International Journal of Advanced Social Studies

Research Article

Impact of Different Factors Affecting the Student's Perception of Virtual Learning

Article History
Received: October 11, 2022
Revised: December 02, 2022
Accepted: December 15, 2022
Published: December 30, 2022

*Corresponding Email: siddiqagori@gmail.com

Ayesha Siddiqa
School Education Department, Government of Punjab, Pakistan

Abstract

This study illuminates the significance of virtual learning in the contemporary technological age, highlighting its cost-effectiveness compared to traditional learning methods. The primary objective of this research is to examine various factors that hold importance from the perspective of students regarding virtual learning. To achieve this goal, primary data was gathered using a custom questionnaire from five districts in Punjab, including Hafizabad, Faisalabad, Lahore, Jhang, and Sargodha. The sample size of the respondents is 392 students. The dependent variable is students' perception of virtual learning (SPVL), and binary logistic regression is used to check the impact of different factors on the dependent variable. The Hosmer and Lemeshow test are conducted to check the binary logistic regression goodness of fit for data. The results of the binary logistic model show that access to the computer, time-saving, job career, outcomes and achievements, and total family members are significant and add positive perception to virtual learning, while gender is insignificant. Policy recommendations suggest that the government should prioritize the significance of virtual learning and undertake the requisite measures for its implementation.

Keywords: Virtual Learning, Students perception, Conventional learning, Binary logistic regression

Introduction

The very first complete online course was offered in 1984 through the University of Toronto. In 1986, the Electronic University Network was mounted for use in DOS and Commodore 64 computers. After three years, the University of Phoenix became the first academic organization in the world to establish an entirely online collegiate organization, imparting both bachelor's and master's degrees. This was the first revolution whose aptitude was largely unknown to the public at that time, and this one that made learning significantly accessible and within reach of what people could ever have imagined. Distance learning in the United States has advanced during the past three centuries into what is now called "online learning", through major delivery systems that replicate the instrument available at the time: the postal system, radio and TV, and interactional technologies (Anderson & Dron, 2011; Kentnor, 2015). Online education has not only changed the panorama of remote education but also has a significant impact on higher general education worldwide. We have seen the rapid increase in profits of higher education organizations, the commercialization of education by traditional organizations not for profit and a continuous increase in the demand for online education (Allen & Seaman, 2011). Moore and Kearsley (2011) mentioned the ancient improvement system of distance schooling as 5 essential eras. Historical improvement technique of distance learning (1) Correspondence Study Era (2) Telecommunication Era (3) Open Universities Era (4) Teleconference Era (5) Internet Era.

In general, the electronic learning industry has an exceptional destination regardless of the economic situation. Economic possibilities are not available in new products that are not bought, but in support and services that are more and more self -managed educational activities. The 21 is a good time for the economy

of E -Learning (Kasraie & Kasraie, 2010). Computers and the Internet are mainly designed for education, especially for academic purposes in universities. With a considerable development of computers and the Internet, electronic learning requires the application of new technologies in order to improve the quality of education and learning (Liaw, 2002). Continuous research will increase our unexpected change and more and more needs for almost everyone in the world for learning, so the demand for more flexible educational environments will increase accordingly (Chen, 2003). Gunes (2019) studied student's perceptions of asynchronous distance learning (ADL) and blended learning (BL). The study used two groups. The first group studied English in ADL and the second group studied English in BL. The data were collected from seven the students of ADL group and six students from the BL group. Semi-structured interviews were conducted with 13 students. The study found that ADL students did not like distance learning, while BL students preferred the BL approach to learning.

