



RESEARCH PAPER

Analyzing Students' Attitude towards E-Learning: A Case Study in Higher Education in Pakistan

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PAPER INFO	ABSTRACT
Received: January 05, 2020	The study analyzes students' attitude towards use of e-learning in higher education in Pakistan. The study was based on the Technology Acceptance Model (TAM). The study was mixed method and sequential explanatory. Questionnaire and semi-structured interview was used to gather the data. Stratified simple random and purposive sampling techniques were used. The sample was consisted of 2180 participants (2160 students and 20 IT specialized teachers). The findings exposed that male students showed more positive attitude towards e-learning in Pakistan in comparison with female students. Technology Acceptance Model (TAM) has effectively determined students' attitude towards e-learning. One can fairly suggest if the Government provides financial support, development of IT infrastructure and facilitation by electronic media and resources, than students' attitude towards e-learning will be more positive
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Introduction

E-learning has metamorphosed our social, academic and perceptual behavior by enriching our experience and by opening new vistas of knowledge. It has impact on our behaviour which normally gears up our pursuits of activities with curiosity to cement, enrich, strengthen, our involvement. Its role is decisive, vital in influencing will of the learner and the influence can be seen in the learning of teachers, students, researchers simultaneously leaving deep impact. There has been stupendous change which has multiplied the range and in its effect, theory of e-learning has made a commendable march ahead for its identity and recognition. It has innovative patterns as a technique about acquisition of knowledge which will contribute towards fostering teaching and learning patterns. The institutions

of higher learning have started benefiting from it as it has become inevitable to utilize the widespread information. Our range of experience has been improved by the investigation through the participation and involvement of the people through the will and curiosity of the institutions globally. Consequently, its role for integration of learning technologies is vast spread in rapidly changing education system through research analysis (Richard & Haya, 2009).

The use of technology has its revolutionary role which has become indispensable for learning from online courses. Its role in delivering knowledge is very influential as cogently supported with tangible arguments by Oblinger and Hawkins (2005). If we study it deeply, analytically it emerges out that the ICT is nucleus in facilitating learning resources. Online learning has assumed concern and importance. Abbad et al.,(2009) have put forward their definition of e-learning by emphasizing the vastness and understanding of e-learning because of its electronically important role. Matlzet al., (2005) highlight vast range, perspective of e-learning, Wentling (2000) substantiates his point of view by laying stress on the term e-learning so that any ambiguity may not disturb its concentration by creating barriers through ambivalence to halt or disturb its onward growth for achievements and its uses which are primarily facilitated. In this respect concentration is focused on learning through electronic means. Liu and Wang (2009) have visualized the fact finding by concentrating on the multi-faceted features of e-learning. The significance and repercussions of findings bring forth the position of e-learning making it prominently important with reference to on-net global sharing learning research resources. Gotschall (2000) brings forth valid argument by giving importance to distance-learning in e-learning and by pointing out the delivery of lectures through videos for remote areas. Twigg (2002) reveals that on learning and designs of the learning system hold nucleus importance as crux of the discussion lies in them.

Wellish et al., (2003) support their stance that e-learning involves use of computers. E-learning has its usefulness as it has got practical validity, which is visibly seen, supported by its widespread use by the universities which are making serious, concerted efforts to benefit from learning from new technology. The result of the theory shows its partial implementation as we find in the performance of the students. Rodgers (2008) supports direct impact of e-learning but as it plays its role in improving the performance of the students. The role of technology is revolutionary in removing geographical boundaries. This highlights the importance of shortening geographical boundaries. Simultaneously it is less time consuming and the available time can be used for other pursuits. The role of technology concentrates on instructional matter as in it lies the quality of improving nature and perspective of education for better academic performance. Maltzet al., (2005) look at e-learning from varied angles as additional method of learning, and hybrid learning which can bring multiple advantages for institution of high learning. This substantial point of view highlights the on-campus internet with hopes about the onward growth of the system (Wentling et al., 2000). Davis (1989) is the proponent of the theory of Technology Accepted Mode (TAM) which

in its wake and essence has deep meaning and significance as it reveals that the introduction of this model concentrates on testing the students' attitude involving his perceptual inquisitive inclination towards new technology which has no role without the support of human behavior. This exposes the collectively framed attitude as attitude is mode of an approach. This approach concentrates on the behavior, involvement of the individual who was using this system in its true perspective. Behavioral intentions are impacting and encompassing the motivational factors which interact influence all pursuits. The attitude is individual's positive and negative feelings about target behavior performance (Ajzen & Fishbein, 1980; Breckler & Wiggins, 1992; Davis, 1989; Hao, 2004; Fishbein & Ajzen, 1975).

