Sir Syed Journal of Education & Social Research
Vol. 6, Issue 1, 2023 (January – March)
ISSN 2706-6525 (online), ISSN 2706-8285 (Print)
ISSN 2706-9362 (CD-ROM), ISSN 2706-6525 (ISSN-L)
DOI: https://doi.org/10.36902/sjesr-vol6-iss1-2023(213-221)

SJESR
Sir Syed Journal of Education & Social Research

The use of E-learning Willingness among the Students of University – a case study of District Multan

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Abstract

The procedure of e-learning consisted of combination of both humans and computers. Electronic learning strategies are used to enhance learning environment. These strategies make teaching learning environment better for an educational institution. The aim of the present study was to identify the university students' readiness for e-learning. The target population of the study was the public sector university students at Multan district. Probability random sampling technique was used. By applying stratified random sampling technique 200 university students were selected from four public sector universities of Multan District. A questionnaire was developed after ensuring the validity and reliability of the instrument. The key findings of this study showed that over all students were partially satisfied with the resources provided by the universities for e learning. A moderate readiness for e-learning was showed by the students. Based on the findings it is recommended that the university student's readiness for e-learning must be encouraged by the university authorities.

Keywords: E-learning; Students' Readiness; Study Skills; Assessing Technological Aspect.

Introduction

The purpose of distance learning is to encourage self-study or individual study among distance learners who lack formal face-to-face instruction. Rapidly changing worldwide economies make people and companies increasingly aware of the rapid changes identified in the "Internet World" or "Digital World". Online education is a modern educational model through Internet expertise. It transmits digital content to the learners. To attain this model, all distance learning organizations (DLO) offer assistance to their students (Simpson, 2018).

In addition, all these actions beyond the construction and distribution of course material help out in the improvement of student's ability in terms of knowledge, confidence, networking and effective communication. Therefore, as discussed above, the students' assistance facilities offered by DLO are even so based on the factors of the learning procedure. For example, awareness, enthusiasm, sensitive attributes and students' readiness to various e-learning approaches (Tuntirojanawong, 2013).

The application of internet in every part of life has come to be a basic requirement and gives access to borderless resources. Gomez (2016) specified that it is incredibly impractical to eliminate digital technology from the equation today, even in the most remote places, for the reason that technology is creating his path through in the whole world. The endless growth of promising technologies also permits the establishment of new ideas for innovative education and the e-learning is one of the examples. In addition, by way of recognizing and modifying the new adjustments in the learning world, many educational organizations started to provide digital technologies to use for their students to sign up, reading soft copies of the books, attend speeches and contribute to the discussions. This is what can be known as the stimulation of technology in the education sector.

It is evidenced through the literature that e-learning and further suitable synchronized software modes could improve learning habits of the students. The e-learning additionally provide to meet the higher education commission (HEC) prerequisite that institution of higher education provide better learning opportunities by using diverse moods that rise students' access to and success in higher education. The importance of the e-learning is a crucial part for the university students. Specifically, during COVID-19 the online education was only option. In this modern world, e-learning is a crucial

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approach and technique to accelerate the development of the education. To keep these beliefs, this study explores the students' readiness for e-learning among university students and compares the students' readiness for e-learning based on the availability of internet either at university or home in district Multan.

Research Objectives

Following were the objectives of the study;

- To identify the use of e-learning willingness among university students.
- To identify the resources available at home and university for e-learning

Research Questions

On the basis of research objectives following were the research questions.

- What are the use of e-learning resources to know the willingness among university students.
- What are level of students' willingness to use e-learning among university students.

Literature Review

Topolovec et al. (2008) investigated different ways in which modern technology and the "knowledge age" change the work environment, which causes continuous effort and learning for almost all kinds of jobs and occupations. The paper shows paradigms of using ICT in the teaching and learning process, as well as main paradigm characteristics through different settings from different levels of abstraction. The paper also illustrates indicators of the result of ICT usage in learning and teaching processes, which represent a sort of strategies and enable measuring the influence of ICT to learning and teaching processes. New knowledge provided by cognitive, social, pedagogic, information and computer scientists and subject matter specialists studying learning and teaching has generated advances in our understanding of learning and teaching processes and contributes substantially to our understanding of how to use ICT to improve and transform learning and teaching.

