



Factors Associated with Students' Intention to use E-Learning System: A Study from Public Universities of Lahore, Pakistan

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ABSTRACT

The study's primary purpose is to explore the factors affecting the students' intention to use e-learning systems in the COVID pandemic. The model of the "Unified theory of acceptance and use of technology" (UTAUT) was used as a theoretical underpinning. The Independent variables include "performance expectancy, effort expectancy, social influence, facilitating condition," and the dependent variable is the intention to use e-learning systems. The quantitative data were collected from the postgraduate and undergraduate students of the public universities of Lahore. A total of n=411 students were approached, out of which the responses of only 399 were considered valid and were used for Multiple linear regression through SPSS 25. It was a cross-sectional study. It was found that almost all constructs of the model have a significant positive impact on intention to use e-learning systems. The study's main contribution is exposing the factors that affect the acceptance and use of e-learning systems. This study has several policy implications for policy experts of higher education".

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1. Introduction

E-learning is a new area; however, there are many studies on learning related to IT. New methods are constantly being discovered that enable students to engage and create effective and professional learning environments that allow students to explore life as a whole in a stimulating way, using a wide range of information technology tools.

The Governments are now thinking to get maximum benefits of e-learning and have recommended that educational institutions should use and accept e-learning systems to provide lifelong, easy-to-use education, cost-effective, accessible and well organized, regardless of age, time and place. Recently, the higher education institutions have started to invest in e-learning techniques and adopted e-learning practices to support the learning system internationally. Research and Market (2018) explains that with an average growing rate of 7.07 percent, the global e-learning market is expected to reach approximately US\$ 65.41 billion by the end of 2023. Furthermore, by the end of the year 2025, the online learning management system will exceed US\$18.44 with an expected growth rate of 15.52% internationally (Brace, 2018). E-learning is an internet-enabled learning system incorporating different stakeholders such as students and instructors with technological processes.

Previous research suggests that success of e-learning system cannot be attained exclusively by sufficiently applying technological solutions, as it is ascribed to certain behavioral, institutional, individual, cultural and social aspects (Browne, Jenkins, & Walker, 2006; Schepers & Wetzels, 2007; A. Tarhini, K. Hone, X. Liu, & T. Tarhini, 2017a). The main purpose of this Study is to analytically explore whether "social influence, effort expectancy, performance expectancy, and facilitating conditions effect students' intention to use e-learning systems" in Pakistan and then to identify the nature and strength of the association amongst influential factors in addition to illuminate which factors are critical in having an impact on the decision of usage of e-learning schemes by the students .

2. Literature Review

Since e-learning is relatively new in Pakistan (where this research will be conducted), it is necessary to explain what is e-learning. The term e-learning should be fully explained in order to provide an understanding of how e-learning started and developed .

2.1 The unified theory of acceptance and use of technology (UTAUT)

There are several technology acceptance theories and models that have been utilized by researchers to investigate user acceptance of different technologies. For example, Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1977), Theory of Planned Behavior (TPB) (Ajzen, 1991), The Motivational Model (Davis, Bagozzi, & Warshaw, 1992), Social Cognitive Theory (Bandura, 1986), Diffusion Innovation Theory (Rogers, 2010), The Model of PC Utilization (Thompson, Higgins, & Howell, 1991), Technology Acceptance Model (TAM) (Davis, Bagozzi, & Warshaw, 1989), The Unified Theory of Acceptance and Use of Technology (UTAUT) and UTAUT2 (V. Venkatesh, M. G. Morris, G. B. Davis, & F. D. Davis, 2003a) are some prominent theoretical models which describe technology acceptance

2.2 Performance expectancy

Performance Expectancy (PE) is concerned with individuals' beliefs that a system usage will enhance their job performance to perform various tasks (V. Venkatesh, M. G. Morris, G. B. Davis, & F. D. J. M. q. Davis, 2003b). Many studies have shown that performance expectancy (PE) is a significant determinant of behavioral intention (BI) to use an e-learning system (Alrawashdeh, Muhairat, & Alqatawnah, 2012).

H1: Performance expectancy have a significant positive impact on students' behavioral intention.

