

## **E-learning! The New Paradigm of Education: Factorial Analysis**

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### **Abstract**

*This paper aims to examine the students' attitudes towards E-learning system in one of the Malaysian universities. It has been noted that E-learning initiative is a pivotal alternative learning tool nowadays. Therefore, an examination of students attitude is a cornerstone to successfully and effectively understand how students react towards these initiatives. 30 respondents excluded from the sample were pilot tested to validate the attitude scale used in this study. 139 students agreed to participate in the study as well. The study's results revealed that attitude is not a single domain by itself. Factor analysis suggests that attitude has been divided into two separate socio-psychological constructs. Further investigation considering different geographical site can underline whether the students share the same perspectives or not.*

**Keywords:** affective attitude, cognitive attitude, E-learning, English language learners.

### **1.0 Introduction**

Notably, the E-learning system is considered as an effective tool of teaching and learning (Liaw, Huang, & Chen, 2007). Emphasis on using this tool can be profitable as well as less expensive to educational organizations (Schroeder, 2003; Valenta, Therriault, Dieter, & Mrtek, 2001). Taken as a whole, providing a platform for improving education quality and enhancing the growth of those organizations is a cornerstone of this technological era (Valenta, et al., 2001). In this scope, researchers assured that it can effectively and successfully improve students' knowledge and performance (Kadijevich & Haapasalo, 2008; Sun, 2003). Several researchers indicated that in a learning environment technology is, to a large extent, affected by the students' perspectives, attitude and intention to use this kind of leaning tool (Davis, 1989:a; Davis, Bagozzi, & Warshaw, 1989:b). The Malaysian context is not that far from this rapid growth of these new technological advances. However, there is a lack of studies that tackle the problems of utilizing e-advances by the students in their learning process (Liaw, et al., 2007). Hereto, the door is opened for researchers to investigate this field in order to expand the mass knowledge of the field as well as understand the students' attitudes and perceptions of E-learning systems.

In fact, of late, the E-leaning system rapidly used to interact with students and teachers. One can conclude that this kind of learning brings solutions to constrains like, but limited to, time, geographical differences, and cost (Kester, Kirschner, & Corbalan, 2007). Put together, it allows education organizations and/or teachers to deliver education via online. Global wide, educational institutions have spent large portions of their budget on online learning. A study conducted in USA revealed that 24% of the budget spent on E-learning (Alexander, 2001).

### **1.1 English language learners and E-learning**

E-learning offers interaction that can affect acquiring a second language. Inevitably, E-learning system comprises text, video, and graphics. These tools, when they are successfully implemented, enhance the space of learning, that is said, the learner actual behaviour of learning a foreign or second language is developed in the scope of this interaction (Ajzen, 2001).

This interaction goes both ways, meaning; the learner decisions whether to interact or not depends on students' attitude towards E-learning system (Kalmbach, 1994). On the other side, this interaction viewed as alternative way of learning as well as learning by doing (Kalmbach, 1994). As noted earlier, interaction within this context of learning enhances learner language proficiency by communicating, regardless time and geographical differences (Celce-Murcia, 2007).

## 2.0 Data Collection and Analysis

### 2.1 Method

This study was conducted in one of major universities in Malaysia. The targeted population of the study was English language learners. Those students were from different cultural backgrounds. A total of 139 agreed to take part in the study. All surveys returned were usable ones. Two main tests conducted in order to validate the instrument used in the study. Moreover, 30 respondents excluded from the study's sample were pilot tested. The following sections provide expansive description of the results obtained. The attitude scale used was adapted from (Davis, et al., 1989:b; Masrom, 2007) comprise 4 items. The chief purpose of this study is to examine students' attitude towards E-learning.

### 2.2 Descriptive statistics

The descriptive statistics analysis reveals the mean and standard deviations of the attitude factor namely: cognitive attitude and affective attitude. The result of this analysis shows that students affective attitude loaded higher than cognitive attitude (mean = 2.9592, std. deviation = 1.16969) and (mean = 2.0272, std. deviation = 0.73741) respectively. However, the average mean of the attitude scale suggests that students hold moderate level towards E-learning system.

**Table 1 Descriptive Statistics of Attitude**

Dimensions	Mean	Std. Deviation
Cognitive attitude	2.0272	.73741
Affective attitude	2.9592	1.16969
<b>Average</b>	<b>2.4932</b>	<b>0.95355</b>

### 2.3 Goodness of measures

The aim of reliability analysis is to validate the tool used in this study. Therefore, a maximum likelihood factors analysis test was employed to achieve data reduction as well as maintain the acceptable characteristics of the items used in the study namely: cross loadings and low loadings (Hair, Black, Babin, Anderson, & Tatham, 2006). Additionally, reliability analysis was conducted as well. The results of reliability analysis show that attitude scale is a reliable instrument used for collecting data. Alpha coefficients scores were ranging between 0.634 to 0.80 which according to (Nunnally, 1967; Ramayah, 2010) are accepted. However, a score deemed lower than 0.50 is not acceptable (Ramayah, 2010). As shown in table 2, cognitive attitude Cronbach Alpha is 0.634 and affective attitude Cronbach Alpha is 0.80 which is considered acceptable.

**Table 2 Reliability Analysis of Attitude Scale**

	Cronbach Alpha
Cognitive	.634
Affective	.80

#### 2.3.2 Factor analysis

Interestingly, factor analysis results revealed that attitude scale is divided in two factor solutions i.e. two factors identified. The first factor was the affective attitude and the second factor was cognitive attitude with eigenvalues of 1.669 and 1.468 respectively and total variance of 78.439%. KMO measure of sampling adequacy was .547 showing inter-correlations while the Bartlett's Test of Sphericity was (128.440\*\*\*,  $p < 0.01$ ). as noted in table 3 both affective and cognitive attitude deemed high factor loadings. The results of the factor analysis earlier revealed that the measurement employed for attitude factors was valid. In line with Yang et al. (2004) findings, the results of this study revealed that attitude should be divide into two separate socio-psychological constructs (affective and cognitive), which is on contrary to Davis (1989) who stated that attitude adds little value in understanding the acceptance of technology as a new tool of learning. Table 3 shows the results of the factor analysis.

<b>Table 3 Factor analysis of attitude scale</b>	<b>1</b>	<b>2</b>
Factor 1: affective		
ATT1	<b>.911</b>	
ATT4	<b>.904</b>	
Factor 2: cognitive		
ATT3		<b>.861</b>
ATT2		<b>.840</b>
Eigenvalues	<b>1.669</b>	<b>1.468</b>
Variance (%)	<b>41.730</b>	<b>36.709</b>
Total variance	<b>78.439</b>	

### Conclusion

As mentioned earlier, attitude factor was divided into two separate socio-psychological constructs. It is warned to the research field that when considering attitude as factor under the study, the researchers should regard it as two separate domains. In brief, students viewed E-learning as useful tool when they like the design or the interface of the E-learning web page (positive affective attitude). On contrary, they may hold negative attitude if they regarded it as dreadful interface design and/or difficult to cope with (negative affective attitude). On the other side of this chasm, students will hold positive cognitive attitude if they found relevant information to them (cognitive attitude).

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