Paulson (2008) studied tuition/fees for online courses. Institutions need to determine the real cost of teaching to make online learning an integral part of higher education. And these training or pricing should be based on these actual costs. Baturay and Yukselturk (2015) conducted a study on the role of online pedagogical preferences in student achievement. This research analysed the effects of variables demographicc, online self-efficacy, satisfaction and the reasons for students' preference for online education based on their achievements. The outcomes showed that there is a positive correlation between the reasons for student's preference for distance learning and the outcomes of their success, as measured by final test scores. In addition, according to the consequence of regression analysis, the advantage related to productivity is the only variable that affects the regression equation in the regression analysis of the online course. This amounted about 5.1% of the difference in the final grades of students. Farid et al. (2015) surveyed a hierarchical model of electronic learning implementation using the AHP software. This study helps to formulate a hierarchical model that affects the integration of ICT into the University of Pakistan. An empirically based research methods were used in two studies conducted by electronic learning experts from several public universities. The tasks were classified using the factor analysis method, but we gave priority to the specified problems using the hierarchical analysis process method (AHP). The results revealed 17 important tasks and subsequently, five dimensions.

Sun and Chen (2016) conducted a study on online education and its effective practice. The purpose of this document is to provide practical suggestions for those considering developing an online course to make an informed decision during implementation. The results of the study revealed that effective online training is depend upon well-designed course content, stimulating teacher-student interactions, well-equipped and fully supported teachers for the purpose to create a sense of the online learning community and to make rapid development in technology. Hussain et al. (2019) investigated research on the future prospects of virtual education in Pakistan. This research has two main objectives. The first objective of the study is to find the opportunities of virtual learning in Pakistan for and the second objective is to identify issues related to virtual learners in a national context. The data was collected through the google.doc. Virtual education has been shown to be an appropriate learning method, implemented with the characteristics of quality education, low cost and the Education for All (EFA) slogan. The problems facing by virtual students are Alienation, time management and technological barriers. Kurt and Tingoy (2017) assessed the adoption and use of virtual learning environments in higher education using the Unified Technology Acceptance and Use Model (UTAUT). The research data were collected through questionnaires completed by 1032 students currently receiving university education in Turkey and the UK using a similar virtual learning environment. For both countries, expected performance, expected effort, social impact and the role of feasible conditions were reviewed and evaluated. The outcomes of the research revealed that the purpose of the behavior and usage behavior in relation to the use of the virtual learning environment in higher education differs between the two countries, and that the degree of influence of the factors that constitute the purpose. The behavior and usage of behavior also differs from one country to another.

Noteborn et al. (2012) investigated the role of emotions in the virtual world via the level of entertainment and

boredom of students and their impact on the level of student results. A regression analysis was performed to analyse the relation between assignment value and emotions for two types of pedagogue achievement, individual test scores and team score on the second life assignment. The Pekrun Academic Mood Questionnaire (AEC) was used to measure two types of academic moods, boredom and satisfaction. Both academic feelings were measured at the individual level. The outcomes of this research showed that the value of the task is positively related to enjoyment and negatively to boredom, but not related to academic performance. While enjoyment was positively correlated with test performance, boredom was also positively correlated with teamwork performed in the virtual world. Vilaseca and Castillo (2008) aimed to contribute to the cost-effectiveness of e-learning by analyzing a sample of e-learning universities from 1997 to 2002. They wanted empirical evidence to understand whether e-learning is a feasible model for delivering education to universities and what variables make it possible to achieve feasibility. This can be summarized as follows (1) The growth in the number of students is in line with the growth in labor productivity (2) Wage savings are explained by the economic performance of the university (3) Improving the effectiveness of all factors in e-learning involves economies of scale as well as two organizational innovations, outsourcing processes that increase variable costs by reducing them and separate control and use of permitted assets. Horspool and Lange (2012) observed that students choose to take online courses to reduce travel time elegance and avoid scheduling problems. Face to face and the majority of online students did not face technical problems. Both groups also noted that communication with the teacher was adequate. Online students reported that the teacher's response time to questions was prompt. In contrast, online students have found that peer communication is much less common. Course satisfaction was similar for both formats.

