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Research Article

A Study of Students Perception about Opportunity Cost of Virtual Learning: An Empirical Evidence from Punjab, Pakistan

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Abstract

This study sheds light on students' preferences and perceptions regarding virtual learning, providing insights into why students might choose virtual learning over traditional or blended learning methods. By examining the opportunity cost associated with virtual learning, the study provides an economic perspective on education choices. This can help educators and students understand the trade-offs involved and make more informed decisions. For this purpose, primary data has been collected from the five districts of Punjab, Hafizabad, Faisalabad, Lahore, Jhang, and Sargodha through a self-made questionnaire. The sample size of the respondents is 392 students. The dependent variables are students' perception of virtual learning (SPVL) and perception of the opportunity cost of virtual learning (OCVL). Data analysis was done by using the binary logistic model and linear regression. The results of binary logistic models show that economics cost, unit cost, gender preferences, job career, and access to the internet are significant and add positive perception to the low opportunity cost of virtual learning while cost-effectiveness is insignificant. The results of the linear regression model show that the economics cost, unit cost, and education of the respondent are significant and add a positive perception to the low opportunity cost of virtual learning while gender and marital status are insignificant. A descriptive statistics summary is used for different socioeconomic variables and for different factors to review which factors or variables positively contribute to the perception of virtual learning and its opportunity cost and which negatively. The policy recommendation is that the government should concentrate on the importance of virtual learning and take necessary measures for this implementation.

Keywords: Students' perception, Virtual learning; Opportunity cost; Conventional learning; Binary logistic regression; Linear regression.

Introduction

The significance of virtual learning will more likely increase if the instances of a country are not favorable for on-campus education like in the current scenario of COVID-19. In COVID-19 the entire world turned into a lockdown situation, so rather than wasting education the entire system of education had been converted into virtual learning. The first eruption of COVID-19 in Vietnam occurred at the end of January 2020, and since then the Government has taken a decisive decision and closed all educational institutions. Schools and universities were then asked to transfer their education to online mode (Pollack et al., 2020). 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 eLearning (Kasraie & Kasraie, 2010).

Computers and the Internet are mainly designed for education, especially for academic purposes in universities. With the 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). A comparison of these two learning techniques can clear the picture of learning by virtual method and learning by traditional method. Virtual learning creates the IT competencies in students' side-by-side learning. The use of ICT in learning enhances the learning pattern and it will increase the interest for learning in students. Students mostly learn by themselves in virtual learning. In online learning, education becomes an instructor focused on the student, and students are more responsible for learning (Koch, 2014; Peterson, 2008). Online learning is less expensive, practical, and favored to increase the possibility of lifelong learning. In particular, there have been several advantages to authorizing "learning at any time and anywhere" compared to existing learning. Students can approach time and room with online course equipment fairly. Students also reflect on learning equipment and responses and allow them to work at their own speed, regardless of race, sex, disability, or appearance (Richardson & Swan, 2003).

The research of the US counseled that online and mixed studying can definitely enhance scholar fulfillment. The U.S. Department of Education in 2009 launched the findings from a meta-analysis of empirical studies on online learning executed between 1996 and 2008. This meta-analysis screened more than 1,100 studies on the subject and reviewed research of both combined learning and complete-time online guides. Based on the research that met their rigorous methodological criteria, they concluded, “On average, students in online learning situations gain higher scores than that one’s receiving face-to-face training” (Means et al., 2013). Virtual education can be achieved in all geographical areas, the need to travel is very low and there is little time to travel, so virtual students can use this time to learn other economic activities. It is less expensive than conventional school education (Adedara & Onwuegbuzie, 2014; Ash, 2009; Abulrub & Attridge, 2011). From an institutional point of view, virtual education is a model with a low educational cost by reducing institutional costs (Ercan, 2010). Virtual education is a profitable and effective agent that provides education to the public (O’neill et al., 2004). Patru and Khvilon (2002) observed that certain types of open and distant learning could be cheaper than certain options and could be more expensive than other options. In addition, the comparative costs of various systems can be alternated over time. In open and remote learning, we can expect the cost of students to be reduced as economies of scale are approached. The cost of providing a remote program can be high but the donation cost of a traditional process is definitely high. Online learning can be profitable and can provide economies of scale (Ruth & Shi, 2001).

