

## **Technology and Higher Education: Using an E-Learning Tutorial as a Pedagogy for Innovation and Flexible Learning**

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### **Abstract**

The study was conducted to identify the use of an e-learning tutorial by pre-service teachers in educational psychology at the Teacher Training Institutions in Malaysia. This exploratory study involved 45 pre-service teachers, and the methods used to collect data were questionnaires and protocol interviews. Our preliminary study showed that the adoption of the traditional tutorial, which was a face-to-face interaction, lacked detailed discussion, was less comprehensive and only partially fulfilled the pro-forma and Teaching Learning Objectives (TLO) scheme. Therefore, an e-learning tutorial was implemented as an alternative method in the teaching and learning processes. The results showed that the use of the e-learning tutorial increased the mastery of knowledge and enhanced the higher order thinking skills of the pre-service teachers in their educational psychology courses. The study also found that the teachers thought the learning process was more enjoyable, quicker and easier than the traditional tutorial. Furthermore, the e-learning tutorial could be accessed anywhere and at any time, which in turn can reduce learning costs. The pre-service teachers were more collaboratively creative and critical during the e-learning tutorial discussion than during the traditional tutorial.

Keywords: e-learning tutorial, flexible learning, educational psychology, Teaching Learning Objectives (TLO) scheme, collaborative learning

### **Introduction**

One of the challenges for education in the 21st century is the knowledge and use of informational technology, especially in Information and Communications Technology (ICT), among pre-service teachers and lecturers. The use of informational technology and communication in teaching delivery has been proven to provide better understanding during the teaching and learning process.

In Malaysia, many higher education institutions have committed to e-learning due to its effectiveness as an alternative method to the traditional classroom method of learning. Raja Maznah (2004) reported that the development of e-learning in higher education institutions can be divided into two phases: the provision of ICT infrastructure to students and the integration or implementation of ICT in teaching and learning. According to this report, most higher education institutions have sufficient ICT infrastructure for e-learning. However, these findings showed that most higher education institutions lack a strategic plan for using ICT in their teaching and learning. In other words, e-learning is still at an early stage, especially in its planning and implementation. Mohamed Amin (2011) also reported that only 38.5% of higher education institutions have developed their own e-learning policies, but 61.5% of them still do not have any e-learning policies at their institution. Of all the institutions that have e-learning policies, 90% have also developed their own implementation plans for the use of e-learning by their students and lecturers.

E-learning can provide a new dimension to education because of its flexibility and accessibility. In the future, e-learning can potentially be a superior virtual learning tool because it can improve the quality of teaching and learning in our formal education systems. E-learning plays an important role in providing flexibility by allowing students and lecturers to choose when and where they teach or learn according to their professional and personal availabilities (Chang and Chang, 2012; Rani and Kant, 2013). In addition, e-learning can act as an important tool for supporting collaborative learning through virtual methods because lecturers and students can solve supervision tasks, gain new skills and use them in the teaching and learning processes together (Kopp, Matteucci and Tomasetto, 2012).

### **Problem Statements**

Several studies have found that students have different experiences with e-learning compared with traditional learning (Maki et al., 2000; Tolmie and Boyle, 2000). There are also studies that have revealed that the quality of e-learning is comparable to that of face-to-face learning (Leonard and Guha, 2001; Wyatt, 2005 and Singh, 2006). Furthermore, students are more satisfied with online courses through e-learning compared with courses in classrooms (Dobbs, Waid and del Carmen, 2009; Ewing-Taylor,

1999). However, studies on the use of e-learning tutorials among pre-service teachers are still lacking, especially at teacher training institutions. The current study addresses the scarcity of this type of study in Malaysia. This study will aid in clarifying the extent to which e-learning tutorials are used, the level of understanding towards a particular topic in e-learning tutorials and the attitudes of pre-service teachers when using e-learning tutorials. This study also focuses on the strategies used by pre-service teachers when interacting via e-learning tutorials.

### **Research Objectives**

The aim of this study is to identify the extent usage of e-learning tutorials by pre-service teachers for professional courses in psychology at the Teacher Training Institutes in Malaysia. Consequently, the objectives of this study are to identify their level of understanding of the discussion topics in an e-learning tutorial, their attitudes when using the e-learning tutorial, the strategies used in answering questions about the e-learning tutorial and the strengths of pre-service teachers using an e-learning tutorial.