Crnjac Milic et al. (2009) investigated the process of learning by using ICT as a platform the goal of which is to facilitate accessibility and flow of information as well as interaction among participants involved in learning, which aims at improving the learning process itself. According to the authors and their research on engineering faculties shows that both teachers and students are ready and more than willing to introduce such form of teaching and learning. It has been emphasized that there should be no fear that such forms of teaching and learning might push the teacher out of the teaching / learning process, since such systems represent only a platform through which the teacher teaches.

Penny et al. (2012) have made a study where they conducted a questionnaire survey to gather information on students' experiences and usage of ICT during their university studies. The questionnaire survey was carried out in two universities: Edinburgh Napier University in Scotland and the Josip Juraj Strossmayer University of Osijek in Croatia. The findings presented in this study has shown that male students were more likely to use specialised software for designing, drawing, mathematics or statistics than females, as were students in Croatia and students studying engineering, physics, computative and creative industries. Scottish students were more likely than Croatian students to use ICT for acquiring educational information, and females were more likely to participate in writing essays and preparing presentations. Also, it has been confirmed that students who participate in online activities are more likely to be higher achievers educationally.

Mishra et al. (2011) have discussed e – learning experiences from the faculty's perspective on different attributes and contexts in a comparative view at three premier universities which provide online courses for students and professionals. According to their experiences, teachers should be well trained and motivated to facilitate e – learning which is more effective for experienced professionals and students in comparison to new students. Also, for graduate level courses, text books should always complement online course material content and pointers for additional readings. According to Duh et al. (2011) the basic principal of education is still transfer of knowledge. E-learning materials are just one example of support material in the education process, but they can help promote self-learning at all levels of education. The basic principle of education is still transfer of knowledge.

Research Methodology

Research design

Under the typology of positivism, quantitative research approach was applied by the researcher. Survey method was used to collect data.

Population

The target population of the present study was the students of four public sector universities of Multan division.

Data collection procedure

Data were collected through stratified random sampling technique. First of all sampling frame was prepared. After framing the sampling frame the different strata was framed. Students were proportionally divided under each stratum. All the scientific and research rules were applied to obtain sample size.

Instrumentation

An instrument (questionnaire) was used to collect data. The questionnaire was developed after extensive reading of available literature. There were two parts of questionnaire. One part was consisted of demographic variables while the other part was consisted of close and open ended questions. The second part of the questionnaire was consisted of four constructs which include the availability of technology (AT), technological skills (TS), study lifestyles (SL) and self-confidence (SC). All constructs were consisted of 6-items each. There were total 24 items.

Data Analysis

Both descriptive and inferential statistical techniques were applied.

E-learning readiness Measurement

Mean scores were used to determine students' e-learning readiness for online readiness variables. Swedel et al. (2011) and Aydin and Tasci (2005) proposed a framework for understanding e-learning readiness assessment, which helps readers make a clear assessment of e-learning readiness. A mean score of 3.40 was the expected level of readiness with all possible items, while other responses allowed the reader to judge the level between a high or low degree of readiness for e-learning. The degree of e-learning readiness was determined as follows:

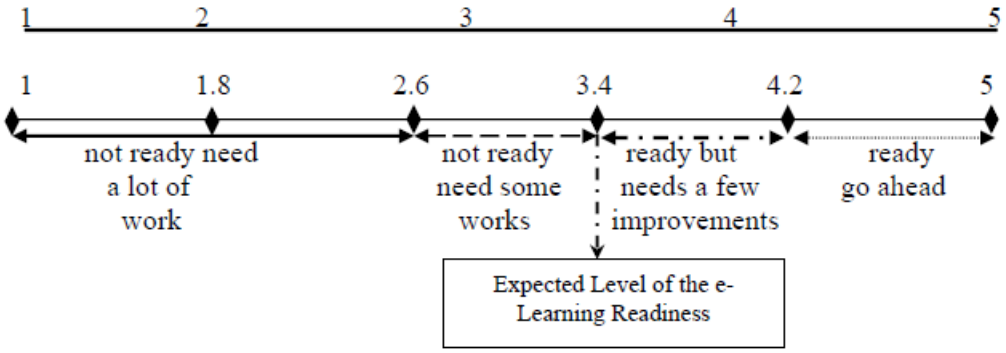

Figure 3.1: The evaluation model of e-learning readiness

1.1. Statistical analysis

The collected data were saved in Microsoft Excel and investigated through Statistical Packages for Social Sciences (SPSS) Statistics 28.0 (SPSS Inc. Chicago, Illinois, USA). The P-value < 0.05 was used as a statistically significant at 95% confidence interval.