Problem Statement and Objective

In the current era, education stands as the most potent tool for a nation's prosperity, and it has become a necessity for everyone. However, achieving higher education or balancing education with employment poses a formidable challenge for a significant portion of the population in countries like Pakistan. Given the increasing demand for education, meeting this demand through traditional means has proven to be impractical (Allen and Seamen, 2010). In this technologically advanced age, virtual learning has emerged as a viable solution to address this demand. Virtual learning offers the ideal alternative for individuals who cannot physically attend campus-based education due to various personal constraints. While traditional education can be prohibitively expensive, virtual learning provides a cost-effective alternative (Elida et al., 2012). Due to traditional educational expenses mostly, bright students cannot get higher education which is a miserable condition of a country. So, to remove these miseries, ICT can be used to acquire education. Virtual learning can be beneficial for those who live far-flung areas of the country. Due to these geographical locations, they must bear transportation costs and other physical education expenses. So, the purpose of this study is to turn the attention of government to of Pakistan towards these emerging problems. Virtual learning will not merely be in favor of student's interest but economic efficiency and development of a country can be gained through the technological innovations. The study's objective is to estimate the impact of different factors affecting students' perception of virtual learning and suggest policy measures.

Methodology

Description of the questionnaire

The nature of the questionnaire is random sampling. A total 30 questions were included in the questionnaire. The questions are distributed into three categories. The first category comprises socio-economic questions, the second category focuses on inquiries regarding the perception of virtual learning, and the third category delves into questions concerning the opportunity cost of virtual learning. A self-designed questionnaire was randomly distributed among individuals in selected districts of Punjab.

questionnaire is circulated via the internet through e-mails and by WhatsApp. pre-testing is conducted at 150 responses to check the validity of the questionnaire.

Data description

The data for the current study was gathered from a sample of 392 respondents without any constraints imposed on their demographic or learning preferences. Data was collected randomly from a diverse group of students, including those following traditional, virtual, or blended learning approaches. The variables exhibit varying units of response, with some presented in dichotomous form and others measured on a Likert scale. Data collection was conducted in five districts of Punjab, namely Hafizabad, Faisalabad, Lahore, Jhang, and Sargodha.

Impact of different factors affecting the perception of students (binary logistic model)

The used model is binary logistic model with different variables, including socio- economic variables.

A binary logistic regression is used to estimate the relationship between students' perception of virtual learning and different factors which contribute to virtual learning perception. The dependent variable is student perception of virtual learning (SPVL) which is in dichotomous form, positive perception =1 and negative perception=0. The explanatory variables are access to a computer, time saving, job career, outcomes and achievements of virtual learning (likert scale), gender (1=male,0=female) and total family members(numbers). Variables are the study are given below.

SPVL = f (AC, TS, JC, OA, GEN, TFM) (1)

Table 1. Description of above-mentioned model.

Name	Variables	Short form	Question's statement	Unit of response
Y (dependent)	Students' perception towards virtual learning	SPVL	Your perception towards virtual learning is positive or negative	Positive =1 Negative=0
X1	Access to computer	AC	You have always easy access to computer	1,2,3,4,5
X2	Time saving	TS	Time can be saved by virtual learning and this saved time can be used in other economic activities	1,2,3,4,5
X3	Job career	JC	Virtual learners can get the job easily	1,2,3,4,5
X4	Outcome and achievements	OA	Outcome and achievements are same in both learning methods	1,2,3,4,5
X5	Gender	GEN	Virtual learning is mostly preferred by women as compared to men	1=male 0=female
X6	Total family member	TFM	Total family members	No. of member

Students' perception about virtual learning (SPVL)

In equation 1 the dependent variable (SPVL) is in dichotomous nature (positive perception=1 and negative perception=0). SPVL mean that what students think about virtual learning. Are they positively or negatively percept it.

Gender (G)

Gender is taken as an independent variable which is in binary form, for male=1 and female=0. Gender is considered the main factor which effects the perception of virtual learning because virtual learning varies gender to gender.

Total family members (TFM)

Total family members are taken as an independent variable. Because large families have a great impact on virtual learning as compare to small families. Total family members are taken as number of family members.