In e-learning context, students generally find e-learning helpful, convenient and useful to enhance their course understanding (Y. S. Wang, Wu, & Wang, 2009). In contrast, if they find e-learning doubtful and inconvenient they may not use e-learning technologies. Therefore, the study postulates the hypothesis that ;

2.3 Effort expectancy

Effort expectancy is defined as "the extent to which a system user believes that using a system is free of effort" (Venkatesh et al., 2003a). Effort expectancy is relevant to the perceived ease of use in technology acceptance model, which indicates that ease linked with the system usage is more likely to influence user intention (Chiu & Wang, 2008). It has already been found that effort expectancy has direct positive impact on system user intention (El-Masri & Tarhini, 2017; Sarabadani, Jafarzadeh, & ShamiZanjani, 2017; M.-H. Wang, 2016).

Previous studies have also verified that there is a significant association between effort expectation and behavioral intention to use LMS (Alrawashdeh et al., 2012; Usoro, Echeng, Majewski, & Media, 2014). Based on the above discussion the study assumed that students are more likely to adopt and use the e-learning system if they find the system easy to use. Thus, it is hypothesized that :

H2: Effort expectancy have a significant positive impact on students' behavioral intention.

2.4 Social influence

The construct of the Social Influence (SI) advocates that how important people (friends, colleagues, family members) influence on one's intention to use the system (Venkatesh et al., 2003b). However, SI was almost equivalent to subjective norm construct in TRA theory. In current study, it is concluded that social influences will directly influence user intention to use e-learning system because interaction with others in the society or communication with the class fellows and lecturers influence learners intention to adopt and use e-learning technology (Thongsri, Shen, & Bao, 2019). Therefore, the study posits that:

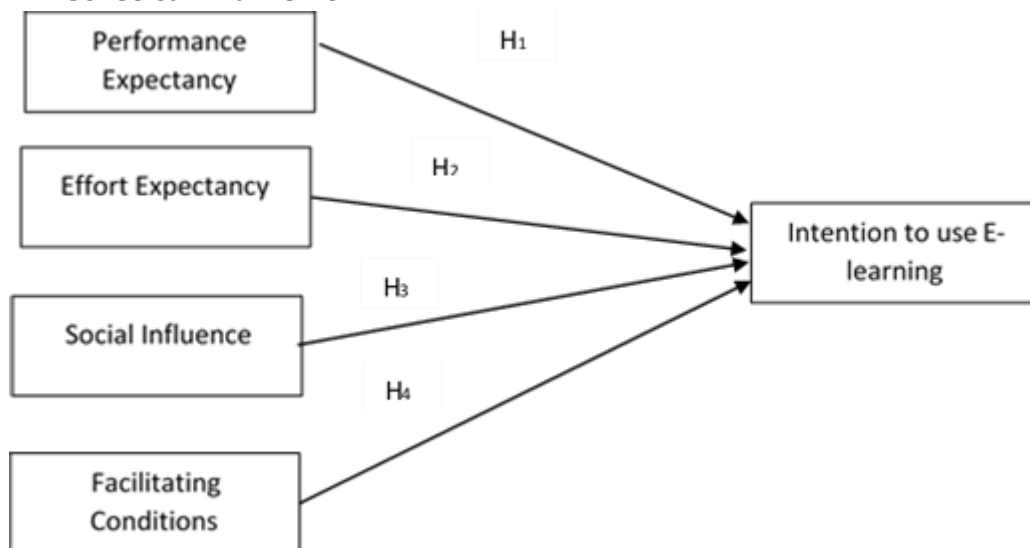
H3: Social influence has a significant positive impact on students' behavioral intention.

2.5 Facilitating conditions

Facilitating Conditions (FC) in an organization works as institutional support for user which include infrastructural support, availability of training opportunities and human resource development for the usage of systems (Venkatesh et al., 2003b). Furthermore, Yakubu and Dasuki (2019) also found a significant relationship between facilitating conditions and students' intention to use e-learning services. These results show that, in the context of e-learning technologies, empowerment conditions have a significant impact on the individual's decision-making process and have a direct impact on user behavior. (Chu & Chen, 2016). Therefore, it is hypothesized that:

H4: Facilitating conditions have a significant positive impact on students' behavioral intention.

Figure 1: Theoretical Framework



3. Research Methodology

A survey questionnaire was selected as the main tool to gather the data and is simple to score for the respondents and use for analysis for the researcher. This questionnaire was based on validated scales adopted and adapted. To ensure that all students have e-learning experience, a question was asked in the start whether they have learned any course online through online learning. In this study the data was collected from the different public sector university students of Lahore, Pakistan. An email containing URL of online survey was sent to all respondents. Furthermore, a pretest was performed to make sure that survey instrument is designed appropriately with the objectives of the investigation and is suitably designed for data collection.