First, the reliability analysis was done to measure the internal consistency among the items of the online learning readiness (AT, TS, SL and SC) variables. The measure of scale reliability was analyzed through Cronbach's alpha (α), and it is formulized as below

$$\alpha = \frac{N\underline{AC}}{\underline{AV} + (N-1)\underline{AC}},$$

where N is the number of items, $\underline{AC}$ denotes the average inter-item covariance between items of the variables of interest and $\underline{AV}$ is the average variance of the variables. The standardized Cronbach's alpha (α) method was also considered in this study. As the value of the Cronbach's alpha (α) approaches to 1 indicates that the variable has high internal consistency and vice versa. However, the values between 0.70 to 1.00 shows that the acceptable to excellent reliability.

Secondly, the descriptive statistics and frequency analysis were considered to report the results of socio-demographic variable and the online learning readiness. The Chi-Square (χ^2) test was used to quantify the dependency between socio-demographic variables with the accessibility of the internet. Third, we test the normality of the online learning readiness variables through Kolmogorov-

Smirnov and Shapiro-Wilk methods before applying parametric and non-parametric methods. Finally, the independent sample tests were considered based on the normality test. The extensive discussion and results were discussed in the next section.

Results

The statistical analysis of the socio demographic variables was presented in terms of frequency distribution and percentages were given in Table 4.1. Also, the association between e-learning readiness of the students and the availability of the internet were given where the χ^2 test was considered. Table 4.1 showed that (n = 134) 67% of the students were female and (n = 66) 33% of the students were male. There are three age groups, the age group between 18-20 years were (n = 55) 27.5%, between 21-23 years were (n = 110) 55% and more than 23 years were (n = 35) 17.5% respondents and majority of the respondents are between 21-23 years age (Figure 4.2). From four universities, the data was collected, and these were listed as BZUVC (n = 59) (29.5%), CUVC (n = 60) (30%), UEVC (n = 53) (26.5%) and UABC (n = 28) (14%). The level of education has three groups which was shown PhD students were (n = 10) 5% as per expectation since the PhD education in district Multan is just started, M.Phil students were (n = 22) 11% and BS/M.Sc. students were (n = 168) 84%. Also, it can be seen that (n = 63) 31.5% students had education level in fourth year. Finally, it was shown that majority of the students was not have internet access at university ((n = 112) 56% at home), only (n = 45) 22.5% students had internet access at university and remaining (n = 43) 21.5% students had internet access at university and home.

Table 4.1: Demographic Characteristics of the students and the access of the internet *(n = 200)*

Characteristics	N (%)	Internet access			P-value
		Home	University	Both	
Gender					
Male	66 (33.0)	34 (51.5)	10 (15.2)	22 (33.3)	0.010†
Female	134 (67.0)	78 (58.2)	35 (26.1)	21 (15.7)	
Age Group (21.9 ± 2.4)					
18–20 Years	55 (27.5)	34 (61.8)	10 (18.2)	11 (20.0)	0.026†
21–23 Years	110 (55.0)	59 (53.6)	32 (29.1)	19 (17.3)	
> 23 Years	35 (17.5)	19 (54.3)	3 (8.6)	13 (37.1)	
University Name					
BZUVC	59 (29.5)	38 (64.4)	9 (15.3)	12 (20.3)	0.002*
CUVC	60 (30.0)	25 (41.7)	13 (21.7)	22 (36.7)	
UEVC	53 (26.5)	35 (66.0)	16 (30.2)	2 (3.8)	
UABC	28 (14.0)	14 (50.0)	7 (25.0)	7 (25.0)	
Level of Education					
BS/M.Sc.	168 (84.0)	99 (58.9)	39 (23.2)	30 (17.9)	< 0.001*
M.Phil.	22 (11.0)	12 (54.5)	5 (22.7)	5 (22.7)	
PhD	10 (5.0)	1 (10.0)	1 (10.0)	8 (80.0)	
Academic Level					
First Year	21 (10.5)	12 (57.1)	2 (9.5)	7 (33.3)	0.158
Second Year	33 (16.5)	18 (54.5)	7 (21.2)	8 (24.2)	
Third Year	49 (24.5)	31 (63.3)	8 (16.3)	10 (20.4)	
Fourth Year	63 (31.5)	28 (44.4)	20 (31.7)	15 (23.8)	
4+	34 (17.0)	23 (67.6)	8 (23.5)	3 (8.8)	
Total		112 (56.0)	45 (22.5)	43 (21.5)	