Davis (1989) has prescribed the perceived usefulness which has importance as he emphasized the adoption of ICT, results in the extension of the activity in place of work. We also find in his theory the provision to predict the intention of the learner in the adoption of learning and ICT. TAM can be useful for the user by benefiting as it is used to explain the position of the individual to accept or reject a specific technology (Jung et al., 2007). The existing computer experience and prior technical skills are not free from adverse effects as they may confront the affecting process through the influence of age, and gender (Pituch & Lee, 2006). Hemsley (2002) with great conviction was of the opinion with convincing reasons that students can vindicate the confidence reposed in them for learning as their capacities and abilities are enterprising to learn. He was the supporter of the students who wanted to see them progressing in various walks of their lives. They have potentials to gain better, respectable learning. E-learning as a new technology has grown very important as its influence is moving and it has made its position strong by making virtual learning system inevitable for the educational institutions. Quality education has useful advantages to cater to our needs theoretically and practically. This will enable society to touch new horizons to achieve new goals.

E-learning is the key to open avenues of new learning and to fulfill aspirations with determination to accelerate academic pursuits for learning positively for the benefits of the researcher. Awareness is a necessary precondition to keep pace with all kinds of changes taking place around. E-learning has deeply influenced the present environment in educational fields and there is candid invitation for the learners in developing countries to set the pace and progress of the country in various fields of life with the modern and changing world. Clearly and perceptually, strongly conceived ideas result in pragmatic and motivational ideas which is the most encouraging aspect as its synchronization is with the learners' style (Cagilty, Yildrin & Aksu, 2006). In the light of all this, the formation of the framing influence of e-learning exposes its powerful motivational impact to make it popular. The role of developing countries is commendable, and this is due to their large-scale benefit on the basis of their rich economic resources. Succinctly speaking, the onus is on attitude interest, interaction. Keen inquisitive involvement

of the students towards e-learning should be continued with determined efforts so that their pursuits may yield positive result for them for sound purposes.

Material and Methods

This study was mixed method and was also sequential explanatory in nature. In this study, quantitative and qualitative methods were applied. Background questionnaire was used for collecting quantitative data for students' of General and Engineering universities of Pakistan and qualitative data were collected by interviews with IT specialized teachers of General and Engineering universities of Pakistan.

Population

The students of General universities and Engineering universities constituted population of this study. Moreover, IT specialized teachers of General and Engineering universities were also the population of the study.

Sampling and Sampling Techniques

The researcher selected two types of universities (1General and 1Engineering) from each province of Pakistan. Three faculties were taken from each university. Further three departments from each faculty were selected. 30 students were selected from each department. 540 students were chosen from each province and total 2160 students were from Pakistan. For teachers' sampling, five IT specialized teachers from each province and total 20 teachers from Pakistan were selected. Stratified sampling technique was used for faculty and departments. Students were taken by using random sampling and IT specialized teachers & university type, purposive sampling technique was used.

Research Framework

By applying Technology Acceptance Model (TAM), students' attitude was tried to find out at higher educational level. It was used as to know the acceptance of technology after sometime interacting with the technology system. Keeping in view the objectives of the study, questionnaire was based on previous studies and especially TAM, Roger's theory of Diffusion and Innovation and theory of constructivism. The conceptual framework of questionnaire is based on TAM as shown in figure 1

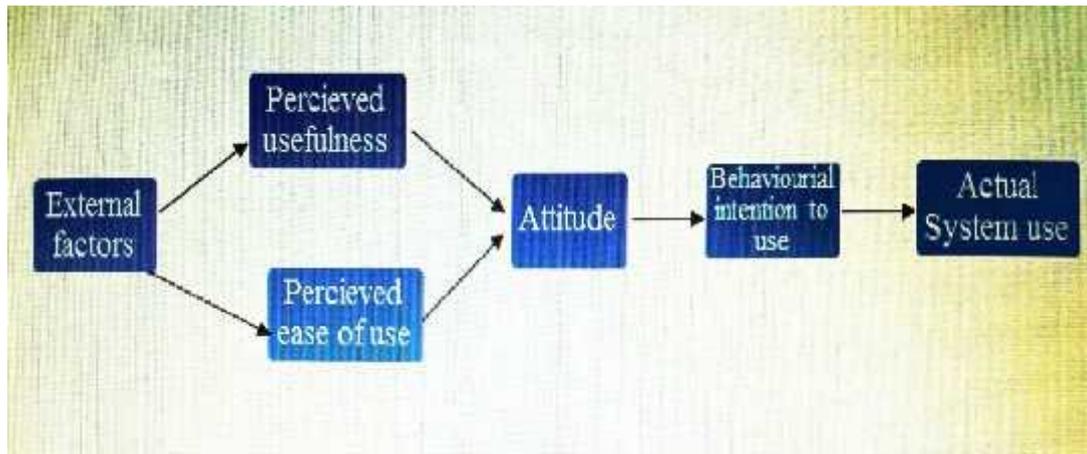


Figure1. TAM Model (Davis, Bagozzi, & Warshaw, 1989).

