

The Effectiveness Of The E-Learning Concept Hypermedia

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Abstract: Developments in the field of information technology at present have greatly influenced educational system. For example, internet technology has evolved rapidly and makes information delivery system to be more effective. E-learning resulting from internet technology is a concept that integrates information and communications technology as a medium of information delivery and process of teaching and learning. Elements of hypermedia who applied in e-learning, make learning more interesting situations and effectively. The study is to identify whether there are differences between the tests mean achievement between students who follow learning method using the e-learning concept hypermedia compared students who follow the rules learning aid of PowerPoint. The sample for this study consisted of 60 students who follow Diploma of Information Technology (Programming) that takes the Information Systems Security courses in Polytechnic of Kuala Terengganu (PKT). Group experiments using the e-learning concept hypermedia and control group using PowerPoint aided learning materials have been created to assess the effectiveness of the teaching methods used. Instruments for this study are a set of test questions, which contains multiple choice objective questions items and short structure questions. Data analysis made using Statistical Package for Social Sciences (SPSS) version 23.0. Result of the study shows that there are significant differences in the mean achievement tests students who follow learning method using the e-learning concept hypermedia with students who follow learning aid PowerPoint. The use of the e-learning concept hypermedia proven to increase student academic achievement. Therefore, it is hoped that more e-learning concept hypermedia developed by Polytechnic of Kuala Terengganu because it can increase students' academic achievement.

Keywords: E-learning, hypermedia, academic.

1. Introduction

Development of the use of information and communication technology in education has attracted the attention of many educators now to diversify teaching methods [1]. Progress in the field of information technology enabled knowledge more easily accessed, disseminated and stored. The ability of computers to deliver an information in a quick, accurate and interesting in the form of multimedia making it as an attraction towards creating a pattern of learning more fun and this will influence on students' learning patterns [2] – [3]. E-learning is a teaching and learning method using the set of computers for content delivery and interaction. Teaching can be implemented directly (at the same time) or indirectly (at different time). Teaching and learning materials are delivered combining elements of text, graphics, animations, simulations, audio and video. Besides that, it also provides the convenience for the discussions in groups and professional help to explain the contents of the lessons are in the post [4]. The use of e-learning starts with the ability to access websites on the internet that became access to different sources of e-learning. This includes pages that contain a variety of information access, programs and various learning materials based on a learning situation in order for hypermedia real occurred [5]. Hypermedia is what makes a multimedia interactive system produced more interesting and effective [6]. Multiple links, hypermedia is namely such as text, graphics, images, audio and video. It allows users to access information according to interests, capabilities or will of the heart. Construction of e-learning system that combines multimedia elements and concepts hypermedia seen more effective in conveying the concept

elusive. It not only attracts students to learn, but be able to motivate the students to continue to learn.

2. Problem Statement

The use of PowerPoint in education has been used. It is not only used as teaching materials but can help students in learning, especially in terms of student understanding when combined with a variety of multimedia elements. A study that have been conducted, found the use of PowerPoint as learning materials to increase student academic achievement [7]. Apart from the use of, there is a wide range of alternative PowerPoint used for strengthening the teaching and learning process. The advent of internet technology has brought major changes in public life, in particular in the field of education. Various sources of information can be accessed at anytime and anywhere. E-learning is a method that most flexible to assist students in the acquisition of knowledge. E-learning also proved effective in upgrading students' academic achievement [8]. The study is to identify an appropriate and effective method for improving the academic achievement of students who take the course FP611: Information System Security. Two methods of learning were students of different classes, namely PowerPoint-based learning and learning through e-learning system developed by the researcher. E-learning based hypermedia for course FP611: Information Systems Security is a system developed by the researcher. Preliminary studies conducted of the system involved got positive reactions from among students, yet in terms of its effectiveness for help in improving the academic achievement of students surveyed [9]. Therefore, this study was conducted to assess the effectiveness of e-learning system developed

especially when it made learning materials and compared with the use of PowerPoint.

2.1 Objective of the Study

i) The objective of the study was to identify whether there are differences between the tests mean achievement between students who follow learning method using the e-learning concept hypermedia with students following teaching methods the aid of PowerPoint?

2.2 The Question Of The Study

ii) Is there any differences between test mean achievement students who follow learning method using the e-learning concept hypermedia with students who follow learning aid of PowerPoint?

2.3 The Importance of Research

The results from this study will hopefully provide a positive impact towards improving students' academic achievement. In line with the increase in national development and in line with the progress of information and communication technology, then educators must take advantage of the use of information technology as a medium for strengthening the students' learning needs. The use of internet technology as a medium of learning has long been practiced yet merger with elements of hypermedia in medium of learning will be able to attract and increase student understanding. This study can also be used by the Kuala Terengganu Polytechnic to support lecturer teaching the best and make learning more effective so that it can be a catalyst to the increase academic students.

2.4 The Scope of the Study

This study was conducted in Kuala Terengganu Polytechnic. The subject of research is the students who follow Diploma of Information Technology (Programming) who take the course FP611: Information System Security.

3. Study of Literature

There are several benefits of the use of e-learning to the lecturers. Here are the benefits of the use of e-learning.

- i. E-learning enables lecturers to develop materials using resources in the internet.
- ii. Allow lecturers to link information in the form more attractive.
- iii. Provide facilities to the lecturer for information at any time irrespective of the place.
- iv. Allows lecturers to collect important information and serves as a reference source of learning for students.
- v. Keep a record of the discussion and allow reference back through the use of bulletin board.
- vi. Give more satisfaction for students through quality academic achievement. Reduce the cost of training programs which include the cost of travel and accommodation [10].