Internet and technology are low value, exceptional, and familiar. Information and communique technologies provide opportunities for learners, instructors and employees for powerful verbal exchange in teaching and learning procedures (Van Beek, 2011). Virtual learning has reduced the cost of education not only for the graduates and universities for higher education but also for the students of the schools. Now most schools in Pakistan which are located in advanced societies prefer v-learning for their children at the school level. The students who have an interest of higher education but due to limited financial resources cannot continue their education, they have an opportunity to continue their education through virtual learning. Virtual learning also eliminates the transportation cost for those students who live in far-flung areas of the country. So, it proves that virtual learning is more cost-effective than traditional education. 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 for acquiring education. Virtual learning can be beneficial for those who live far-flung areas of country and due to these geographical locations, they have to bear the transportation costs and other physical education expenses. So, the purpose of this study is to turn the attention of govt. 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 technological innovations. The objective of the study was to review the perception of

students about the opportunity cost of virtual learning to estimate the impact of different factors on the opportunity cost of virtual learning and suggest policy measures.

Review of Literature

Jamalifar and Chalak (2014) conducted research on the cutting-edge usage and practices of the Internet in the procedure of English language learning by Esfahan University of Technology for BA students. For this research, a questionnaire was formulated and the respondents were 100 students of Esfahan University of Technology. The outcomes of the questionnaire were that during class the usage of the internet is still limited. Students had not been encouraged to the use internet by the teachers. The outcomes of the study revealed that for the purpose of English language learning, the internet is a motivational tool due to the fact that, it facilitates the learner to broaden the communication competencies among themselves. Hussain (2007) studied student attitudes towards virtual education in Pakistan. To this end, data was collected from the students of the last semester of BCS at the Virtual University of Pakistan through a questionnaire. Descriptive research was applied. The questionnaire was verified through pilot tests of 40 students. Most of the respondents (89%) agree with the statement that virtual education is an alternative to the formal system at the level of higher education. 94% of respondents believe that virtual education is necessary to keep pace with the global explosion of knowledge in the field of information technology, education, and training. 88% of respondents believe that virtual education integrates the nation through a unified higher education system.

Magaji and Adelabu (2012) examined the cost-benefit of e-learning compared to different ODL approaches. Cost-benefit analysis is used to compare the pros and cons of doing one thing over doing something else. Various factors were used in the study, including the number of enrolled students, the size of the curriculum, the number of years of courses offered without change, the technology used, the level of student support, work experience, etc. The costs of e-learning equipment were also taken into account. As a result of the study, the introduction of e-learning should be made taking into account the special circumstances of developing countries. The high level of poverty means that students cannot pay the same amount they would in developed countries. Moreover, the high cost of e-learning for students due to digital sharing means that full acceptance of ICT is more feasible in the long run. 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 this training or pricing should be based on these actual costs. Farid et al. (2014) recognized the perceived challenges of e-learning implementations. E-learning was taken into consideration as an efficient way which give precise information and communication tools to learners. The consequences of e-learning were explored in society by including the learners and trainees. Data was gathered via a questionnaire from students of public sector universities in Pakistan. The outcomes showed that e-learning importance can't be denied, even though some challenges have faced the learners like language barriers, lack of computer and internet skills, usability, and accessibility. However, e-learning is considered as an efficient and effective methodology for education and training purposes. Liaw and Huang (2011) conducted research and explored individual attitudes and behaviors in the use of electronic learning, and this study suggested gender differences, computer-related experiences, Self-effectiveness and motivational aspects. The result has shown that male students have more positive electronic learning attitudes than female students and that computer-related experiences are a significant predictor of self-efficacy and learner's motivation for electronic learning. In addition, self-efficacy and motivation, which include essential and external motivation, is a prediction variable for behavior intention to use online learning.