Research Instruments

The attitude of students had been checked by an instrument based on five-point Likert scale. For qualitative data, semi-structured interviews of teachers were conducted in order to know the perception of IT teachers. Expert views from Social Sciences (Education Department), one language expert and IT expert were taken to ensure the face and content validity of the both instruments. The Cronbach's alpha coefficient for the questionnaire was computed as 0.88, which was suitable for the study. Further the reliability of each factor was computed, and it ranged from 0.76-0.82 which was satisfactory. The detail is given below in the table 1.

Table 1
Detail of Reliability of Each Factor

Factors	No. of items	Cronbach alpha
Pedagogical Factor	5	.76
Technological Factor	6	.80
Stress	6	.80
Adoption of e-learning	7	.77
Experience	5	.77
Perceived usefulness	12	.82
Perceived Ease of use	11	.79
Attitude	6	.81

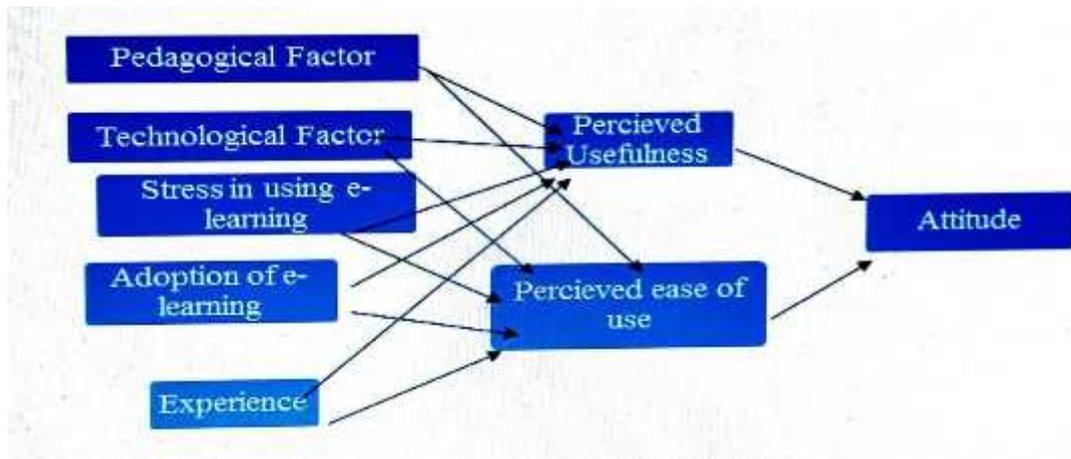


Figure 2 The proposed Study Model.

Data Collection and Analysis

The quantitative data were collected and analyzed by using descriptive statistics and appropriate tests in SPSS version 24 and qualitative data were collected and analyzed by thematic analysis (Braun & Clarke, 2006).

Results and Discussion

Students' Attitude towards E-Learning: Gender-Wise Comparison

To determine the difference between the male and female university students' attitude, independent sample t-test was applied. Comparison of mean score of attitude of male and female students was made. Detail is shown as under.

Table2
Gender-Wise Comparison of Students' Attitude

Variable	Gender	<i>M</i>	<i>SD</i>	<i>Df</i>	<i>t-value</i>	<i>p-value</i>
Attitude	Male	3.7143	.6416	2158	1.985	.04*
	Female	3.6495	.7044			

* $p < .05$

The table1 shows that mean score of attitude of male students ($M=3.71$, $SD=.641$) is slightly different from mean score of attitude of female students ($M=3.64$, $SD=.704$). Significant difference is observed between attitude of male and female university students with $t(2158)=1.985, p=.04$. This means that male students show more positive attitude towards e-learning as compared to female students in higher education in Pakistan

Cumulative Mean Score of Students' Attitude

Overall cumulative mean scores of all factors were computed to know their position in the proposed study model. All factors have means above three. The

highest mean score of factor was perceived usefulness ($M=3.73$, $SD=.6574$). Perceived ease of use is also of mean value ($M=3.62$, $SD=.6850$). It is evident from the results that these two factors have high mean values in this proposed model. From all these external factors in the proposed model, pedagogical factor indicates highest mean ($M=3.44$, $SD=.7712$) and stress indicates lowest mean value ($M=3.24$, $SD=.8439$).