The total population size consists of 151,587 students enrolled in public universities of Lahore, Punjab. The population of students has been taken from the website of Higher Education Commission of Pakistan (www.hec.gov.pk). The selection of sampling method strategy decides the precision of research results, consistency and rationality of the investigation and has huge consequences on the general quality of the study. For this study sample is determined by using Yamane formula. Yamane (1967) gave a very simple and useful

formula for calculating the sample sizes. Multi stage and convenience sampling has been chosen for collecting data . It has been chosen for the reason because using a multistage and convenience sampling technique it is easy for the researcher to collect data in the COVID-19 pandemic situation. A total number of 411 students from different public sector universities of Lahore (n=411) participated in this study. Only n=399 were valid and sample size of 399 respondents were finalized for analysis. Both males and females, answered the questionnaire from different age groups, were selected through random sampling. The theoretical model/framework was worked out and this conceptual model/framework was measured, verified and validated by applying correlation and regression using statistical package for social sciences (SPSS 25) .

4. Analysis and Findings

An overall of 411 forms were collected from different public universities of Lahore through random sampling approach. This cross-sectional data was collected in the year 2020. Only few responses (n=12) were rejected based on their incompleteness and 399 responses were used for further statistical analysis. There was total 261 female and 138 male respondents. The response rate from females was 65% and from males was 35 %. Out of them 76 % respondents belong to age between 18-25 years, 11 % belongs to age between 26-35 years ,10% belongs to age group between 36-45 years and 3% belongs to age 45-55 Years and above. Cronbach’s alpha was used to test reliability. The Cronbach’s Alpha values were within acceptable limit. Overall value of Cronbach’s alpha is excellent i.e., 0.95 .

The data from the questionnaire were put in Excel and then to SPSS software. The multiple linear regression analysis was done on these computed values. SPSS gave the output where R-squared indicates the proportion of the variance in the dependent factor that is predicted from the independent factor (Saunders & Lewis, 2012). However, for multiple regression analyses, the quotation of R square is not a measure of the adequacy of the model adjusted R is more honest measure of explained variance” (Hankins, French, Horne, & Health, 2000, p# 120).

To check the linear relationship among variables, a Pearson Correlation Analysis was performed in SPSS software. It is the measure where 1 means a total positive correlation, 0 means no correlation and –1 means a total negative correlation. As we can see from the table 5.17 all of our independent variables have a positive relationship with the dependent variable which indicates that linear relationship among independent and dependent variables is up to the mark and within recommended limits.

Furthermore, as per the statistical parameters, the Multicollinearity refers correlated variables in a multiple regression model which is seen (Farrar, Glauber, & Statistics, 1967). However, the issues regarding Multicollinearity appears in case the coefficients are too high (Harrell Jr, 2015). As per the results the Pearson Correlation Coefficient of all variables is less than 0.7 which indicates that this data does not have any problem of Multicollinearity (Chen, Cao, & Logan, 2012)

In the results of the multiple linear regression analysis, adjusted R squared is the most important value to be reported which is the predictor in the model (Unwin, 2013). This adjusted R square measures the proportion of the total variability in the dependent variable (BI), which is explained by the independent variables of the model. In the Model Summary, the value of the adjusted R² is .65, converted into percentages as 65%. This shows that 65% of the variability in the behavioral intention to use e learning is being explained by the model’s independent factors. Therefore, the model of this study is useful to explain the factors that affect the student’s behavioral intention to use e-learning.

Table 1: SPSS Coefficients Results Summary

Independent Variables	Coefficient B	Significance
Performance Expectancy (PE-IUE)	.305	0.01***
Effort Expectancy (EE- IUE)	.391	.000***
Social Influence (SI- IUE)	.340	0.00***
Facilitating Conditions (FC- IUE)	.199	0.01***

Table 1 indicates that the B coefficient values of all the significant factors are positive, therefore there is a positive relationship among the behavioral intention to use e-learning and the independent variables (PE, EE, SI, FC). Hence, the results obtained from the multiple linear regression analysis are verifiable and strong enough as far as model is concerned .