### **Literature Review**

Electronic learning, or e-learning, refers to a form of learning in which the lecturer and student are at a distance, separated by space or time, and the gap between the two is bridged through the use of online technologies. According to Vega, Lewis and Lavigne (2009), there are three major areas that interventions should target for the successful implementation of e-learning programmes; these include the cognitive skills, beliefs and behaviour of the e-learner as well as the environment. Cognitive skills refer to the prior knowledge and skills necessary to participate in e-learning, such as computer competency. Beliefs and behaviour refer to self-efficacy and appropriate behavioural skills; for instance, a person taking responsibility for e-learning. The environment refers to e-learning support, such as incentives and resources to foster e-learning.

The purpose of e-learning is to overcome the problems encountered in the traditional learning system. However, studies that identify the perceptions of online courses from the perspective of a student, especially for e-learning tutorials, are lacking. Barbour and Reeves (2009) found that

researchers often report the advantages of e-learning from the perspectives of those involved with its development and delivery. Studies have also revealed several of the advantages and disadvantages of e-learning as seen from a student perspective. The advantages include access to better learning resources, time saving benefits, easy scheduling, more course options, flexible and maximum learning output, increased endurance and improved computer literacy (O'Malley and McCraw, 1999; Ward and Newlands, 1998).

According to Rubiah and Jamilah (2009), e-learning is able to increase the speed of the teaching and learning process more effectively. Therefore, the acceptance of e-learning means not only converting traditional modules, programme costs and classrooms into online versions, but the use of e-learning technologies can also contribute to a more flexible teaching and learning environment.

Meanwhile, Mohd Zaidil, Azizi and Fadzilah (2002), claimed that critical and creative thinking can happen effectively by applying e-learning in teaching and learning. Furthermore, through e-learning, a student can find information that matches his or her own curiosity and eventually be able to construct new knowledge and understanding of a concept. Collaborative learning, online discussions via e-mail, internet relay chat (IRC) and video conferencing also play important roles. As a result, learning will be more active and effective. In addition, the application of e-learning in teaching and learning can increase the preparedness and attention of students in learning. Taylor (1980) first stated that the use of computers in education can serve as 'tutors, tool, tutee.'

Despite the benefits and advantages of e-learning, its disadvantages have also been identified in several studies. One disadvantage of e-learning is that the students might suffer from social isolation because of the lack of social interaction when using e-learning (Hameed, Badii and Cullen, 2008). Additionally, e-learning might be a detriment to the communication skills of a student (Akkoyunlu and Soylu, 2006; Klein and Ware, 2003).

### **Methodology**

The sample of this survey comprised 45 pre-service teachers from one of the Teacher Training Institutes in Malaysia. The technique used for

sampling was a purposive sampling, in which 100% of the population was used as the sample in this study. The questionnaire used in this study was developed by the researcher based on three constructs, namely the level of understanding of the topic of discussion (one item), attitude towards the e-learning tutorial (three items) and the strategies used to answer e-learning tutorial questions (five items). Finally, the data were analysed descriptively using percentages. To assess the advantages of using e-learning tutorials, a protocol interview was also conducted and transcribed for analysis and theme identification.

## **Findings**

### ***The Level of Understanding the Topic of Discussion in the E-Learning Tutorial among the Pre-Service Teachers***

Seven individuals (15.56%) responded that the topic of discussion in the e-learning tutorial was relatively easy to understand, 37 individuals (82.22%) responded that the topic was moderately easy, and one individual (2.22%) responded that the topic was difficult to understand.

### ***The Attitudes when Using the E-Learning Tutorial among the Pre-Service Teachers***

The analysis of the attitudes when using the e-learning tutorials was based on involvement, burdensome feelings and the time frame for the pre-service teachers to complete the tasks in the e-learning tutorial.

#### ***Involvement***

The results of the analysis on involvement showed that two individuals (4.44%) were very actively involved in the e-learning tutorial and 38 individuals (84.44%) were actively involved in the e-learning tutorial. Alternatively, only five individuals (11.11%) were not actively involved in the e-learning tutorial.

#### ***Burdensome Feelings***

The results showed that one individual (2.22%) perceived that participation in the e-learning tutorial was very burdensome, and 24

individuals (53.55%) perceived that participation was moderately burdensome. However, 20 individuals (44.45%) felt unburdened to participate in the e-learning tutorial.