There are a report shown that students who use web-based learning environment, able to encourage them to learn on their own, to involve themselves actively in the various activities of the virtual, motivate self-intrinsic and exercise of independent learning. However, there are

students who are of the opinion that it is more difficult to establish relationships between students using web-based learning experience and they suggest software better communication, more images and teaching with audio-visual and online interaction to improve the quality of the course [11]. In addition, the students there are learning experience in the face of web-based learning process demands more support when compared with students who experienced [2]. A study of the effects of students' academic achievement against hypermedia was carried out at the University of Minya. The study sample consisted of 30 male and female students in grade three. Group of students concerned are divided into two groups, namely the Group of experimental and control. Experimental study group and the control group using hypermedia using traditional methods. The findings show a significant difference between the two groups in which the test achievement of the experimental group was better than the control group [12]. A study case that have been conducted, when he was teaching two courses in the first semester, without using PowerPoint and next semester he taught two courses equivalent to using PowerPoint. He found that the courses taught with PowerPoint show average test score higher than that achieved in other courses without using PowerPoint [13]. The taught part of the course by using traditional methods and partly using PowerPoint. He found a significant improvement in test scores when he used PowerPoint [14].

4. The Methodology of the Study

The hypothesis of the study based on the questions submitted, the alternate hypothesis-hypothesis will be tested in this study are based on the 0.05 level of significance $p < \alpha$ are as follows:

Ha: There is a significant difference in mean student test performance follow the method of learning by e-learning concept hypermedia with students who follow learning aid of PowerPoint.

4.1 Sample

This study is the design of the control group not identical (Nonequivalent Control Group). These designs involve samples of 60 students from two different classes, namely, existing class DIP 5B and DIP 5C. Class DIP 5C is the group experiment which uses the e-learning concept hypermedia as learning materials and class DIP 5B is a control group that uses learning materials based on PowerPoint and it has determined by the course lecturer involved. The increase in performance is measured based on the difference in their achievement test taken. Test performed to see an equivalence between the groups, as both groups of students not selected at random. It is also intended to be used as control statistically. Post tests are carried out after the two groups finished follow teaching methods, respectively.

4.2 Instrument Examination

Instruments to study are a set of test questions, to sample the DIP 5B and DIP 5C. Each test question contain 15 questions multiple choice items and 4 short structure questions. This instrument is used to measure the effectiveness of the use of the e-learning concept hypermedia developed either can help improve students' academic achievement.

4.3 Data Analysis

The findings will be analyzed using Statistical Package for Social Science (SPSS) ver. 23.0. Motivated statistical t-test is used to test achievement score compares between the control group and experimental group. No significant decision making level is set at level 0.05. The hypothesis will be rejected if the value of p is less than 0.05 and vice versa.

5. Study Findings

Comparison test between the mean achievements of students who attend e-learning concept hypermedia with students who follow learning aid of PowerPoint.

Table 1: Test-t does not lean to score test (test post) between the control and experimental groups

Group	The number of students	Mean	SD	t	Sig.
Experiment (DIP 5C class)	30	71.30	10.86	5.23	0.00
Control (DIP 5B class)	30	57.60	9.37		

Analysis on test score shows that there are significant differences between the control group test score ($M = 57.60$, $SP = 9.37$) with the experimental group ($M = 71.30$, $SP = 10.86$; $t = 5.23$, $p = .000 > .05$). Therefore, the hypothesis developed accepted. This shows that there are significant differences in the mean achievement tests students who follow learning method using the e-learning concept hypermedia with students who follow learning aid PowerPoint. Found to mean experimental group score (71.30%) were higher than the control group (57.60%) respectively. This shows that the use of the e-learning concept hypermedia can help improve students' academic achievement. The students showed better performance when using the online-based learning approach (e-learning) as compared to the use of PowerPoint in class [15].

6. Discussion and Conclusions

6.1 Discussion of Findings

The findings indicate that the mean increase was higher for the group of students who follow learning method using the e-learning concept hypermedia. This be shown e-learning concept hypermedia developed able to increase student academic achievement. The lecturers are encouraged by developing e-learning concept hypermedia fits the needs of the curriculum and being merged together with elements hypermedia. Instructors or Lecturers play a role in measuring the effectiveness of e-learning. Lecturers should plan and figure out the most effective strategies to increase students' awareness of the importance of the use of e-learning [16]. Additionally, they should plan appropriate activities so that the goals and objectives of teaching and learning achieved.

6.2 Implication for Research

The effectiveness of teaching methods using the e-learning concept hypermedia indicates that elements have to apply in hypermedia learning materials students especially web-based. A study showed, the active

involvement of students through web-based learning can produce students who think critically and creatively, as well as being able to enhance students' academic achievement [2]. The e-learning concept expanded its development to hypermedia should other courses so that they become the catalyst to increase student academic achievement

6.3 Reserve for Advanced Studies

Among the suggestions advanced studies that can be implemented are as follows:

- To study the relationship between the method of learning by e-learning concept of students' academic achievement hypermedia for other courses.
- Review the effectiveness of teaching methods between e-learning concept and application usage hypermedia social networking in the learning environment.

8. Conclusion

A study has been carried out is expected to be a catalyst to the development of e-learning based hypermedia in Kuala Terengganu Polytechnic. Its effectiveness in increasing student academic achievement has been proven through studies that have been carried out. Lecturers have to ensure e-learning system to be developed should meet the curriculum and all aspect content, structure and user interface elements of the joint should be combined with hypermedia evaluated prior to lecturers and students use it as the main teaching and learning materials.

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