Figure 2: Theoretical model with regression weights

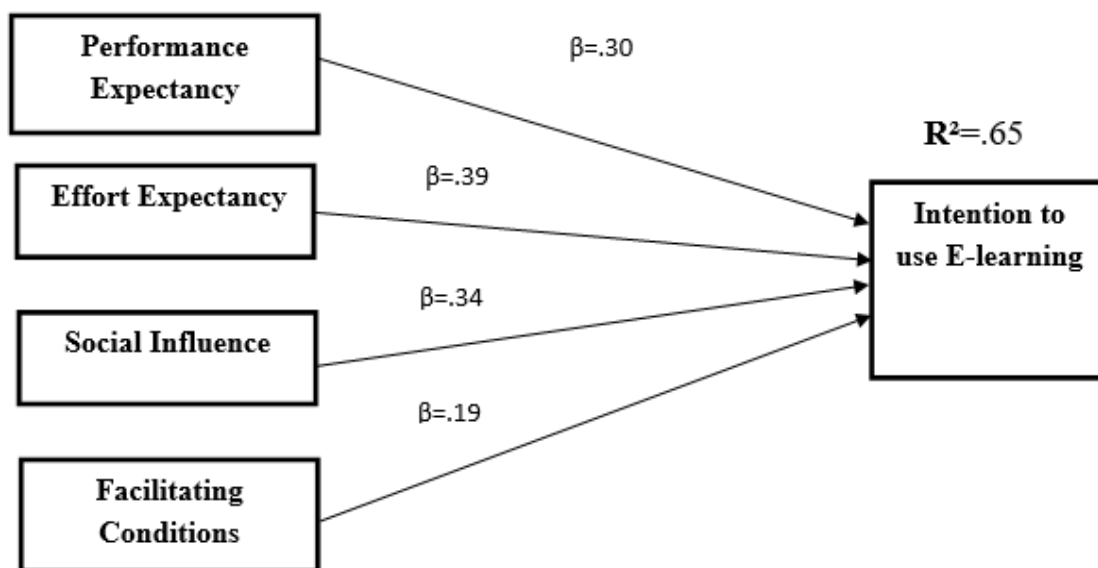


Table 2: Summary of Results of Hypotheses Testing

Hypotheses	Results
Performance expectancy will have a significant positive impact on students' behavioral intention	Accepted
Effort expectancy will have a significant positive influence on students' behavioral intention	Accepted
Social influence will have a significant positive influence on students' behavioral intention	Accepted
Facilitating conditions will have a significant positive impact on students' behavioral intention	Accepted

5. Discussion

As per the findings of this project EE was the most influencing determinant of Intention to use e-learning system which was also found by Alalwan, Dwivedi, Rana, Lal, and Williams (2015) as the most important variable in determining students' Intention to use e-learning systems (Mtebe, Raisamo, & Learning, 2014; A. Tarhini, K. Hone, X. Liu, & T. J. I. L. E. Tarhini, 2017b). The results of this study indicate that students who already use technologies need not to be given extra training to use e-learning system. The students who already have experience and training of using e-resources consider using e-learning much easier and convenient. Thus, the people in policy parlors should work out on those students who do not have exposure of using these resources in their previous academic discourse. SI was found to be the second factor in e-learning where one's perception is made, based on the people around one's environment. In this cohort, fellow students, teachers and instructors have a great impact. Such findings are in line with other previous works (Tarhini et al., 2017b; Tarhini, Hone, & Liu, 2014). Thus, it is recommended that all the lecturers and instructors should be included in motivating students to use e-learning systems and students should also be trained to motivate their fellow colleagues on the same pattern.

6. Conclusion

In the context of this study, the proposed model could be used as a frame of reference by higher educational organizations that pursue to implement and adopt e-learning systems. Moreover, it could serve as a decision-making tool to support educational organizations and other organizations in their efforts to implement and diffuse e-Learning in the context of

teaching and training. Government should provide enough funds to the institutions to strengthen the IT infrastructure so that they can enhance the system of E-Learning .

This study has a unique contribution in literature of e-learning especially under COVID pandemic. This is the situation when most of the institutions have adopted e-teaching and using e-learning techniques. This is happening in lower as well as higher education of Pakistan. Thus, this study is among the first studies which have empirically studied the e-learning behaviour in context of higher education systems of Pakistan. The sample was just collected from few public sector universities. However, in future studies the data should be collected from private universities and more public sector universities. Moreover, currently data were collected from only Lahore but in future studies data should be collected from other cities and provinces too to get better insight of the subject. Another limitation is the sample size which is few hundred only.

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