Baturay and Yukselturk (2015) conducted a study on the role of online pedagogical preferences in student achievement. This research analyzed the effects of variables demographic, 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 to 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. 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 depends upon well-designed course content, stimulating teacher-student interactions, and well-equipped and fully supported teachers for the purpose of creating a sense of the online learning community and making 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 opportunities for virtual learning in Pakistan 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 faced by virtual students are Alienation, time management, and technological barriers. 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 scores 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 over a period of time 1997–2002. 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.

Methodology

To gather data from the sampled respondents, a convenience sampling technique was employed. The questions were distributed across three categories. A self-made questionnaire was randomly distributed

among individuals in selected districts of Punjab. The questionnaire was circulated via email and WhatsApp. Pre-testing was conducted with 150 responses to validate the questionnaire. The data for the present study was collected from 392 respondents. Data was collected from all types of students, including traditional, virtual, and blended learners. The response units for variables varied; some were dichotomous, while others were measured on a Likert scale. Data collection was conducted in five districts of Punjab: Hafizabad, Faisalabad, Lahore, Jhang, and Sargodha.

Econometric Models

Two different models are estimated for the above-mentioned objective. The first model is a binary logistic model with different variables. The second model is a linear regression model with different variables with socio-economic variables. The explanation of these models is given below.

Binary Logistic Regression

A binary logistic regression model is used to estimate the impact of different factors on the perception of the opportunity cost of virtual learning. The dependent variable is the opportunity cost of virtual learning which is in dichotomous nature. The explanatory variables are economics cost, unit cost, gender preferences, job career, access to the internet and cost-effectiveness which are on the likert scale. The description of variables is given in Table 1.

$$OCVL = \beta + \beta_1 EC + \beta_2 UC + \beta_3 GP + \beta_4 JC + \beta_5 AI + \beta_6 CE + \mu \quad (1)$$

Table 1. Description of the above-mentioned model.

Name	Variables	Short form	Question statement	Unit of response
Y (dependent)	Opportunity cost of virtual learning	OCVL	Virtual learning always has low opportunity cost as compared to traditional learning	Positive=1 Negative=0
X1 (dependent)	Economics cost	EC	Virtual learning has low economic cost than the traditional learning	1,2,3,4,5
X2	Unit cost	UC	Unit cost is reduced in virtual learning as compared to traditional learning	1,2,3,4,5
X3	Gender preferences	GP	Virtual learning is mostly preferred by women as compared to men	1,2,3,4,5
X4	Job career	JC	Virtual learner's ca get the job easily	1,2,3,4,5
X5	Access to internet	AI	High speed of internet is available at your home	1,2,3,4,5
X6	Cost effectiveness	CE	Virtual learning is more cost effective as compared to traditional learning	1,2,3,4,5

Linear Regression Model

A linear regression model is used to estimate the impact of different factors on the perception of the opportunity cost of virtual learning. The dependent variable is the opportunity cost of virtual learning on the Likert scale. The independent variables with demographics are economic cost, unit cost (Likert scale), gender, education of respondent, and marital status (different nature). The description of variables is given in Table 2.

$$OCVL = \beta + \beta_1 EC + \beta_2 UC + \beta_3 Gen + \beta_4 ER + \beta_5 MS + \mu \quad (2)$$

Table 2. Description of the given model.

Name	Variables	Short form	Question statement	Unit of response
Y (dependent)	Opportunity cost of virtual learning	OCVL	Virtual learning always has low opportunity cost as compared to traditional learning	1,2,3,4,5
X1 (dependent)	Economics cost	EC	Virtual learning has low economic cost than the traditional learning	1,2,3,4,5
X2	Unit cost	UC	Unit cost is reduced in virtual learning as compared to traditional learning	1,2,3,4,5
X3	Gender	Gen	Virtual learning is mostly preferred by women as compared to men	Male =1 Female=0
X4	Education of respondent	ER	Education in years	No. Of years
X5	Marital status	MS	Marital status is also in binary form	Married =1 Unmarried=0

Explanation of variables

Perception about opportunity cost of virtual learning (OCVL)

In section 3.4, two models are estimated with same dependent variable (POCVL). In equation 3 the dependent variable is in binary from (positive perception of OC=1 and negative=0). In equation 4 the dependent variable is in 5-point likert scale (strongly disagree=1, disagree=2, neutral=3, agree=4, strongly agree=5). POCVL mean that, are students think that learning via virtual method is less expensive as compared to traditional method. Are they think that virtual learning has always low opportunity cost.