Note: *Significant at 0.05 level of significance; †Significant at 0.01 level of significance; The percentages of the demographic characteristics are given in parentheses. The age of the students are given in years and descriptive measures of age are listed as (Min = 18, Max = 38, Mean = 21.93, SD = 2.40)

The main aim of the χ^2 test was used to quantify the dependency between socio-demographic variables with the accessibility of the internet. The mean age of the students was 21.93 years old with standard deviation (SD = 2.40). The gender was statistically significant associated with the availability of the internet access ($\chi^2 = 9.134$, df = 2, P-value < 0.05). The age group was statistically significant associated with the availability of the internet access ($\chi^2 = 11.013$, df = 4 P-value < 0.05). Different universities were statistically significant associated with the availability of the internet access ($\chi^2 = 21.307$, df = 6, P-value < 0.05). Level of education was statistically significant associated with the availability of the internet access ($\chi^2 = 21.747$, df = 4 P-value < 0.05). The

academic level was not statistically significant associated with the availability of the internet access ($\chi^2 = 11.848$, df = 8, P-value > 0.05).

Table 4.2 showed that the reliability of the factors was acceptable and good enough the overall reliability. When the value of the Cronbach's alpha (α) approaches to 1 indicates that the variable has high internal consistency and vice versa. However, the values between 0.70 to 1.00 shows that the acceptable to excellent reliability.

Table 4. 2: Reliability Statistical analysis

Variables	No. of items	Cronbach's Alpha	Standardized Cronbach's Alpha
AT	6	0.722	0.723
TS	9	0.834	0.832
SL	5	0.747	0.749
SC	8	0.878	0.879
Overall		0.800	0.800

Note: AT = "Availability of Technology"; TS = "Technology Skills"; SL = "Study Lifestyles"; SC = "Self Confidence"

Table 4. 3: Distribution of availability of technology (AL) variable[1]

Items		SD	D	U	A	SA	Average
AT1	I have access to a computer daily either at home or university	23 11.5%	121 60.5%	11 5.5%	15 7.5%	30 15.0%	2.54
AT2	I have internet access at home	6 3.0%	87 43.5%	12 6.0%	26 13.0%	69 34.5%	3.32
AT3	Internet speed is satisfactory with reliable connection	15 7.5%	127 63.5%	12 6.0%	25 12.5%	21 10.5%	2.55
AT4	I have access to a computer whenever I need at home.	12 6.0%	106 53.0%	15 7.5%	29 14.5%	38 19.0%	2.87
AT5	I have access to a computer in university with fairly fast internet connection.	41 20.5%	105 52.5%	22 11.0%	15 7.5%	17 8.5%	2.31
AT6	I have access to a computer with the necessary software install.	23 11.5%	113 56.5%	14 7.0%	25 12.5%	25 12.5%	2.58

Table 4.4: Distribution of technological skills (TS) variable

Items		SD	D	U	A	SA	Average
TS1	I can save/open documents to/ from a hard disk or other removable storage device	16 8.0%	108 54.0%	17 8.5%	30 15.0%	29 14.5%	2.74
TS2	I am good at using a computer and sending email	7 3.5%	111 55.5%	11 5.5%	27 13.5%	44 22.0%	2.95
TS3	I can download files and add attachments to emails	10 5.0%	94 47.0%	17 8.5%	27 13.5%	52 26.0%	3.09
TS4	I can easily use basic office software, for example, Word Doc, Power Point, Excel etc.	9 4.5%	100 50.0%	10 5.0%	28 14.0%	53 26.5%	3.08
TS5	I use data analysis software SPSS	34 17.0%	86 43.0%	42 21.0%	19 9.5%	19 9.5%	2.52
TS6	I have social network sites, for example, Twitter, Facebook, LinkedIn	11 5.5%	105 52.5%	13 6.5%	26 13.0%	45 22.5%	2.95
TS7	I use instant messaging, for example, Skype and Google talk	21 10.5%	105 52.5%	31 15.5%	22 11.0%	21 10.5%	2.58
TS8	I can save/open documents to/ from a hard disk or other removable storage device	6 3.0%	108 54.0%	29 14.5%	24 12.0%	33 16.5%	2.85
TS9	I am able to use email, internet, spreadsheet and documents for my education learning purpose	10 5.0%	101 50.5%	12 6.0%	26 13.0%	51 25.5%	3.03

Table 4.5: Distribution of Study Lifestyles (SL) variable[2]

[1] "SD = Strongly Disagree"; "D = Disagree"; "U = Unsure"; "A = Agree"; "SA = Strongly Agree".