Access to computer (AC)

Computer is the main source for virtual learning. A virtual learner must has an access to computer for learning. Access to computers positively contributes to virtual learning. So, it is taken as an independent variable.

Time saving (TS)

Time is limited in nature, so it can be saved via virtual learning. It is main factors which contributes to virtual learning perception. And this saved time can be used in other economic activities. A person has to be bound of time span in traditional learning while Online learning offers students the opportunity to learn whenever best suits them.

Job career (JC)

Job career is taken as an independent variable. The purpose of taking this variable is to estimate the perception about job opportunities. To estimate, weather the virtual learner also gets the job easily like traditional learner.

Outcomes and achievements (OA)

Virtual learning depends upon OA. The purpose of taking this variable, is to estimate the perception of students about outcomes and achievements of virtual learning. Weather the outcomes and achievement are same in traditional and virtual learning or not.

Results and Discussion

Table 2 provides the number of respondents belonging to each gender category. There were 237 female respondents and 155 male respondents in the sample. Approximately 60.5% of the respondents were female, while about 39.5% were male. Results display the gender composition of the respondents, indicating that a higher percentage of the sample consisted of females (60.5%) compared to males (39.5%).

Table 2. Gender.

Gender	Frequency	Percent
Female	237	60.5
Male	155	39.5
Total	392	100.0

According to Table 3 There were 224 unmarried respondents and 168 married respondents in the sample. Approximately 57.1% of the respondents were unmarried, while about 42.9% were married. Table displays the marital status composition of the respondents, indicating that a higher percentage of the sample consisted of unmarried individuals (57.1%) compared to married individuals (42.9%). The "Unit of response" column is used for coding and does not affect the marital status distribution percentage.

Table 3. Marital status.

Marital status	Frequency	Percent
Unmarried	224	57.1
Married	168	42.9
Total	392	100.0

In table 4, Frequency of education of the respondents shows that virtual learning is more preferred by master's

level of students such as shown by percentage 68.6 as compared to Bachelors and M.Phill, percentage 8.9 and 22.4 respectively.

Table 4. Education of the respondent (ER).

Education of respondent	Frequency	Percent
Bachelors	35	8.9
Masters	269	68.6
M.Phil.	88	22.4
Total	392	100.0

Table 4 represents different income brackets or categories for the fathers of the respondents. The categories are defined as follows: "less than 50000," "50000 to 55000," "55000 to 60000," "60000 to 65000," "65000 to 70000," and "more than 70000."First column presents the coding or numerical representation assigned to each income category. For example, "1.00" is assigned to "less than 50000," "2.00" to "50000 to 55000," and so on. There were 186 respondents whose fathers had an income less than 50000, 49 in the income range of 50000 to 55000, and so on. approximately 47.4% of the respondents had fathers with an income less than 50000, 12.5% had fathers in the income range of 50000 to 55000, and so forth.

Table 5. Income of father (IF).

Income of father	Frequency	Percent
less than 50000	186	47.4
50000 to 55000	49	12.5
55000 to 60000	28	7.1
60000 to 65000	52	13.3
65000 to 70000	16	4.1
more than 70000	61	15.6
Total	392	100.0

In Table 6, the frequencies and percentages of age show that virtual learning is more preferred by those students whose age lie between 26 to 30, percentage of these students is 59.9. And then by those students whose age lie between 31 to 35 such as shown by percentage 27.5 as compared to other age groups.

Table 6. Age.

Age (years)	Frequency	Percent
20 to 25	27	6.8
26 to 30	235	59.9
31 to 35	108	27.5
36 to 40	22	5.6
Total	392	100.0

The Table 7 presents data related to the geographic distribution of the respondents in the sample population, distinguishing between rural and urban regions. There were 144 respondents from rural areas and 248 respondents from urban areas. Approximately 36.7% of the respondents were from rural regions, while about 63.3% were from urban areas. The table displays the geographic composition of the respondents, indicating

that a larger proportion of the sample consisted of individuals from urban areas (63.3%) compared to those from rural areas (36.7%). The "Region" column distinguishes between the two geographic categories, and the "Percent" column provides the respective percentage distribution.