#### *Time Frame*

The results of analysis on the task completion time frame for the e-learning tutorial showed that 22 individuals (48.89%) completed the tasks in the e-learning tutorial in a minimal amount of time, which is within one or two days. 16 individuals (35.56%) took three to four days to complete the same task in the e-learning tutorial, and seven individuals (15.56%) took three to four days to complete the task in the e-learning tutorial.

#### ***The Strategies Used to Answer the Questions in the E-Learning Tutorial among the Pre-Service Teachers***

Analysis showed that the most commonly used strategy to answer the questions in the e-learning tutorial was using references from the internet, journals, books, articles, newspapers and magazines (93.33%), followed by other references (84.44%), notes from lecture (71.11%), discussion within the peer group (64.44%) and using answers from the peer group (31.11%).

#### ***The Interview Responses Concerning the Use of E-Learning Tutorials by the Pre-Service Teachers***

During the interview session, the pre-service teachers identified various strengths of using the e-learning tutorials, which are summarised as follows:

##### *Enjoyable*

The pre-service teachers felt good while using the e-learning tutorials because the use of ICT in education is a favourite learning activity among younger people, especially pre-service teachers.

*Easily and Quickly Accessible*

The pre-service teachers were able to answer the e-tutorial questions at any time that was convenient for them. They did not need to arrange for a special time and place to complete the e-tutorial.

*Cost-reducing*

The pre-service teachers were able to answer the questions online without the use of paper or stationery.

*Facilitating for the Sharing of Ideas, Creativity and Critical Thinking*

The pre-service teachers were able to share creative ideas and simultaneously be critical during online discussion. This type of facilitation can help students revise class materials and better prepare for their exams.

**Discussions**

This study showed that the level of understanding of the discussion topics in e-learning tutorials is encouraging. This finding is similar to the study by Yaghoubi et al. (2008), which noted that the two highest rated advantages of e-learning were the 'ease and quick share of learning materials' and the 'flexibility in time and place'. In addition, the study also found that the variation in student perceptions of the e-learning tutorial was determined by their own assessment of their competency in e-learning, access to internet, computer and internet usage and assessment of the current shortcomings of the higher education system. Hence, understanding the discussed topic in the e-learning tutorial is important and useful for a comprehensive activity in the teaching and learning process. This finding suggests that an e-learning tutorial can be used for the effective development of learning and teaching skills among pre-service teachers, even at higher educational levels (Kirby et al., 2010). Thus, policy makers and educators need to consider the student perceptions of e-learning in an effort to help create a positive perception of learning, starting at the elementary level.

The current study also found that the pre-service teachers had positive attitudes with regards to e-learning tutorials. Other studies have also indicated that students have more positive attitudes about the course and their learning in an online context (Sandercock and Shaw, 2000; Spiceland and Hawkins, 2002; Wegner, Hollyway and Garton, 1999). Positive attitudes have a positive effect on student learning, problem-solving skills and critical thinking skills (Sanders and Morrison-Shetlar, 2002). In short, if pre-service teachers believe these tutorials benefit their learning, they will likely be more motivated to perform well in their learning. The use of online journals, e-books and e-newspapers is the strategy mostly favoured by the respondents for answering the e-tutorial questions. Teachers indicated they used these references due to ease, quickness, accessibility, and the ability to save time and paper.

Overall, the findings of this study implicate a rise in the development of e-learning, especially in the Teacher Training Institutions in Malaysia. This study helps researchers to determine the impacts and strengths of e-learning experiences among pre-service teachers for a future competitive learning transition.

## **Conclusion**

E-learning tutorials are able to help with the management of academic staff, especially lecturers, in multiple ways, including facilitating student self-learning at variable places and times. Furthermore, the transmission and updating of teaching and learning materials are faster, encouraging interactive communication between lecturers and students. They are also user friendly and the learning materials are accessible either from within or outside the campus area, providing flexible support for lecturers and students. In addition, these materials potentially pose an alternative method for teaching and learning, with online evaluation and collaborative learning. An e-learning tutorial programme in psychology courses can become a medium for generating thinking capabilities at higher levels among students, especially among student teachers.

However, our experience with e-learning tutorials are restricted to educational psychology courses in one institution at the pre-service teacher level. How our integrated learning method can be adopted at the high school level or even for younger students has not yet been explored. We



are working to find answers to whether it is useful for certain topics to utilise e-learning tutorials.

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