Items		SD	D	U	A	SA	Average
SL1	I have a reserved study room where I can read and work on university tasks without interruption	17 8.5%	111 55.5%	24 12.0%	19 9.5%	29 14.5%	2.66
SL2	I can spend more than 9 hours in a week for courses at home/university	12 6.0%	103 51.5%	17 8.5%	31 15.5%	37 18.5%	2.89
SL3	I can dedicate a specific time of day or night to work on my studies	13 6.5%	106 53.0%	22 11.0%	26 13.0%	33 16.5%	2.80
SL4	I can manage my coursework assignments in a computer folder for easy reference book	11 5.5%	109 54.5%	21 10.5%	25 12.5%	34 17.0%	2.81
SL5	I use soft copies of book and lecture notes rather than printed copies	19 9.5%	103 51.5%	12 6.0%	33 16.5%	33 16.5%	2.79

Table 4.6: Distribution of self-confidence (SC) variable

Items		SD	D	U	A	SA	Average
SC1	I have knowledge on the subject of what is e-learning	13 6.5%	105 52.5%	23 11.5%	27 13.5%	32 16.0%	2.80
SC2	I have the skills to use the computer	12 6.0%	89 44.5%	21 10.5%	29 14.5%	49 24.5%	3.07
SC3	I can solve out most basic problems associated with using a computer	11 5.5%	93 46.5%	29 14.5%	27 13.5%	40 20.0%	2.96
SC4	I can use office software (e.g., Word doc, Power point, Excel etc.) confidently to explain my presentation in the classroom	8 4.0%	98 49.0%	21 10.5%	26 13.0%	47 23.5%	3.03
SC5	I can use web browsers (e.g., Google Chrome, Google as a search engine and internet explorer)	10 5.0%	92 46.0%	12 6.0%	28 14.0%	58 29.0%	3.16
SC6	I can use digital file management tools (e.g., deleting or renaming a file on your computer and save the files in google derive)	7 3.5%	94 47.0%	30 15.0%	26 13.0%	43 21.5%	3.02
SC7	I have sufficient time to do my homework by using electronic technology facilities	16 8.0%	94 47.0%	25 12.5%	24 12.0%	41 20.5%	2.90
SC8	I believe that e-learning is easy to use	10 5.0%	87 43.5%	30 15.0%	26 13.0%	47 23.5%	3.06

Table 4.3 represents the distribution of the AT variable where we can see that the items AT2 had highest average score which was 3.32 close to the expected score and mostly students have internet access at home and remains were not ready and need some works. Table 4.4 shows the distribution of the TS variable where we can see that the items TS3, TS4 and TS9 had highest average score which were 3.09, 3.08 and 3.03, respectively. The score of the TS was not close to the expected score and students could not have good technological skills and were not ready and need some works. The distribution of the SL variable was shown in Table 4.5 where it was observed that the study lifestyles of the students were below to the average and students are not ready need a lot of work to improve the study lifestyles of the students. Finally, the distribution of the self-confidence variable was given in Table 4.6, and this was showed that only SC5 item had 3.16 average score. The students

[2] "SD = Strongly Disagree"; "D = Disagree"; "U = Unsure"; "A = Agree"; "SA = Strongly Agree".

can use web browsers and remaining items were below to the expected average. Overall, the online learning readiness among the students are not good.