Table 3
Cumulative Mean Score of Students' Attitude

Sr.#	Factors	n	M	SD
1	Pedagogical Factor	2160	3.4480	.77123
2	Technological Factor	2160	3.3306	.85301
4	Stress	2160	3.2430	.84393
3	Adoption towards e-learning	2160	3.3599	.75813
5	Experience	2160	3.4344	.79455
6	Perceived Usefulness	2160	3.7358	.65749
7	Perceived Ease of use	2160	3.6205	.68502
8	Attitude	2160	3.6957	.66076

Mean>3

Factors Contributing to Students' Attitude towards E-Learning

In order to determine factors which contribute towards e-learning, multiple linear regression analysis was conducted to find out the impact of external factors on ease of use and perceived usefulness in TAM. Secondly, multiple linear regression analysis was conducted to determine the impact of perceived ease of use and perceived usefulness on attitude in TAM. All detail is given below.

Effect of External Factors on Perceived Usefulness

To find out the effect of external factors on perceived usefulness in proposed study model, application of multiple regression analysis was made. Detail is given below

Table 4
Effect of External Factors on Perceived Usefulness

External Factors	t	p	B (Standard)	SP ²
Pedagogical Factor	14.237	.000*	.307	.0870
Technological Factor	4.176	.000*	.089	.0081
Stress	-1.119	.774	-.024	.0005
Adoption towards e-learning	6.776	.000*	.156	.2073
Experience	6.626	.000*	.144	.0198

$P < .005^*$, Dependent variable =PU Predictors=All external factors

Multiple linear regression analysis was carried out to determine the effect of external factors on perceived usefulness in TAM and results were $F(5, 2154) =$

152.764, $p = .000^*$ and $R^2 = .262$. It is found that pedagogical factor has significant effect on perceived usefulness ($\beta = .307, p < .005$). Technological factor has positive effect on perceived usefulness ($\beta = .089, p < .005$). Stress factor has no significant effect on perceived usefulness ($\beta = -.024, p = .774$). Adoption towards e-learning factor has significant effect on perceived usefulness ($\beta = .156, p < .005$). Experience factor has significant effect on perceived usefulness ($\beta = .144, p < .005$). So all external factors except stress have significant effect on perceived usefulness at higher level in Pakistan.

Effect of External Factors on Perceived Ease of Use

To find out the effect of external factors on perceived ease of use in the proposed study model, multiple regression analysis was applied. Detail is given below.

Table 5
Effect of External Factors on Perceived Ease of Use

External Constructs	<i>t</i>	<i>p</i>	B (Standard)	<i>SP</i> ²
Pedagogical Factor	13.237	.000*	.302	.0858
Technological Factor	5.915	.000*	.125	.0158
Stress	.287	.772	.006	.365
Adoption towards e-learning	7.356	.000*	.168	.024
Experience	5.012	.000*	.108	.011

$P < .005^*$, Dependent variable =PEOU, Predictors=All external factors

Multiple linear regression analysis was carried out for determining the effect of external factors against ease of use in TAM and results were $F(5, 2154) = 55.870, p = .000^*$ and $R^2 = .276$. Pedagogical factor has significant effect on perceived ease of use ($\beta = .302, p < .005$). Technological factor has positive impact on ease of use ($\beta = .125, p < .005$), whereas no significant effect of stress factor on ease of use ($\beta = .006, p = .772$). Significant effect of adoption towards e-learning on ease of use ($\beta = .168, p < .005$) was observed. Result shows significant effect of experience factor on ease of use ($\beta = .108, p < .005$). Significant effect is found for all factors except stress on perceived ease of use at higher education level in Pakistan.

Effect of Perceived Usefulness and Perceived Ease of Use on Attitude

To find out effect of perceived ease of use and perceived usefulness on attitude of students at university level towards e-learning in the proposed study model, multiple regression analysis was applied. Detail is given below:

Table 6
Effect of Perceived Usefulness and Ease of Use on Attitude

Factors	<i>t</i>	<i>P</i>	B (Standard)	<i>SP</i> ²
Perceived Usefulness	30.850	.000*	.582	.3058
Perceived Ease of Use	10.983	.000*	.207	.0529

