements to increase students' interest and motivation in learning DFT 20083 Security. Basic and Professional IT Courses. Accordingly, the suggestion for future research is the student's perception of self-learning and the student's achievement of m-learning. The results of this finding can also be continued by studying non-information technology courses.

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