Table 4.7: Descriptive Statistics of the online learning readiness variables

						Percentiles		
Variables	**n**	**Min**	**Max**	**Mean**	**SD**	**25th**	**50th (Median)**	**75th**
Availability of Technology	200	1	5	2.69	0.80	2.00	2.50	3.50
Technology Skills	200	1	5	2.86	0.83	2.22	2.67	3.44
Study Lifestyles	200	1.4	5	2.79	0.88	2.00	2.60	3.40
Self Confidence	200	1	5	3.02	0.96	2.13	2.75	3.88

Note: Min = "Minimum"; Max = "Maximum"; SD = "Standard deviation"; n = "Number of students"

The descriptive statistics of the online learning readiness was shown in Table 4.7 where it was observed that the average score of the variables is less than the expected average score. However, the percentiles were also calculated, and it has same meant when we look at median and by using 75th percentiles the average score was close to the expected score.

Before using the independent sample test, the normality of the variables was tested using the Kolmogorov-Smirnov and Shapiro-Wilk tests. The normality test was given in Table 4.8. It was seen that all of the variables (AT, TS, SL and SC) were significant at P-value < 0.05, which conclude that the variables are not follow to normal distribution and therefore, the non-parametric test were suggested to test the hypothesis.

Table 4.8: Test of normality for the online learning readiness variables

	Kolmogorov-Smirnov [a]			Shapiro-Wilk		
	Statistic	df	P-value	Statistic	df	P-value
Availability of Technology	0.177	200	<0.001	0.912	200	<0.001
Technology Skills	0.149	200	<0.001	0.953	200	<0.001
Study Lifestyles	0.152	200	<0.001	0.903	200	<0.001
Self Confidence	0.126	200	<0.001	0.943	200	<0.001

Note: [a] Lilliefors Significance Correction

Finally, the online learning readiness variables including AT (H = 9.594, df = 2, P-value = 0.008), TS (H = 14.334, df = 2, P-value < 0.001), SL (H = 13.369, df = 2, P-value = 0.001) and SC (H = 12.946, df = 2, P-value = 0.002) were significantly different among the students with providing internet access either at home or university.

Overall, it was observed that the District Multan university students are not ready to the use of e-learning readiness and need some work to improve them. Since, the average score of the e-learning readiness was below to the expected level of the e-learning readiness. In addition, it is worth to highlight that the socio-demographic characteristics of the students were statistically significant with the availability of the internet.

Table 4.9: Kruskal-Wallis Test for the availability of the internet

		Ranks		Test Statistic	
Variables	Internet Access	N	Mean Rank	H-test	P-value
AT	Home	112	89.35	9.594	0.008
	University	45	114.88		
	Both	43	114.50		
	Total	200			
TS	Home	112	87.58	14.334	< 0.001
	University	45	124.53		
	Both	43	109.01		
	Total	200			
SL	Home	112	90.33	13.369	0.001
	University	45	127.32		
	Both	43	98.93		
	Total	200			
SC	Home	112	87.89	12.946	0.002
	University	45	121.88		
	Both	43	110.98		
	Total	200			

Conclusion

This study aimed to investigate the association between students' e-learning readiness and demographic factors. In addition, we examined the e-learning readiness factors based on the access of the internet either at home or university. The descriptive approach was used to explore the socio demographic characteristics and the e-learning readiness. The normality checked before test the hypothesis and non-parametric methods were used to check the impact of e-learning by using the accessibility of the internet either at home or university.

The results showed that the over all of students' readiness for e-learning among university students were moderate status and more specific that the self-confidence variable had the highest mean score but below the expected average score, and availability of technology had the lowest mean score. Based on the results of this study, it is suggested that the university should enhance the students' readiness in the availability of technology, study lifestyles, and technology skills. Since students are not ready to the use of e-learning readiness and need some work to improve them. Because the average score of the e-learning readiness was below to the expected level of the e-learning readiness. In addition, it is worth to highlight that the socio-demographic characteristics of the students were statistically significant with the availability of the internet. In summary, the hypothesis formulated for the study is thus approved and tested the university should enhance the students' readiness in the availability of technology, study lifestyles, and technology skills. Since students are not ready to the use of e-learning readiness and need some work to improve them.

Recommendation

Similar research should be conducted based on south Punjab region in Pakistan. Or it could be conducted based for each province where the sample size should be larger enough and get more information about the student e-learning readiness. The HEC should be checked the speed of the internet and make sure the access of the internet easily available to every student. Experimental research should be considered where the specific seminar and workshops of the use of advanced technology and basic useful software might be organized. Then it should be made a comparison of those students who gets the training of the ICT and who does not. Similar research should be conducted to see the impact of e-learning readiness and resources in the rural areas of Pakistan.

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