Table 7. Region.

Region	Frequency	Percent
Rural	144	36.7
Urban	248	63.3
Total	392	100.0

In Table 8, the results of binary logistic regression are given. The dependent variable is perception of virtual learning which is in binary form 0 and 1. 1 for positive perception and 0 for negative perception. The perception of virtual learning is estimated with different independent variables to check that which factors positively contributes to the perception of virtual learning and which negatively.

Table 8. Binary logistic regression results.

Variables	B	S.E.	Wald	df	Sig.	Exp(B)
Access to comp	.471	.178	7.015	1	.008	1.601
Time saving	.635	.200	10.066	1	.002	1.887
Job career	.395	.209	3.571	1	.059	1.485
Outcome and achievements	.559	.222	6.332	1	.012	1.750
Gender	-.687	.402	2.913	1	.088	.503
Total family member	-.437	.202	4.689	1	.030	.646
Constant	-3.288	.985	11.140	1	.001	.037

Note: The dependent variable is perception of virtual learning which is in binary form 0 and 1. 1 for positive perception and 0 for negative perception.

The impact of the independent variable of access to computer has a positive and highly significant impact on the positive perception of students about virtual learning. The estimated odds ratio 1.60 indicates that the perception of virtual learning will more likely to increase by 1.60 times positively, if students have easily access to computer. The results shows that if a student has more access to computer, he or she will prefer virtual learning more as compared to a student who have less or no access to computer. It is concluded that the positive perception of students toward virtual learning could be high if there would be easy access of computer to students.

The impact of the independent variable of time saving has a positive and highly significant impact on the positive perception of students about virtual learning. The odds ratio 1.89 of time saving indicates that the student will more likely contributes to the perception of virtual learning by 1.89 time positively, if they observe that time can only be saved via virtual learning. The results shows that if students have high opportunity of time saving then they will more prefer virtual learning as compared to traditional learning. It is concluded that the positive perception about virtual learning could be high if there would be high chances of time saving.

The impact of independent variable of job career has a positive and significant impact on positive perception of virtual learning. The odds ratio of job career 1.49 indicates that the perception of virtual learning will more likely to increase by 1.49 positively, if there are equal chances of getting job for virtual learner like traditional learner. The results shows that if virtual degree holder has an equal chance of getting job like traditional degree holder, then he or she will must prefer the virtual learning. It is concluded that the positive perception of

virtual learning could be high if there would be high chances of getting job with virtual degree.

The impact of independent variable of outcomes and achievements has a positive and highly significant impact on positive perception of virtual learning. The odds ratio 1.75 indicates that the perception of virtual learning will more likely to increase by 1.75 positively if the outcomes and achievements through both learning's are equal. The results shows that students will more positively contributes to the perception of virtual learning if the outcomes and achievements are accurate via virtual learning. It is concluded that the positive perception of virtual learning could be high if there would be high quality of outcomes and achievements.

The gender is statistically insignificant as its value is greater than 0.05 and has the negative relation.

The independent variable of total family members has a negative and highly significant impact on the positive perception of students about virtual learning. The odds ratio 0.65 shows that the students with less family members will more likely positively contribute to the perception of virtual learning. The negative sign with coefficient -.437 shows the inverse relation, such as the student with less family members prefer the virtual learning, which is against our expectations.

Table 9. The Hosmer and Lemeshow Test for Goodness of Fit.

Chi-square	df	Sig.
7.154	8	.520

As shown in Tabe 9, the Hosmer and Lemeshow test is the most trustworthy test for checking the model's goodness of fit for binary logistic regression. If the p <0.05, then the model is not too fit, but in Table 35, the p > 0.05 is like 0.52, which indicates that the model is too fit to data.