$P < .005^*$, Dependent variable = Attitude, Predictors = PU, PEOU

Multiple linear regression analysis was carried out to decide the effect of perceived ease of use and perceived usefulness on attitude in TAM. Results were $F(5, 2154) = 1223.290$, $p = .000^*$ and $R^2 = .531$. Higher significant effect of perceived usefulness on attitude ($\beta = .302$, $p < .005$) is found where as significant effect of perceived ease of use on attitude ($\beta = .125$, $p < .005$) is observed. As regression model is significant so perceived ease of use and perceived usefulness contribute significantly to students' attitude at higher level towards e-learning at university level in Pakistan

For qualitative data, teachers' interviews were conducted. Qualitative data were analyzed by using thematic analysis. On the basis of qualitative analysis, it was found that students' attitudes towards e-learning can be better if pedagogical and technological factors are improved by the institution and Government. IT teachers showed that e-learning is an assisting tool along with traditional teaching learning process. Implementation of e-learning can be made effective and result oriented in Punjab, if there are focused steps on development of IT infrastructure, complete planning and management, allocation of budget to facilitate net zones and IT service centers. The male students' attitude is more positive than female students' attitude towards e-learning at university level in Pakistan. Overall students' attitude towards e-learning is positive as supported by both quantitative as well as qualitative analysis. E-learning can be implemented for effective results in Pakistan, if there are focused steps on development of IT infrastructure, complete planning and management, allocation of budget to facilitate net zones and IT service centers.

Discussion

From quantitative and qualitative data analysis, following key findings are explained as: On the basis of quantitative data analysis, the male students' attitude is more positive than the female students' attitude at higher educational level towards the e-learning. In contrast, Hussein (2010) observed no significant difference on basis of gender. Liaw & Huang (2011) conducted studies in which they observed male students have more positive attitude in comparison with the female students' attitude towards e-learning. Egboet al., (2011) observed that female students showed more tendencies towards embracing the use of ICT as compared to the male students. On the basis of both quantitative and qualitative analysis, overall students' attitude towards e-learning is positive. Students' positive attitude determines that they are accepting use of technology especially e-learning at higher educational level. Fageeh (2011) supported that there is overall acceptance of students for e-learning initiatives. Abdelrahim et al., (2011) concluded that the students' attitude towards e-learning is positive and it is also supported by the study of Ahmad (2011).

The attitude of student is measured by using Technology Acceptance Model (TAM) (Davis et al., 1989). All external factors except stress (Pedagogical

Factors, Technological Factors, adoption towards e-learning, experience of using technology) have significant effect on perceived ease of use and perceived usefulness. It is concluded that the students at higher educational level perceive and use e-learning. University students do not feel stress while using e-learning and find it easy to use. This finding is also based on both quantitative data analysis and qualitative analysis. Ahmad et al.,(2012) supported this by concluding that institutions are facilitated by adoption of e-learning and it also helps students with more flexibility of time and place. Sifeet al., (2007) supported that adoption of e-learning is affected by pedagogical and technical factors in teaching learning process. Agyei & Voogt (2011) point out that approach to technology interacts the students' attitudes and the instructors simultaneously and then shows its relationship with the level of technology use. Hussain (2007) is very skeptical about students' attitude at higher education level towards e-learning in Pakistan. Olga et al., (2014) advocated the utility and effectiveness of perceived usefulness which determine students' attitude towards e-learning. However, ease of use does affect significantly students' attitude towards e-learning. TAM has proved useful for measuring the individual's acceptance to use e-learning as advocated by Davis (1989) and Adwan et al., (2013). Access to computer internet, effective use of tools, skills, is communication methods which are necessary and inevitable for their role for advent of learning (Rhode, 2004). Zaitoon (2014) promotes the e-environment after conducting a qualitative research on e-learning readiness. Students are willingly ready for shifting from teaching/ learning process to a new process of learning and within the parameters of environment (Fageeh, 2011).

Conclusion

Findings revealed that in Pakistan, students' attitude towards e-learning is positive at higher educational level. In comparison with female students, Male students show more positive attitude towards e-learning at higher level in Pakistan. Technology Acceptance Model has effectively determined students' attitude towards e-learning at higher educational level. It means students at higher level perceive e-learning use with positive attitude. One can fairly suggest if the Government provides financial support, development of IT infrastructure and facilitation by electronic media and resources, students' attitude towards e-learning can be improved.

Recommendations

Teachers may be motivated to take part in the training of getting enlightened knowledge about new technological changes. Discussion may be on positive attitude towards e-learning both for teachers and students. This will benefit not only the teachers but will simultaneously be beneficial for students. Smooth implementation of e-learning system may be ensured. The availability of internet at large as a tool, may be provided which will engage students to improve their knowledge, technique and skill.

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