Conclusions and Recommendations

The results of this study suggest that in the present technological era, the government should introduce virtual learning through proper channels. Because due to virtual learning, a student can get an education from any corner of the world at a low opportunity cost, as proved in this research. Traditional learning gives students just bookish knowledge instead of actual practice. Virtual learning creates IT skills in students, which are very important for a student in today's technological era. In the development of any economy, virtual learning can be beneficial because education is the main component of development. Traditional learning cannot fulfill the requirements of education for all. The government can make sure education is available for all by introducing virtual learning. Many bright students want to get an education, but they quit their studies due to the many expenses of getting an education on cadies. Virtual learning can fulfill their desire to get an education at a low cost.

References

Allen, I. E., & Seaman, J. (2010). Learning on demand: Online education in the United States, 2009. Sloan Consortium, Newburyport, MA 01950.

Allen, I. E., & Seaman, J. (2011). Going the distance: Online education in the United States (1 -44) 2011. Sloan Consortium, Newburyport, MA 01950.

Anderson, T., & Dron, J. (2011). Three generations of distance education pedagogy. The International Review of Research in Open and Distributed Learning, 12(3), 80–97.

BATURAY, M., & Yukselturk, E. (2015). The role of online education preferences on student's achievement. Turkish Online Journal of Distance Education, 16(3), 3-12.

Chen, T. (2003). "Recommendations for creating and maintaining effective networked learning communities: a review of the literature". International Journal of Instructional Media, 30 (1), 33-34.

Elida, T., Nugroho, W., & Suyudi, I. (2012). Cost effectiveness of web based learning. Procedia-Social and Behavioral Sciences, 65, 1071-1076.

Farid, S., Ahmad, R., & Alam, M. (2015). A hierarchical model for e-learning implementation challenges using AHP. Malaysian Journal of Computer Science, 28(3), 166-188.

Gunes, S. (2019). What Are the Perceptions of the Students about Asynchronous Technology: Current Issues, 11(4), 230-237.

Horspool, A., & Lange, C. (2012). Applying the scholarship of teaching and learning: Student perceptions, behaviours and success online and face-to-face. Assessment & Evaluation in Higher Education, 17(1), 73–88

Hussain, I., Hussain, I., & Ramzan, M. (2019). Future Prospects of Virtual Education in Pakistan: Opportunities and Challenges. Journal of Research in Social Sciences, 7(1), 149-163.

Kasraie, N., & Kasraie, E. (2010). Economies of elearning in the 21st century. Contemporary Issues in Education Research (CIER), 3(10), 57-62.

Kentnor, H. E. (2015). Distance education and the evolution of online learning in the United States; curriculum and teaching dialogue. Information Age Publishing, Charlotte, 17(1/2), 21–34.

Kurt, E, Ö., & Tingöy, Ö. (2017). The acceptance and use of a virtual learning environment in higher education: an empirical study in Turkey, and the UK. International Journal of Educational Technology in Higher Education, 14(1), 1-15.

Liaw, S. S. (2002), "An Internet Survey for Perceptions of Computer and World Wide Web: Relationship, Prediction, and Difference", Computers in Human Behavior, 18(1), 17-35.

Moore, M. G., & Kearsley, G. (2011). Distance education: A systems view of online learning. Cengage Learning.

Noteborn, G., Carbonell, K. B., Dailey-Hebert, A., & Gijselaers, W. (2012). The role of emotions and task significance in virtual education. The Internet and Higher Education, 15(3), 176-183.

Paulson, K. (2008). Tuition/pricing for online learning. Journal of Asynchronous Learning Networks, 12(2), 61-65.

Sun, A., & Chen, X. (2016). Online education and its effective practice: A research review. Journal of Information Technology Education: Research, 15(2016), 157-190.

Vilaseca, J., & Castillo, D. (2008). Economic efficiency of e-learning in higher education: An industrial approach. Intangible Capital, 4(3), 191-211.