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. It is taken in equation 1 and 4.

Education of the Respondent (ER)

Education of the respondent is also the main factor which contributes to virtual learning perception. Less qualified respondents will more prefer virtual learning than that of high qualified respondent. Less qualified respondent's preference for virtual learning may be due to many reasons like less financial resources, time management and other private affairs. It is used in equation 2 and 4.

Marital status (MS)

It is also taken in equation 4 in binary form as an independent variable, for married=1 and unmarried=0. It is assumed in this study that virtual learning is mostly preferred by married ones as compared to unmarried. Because they cannot manage their learning on campus due to marital affairs.

Job career (JC)

Job career is taken as an independent variable. The purpose to take this variable is to estimate the perception about job opportunities. To estimate, weather the virtual learner also gets the job easily like traditional learner. It is taken in equation 1, 2, 3.

Access to internet (AI)

Access to internet is the base for virtual learning. If a student has the availability of internet, then he must prefer the virtual learning. Access to internet contributes to the perception of virtual learning. it is positively related to the virtual learning. It is taken in equation 2 and 3

Gender preference (GP)

Gender preference is taken an independent variable. Because perception about virtual learning varies gender to gender. In the present study, it is assumed that virtual learning is mostly preferred by women rather than men. it is taken as an independent variable in equation.

Economic cost (EC)

Economic cost is used to compare the one course of action with that of another. In the present study, it is assumed that a student bears low economics cost in virtual learning as compared to traditional learning. It is taken in equation 3 and 4.

Unit cost (UC)

Unit cost is also used to compare the one course of action with that of another. In the present study, the purpose of taking UC is to compare the cost of taking one course in virtual learning and one course in traditional, which one course of learning has a low unit cost. It is taken in equation 3 and 4.

Results and Discussion

Socio-economic Characteristics of the Sample Respondent

In Table 3, the frequency distribution of gender is presented. Out of 392 respondents, 237 are female and 155 are male. The percentage of female respondents is 60.5%, which is higher than the male percentage of 39.5%. This indicates that virtual learning is more preferred by women compared to men.

Table 3. Gender.

Gender	Unit of response	Frequency	Percent
Female	0.00	237	60.5
Male	1.00	155	39.5
Total		392	100.0

Table 4. Marital status.

Marital status	Unit of response	Frequency	Percent
Unmarried =0	0.00	224	57.1
Married=1	1.00	168	42.9
Total		392	100.0

In Table 4, the frequency distribution of marital status is provided. There are 224 unmarried respondents and 168 married respondents. The percentage of unmarried respondents is 57.1%, which is higher than the married respondents' percentage of 42.9%. These results indicate that virtual learning is more preferred by unmarried students compared to married students.

In Table 5, 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 MPhil, percentage 8.9 and 22.4 respectively. Father's income (Table 6) is the main element for getting education.

Table 5. Education of the respondent (ER).

Education of respondent	Unit of response	Frequency	Percent
Bachalors	14.00	35	8.9
Masters	16.00	269	68.6
M.Phill	18.00	88	22.4
Total		392	100.0

Table 6. Income of father (IF).

Income of father	Unit of response	Frequency	Percent
less than 50000	1.00	186	47.4
50000 to 55000	2.00	49	12.5
55000 to 60000	3.00	28	7.1
60000 to 65000	4.00	52	13.3
65000 to 70000	5.00	16	4.1
more than 70000	6.00	61	15.6
Total		392	100.0

Table 7. Age of respondents.

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

In Table 7, 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.

The Impact of Different Factors on The Perception of Opportunity Cost of Virtual Learning

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

The impact of independent variable of economic cost on the perception about opportunity cost of virtual learning is positive and highly significant. The estimated odds ratio 2.33 indicates that the perception about low opportunity cost of virtual learning will more likely to increase by 2.33 times positively, if the chances of low economic cost increases. The results indicate that the perception about low opportunity cost of virtual learning will increase positively if the low economic cost chances increase. It is concluded that the virtual learning is more economical as compare to traditional learning.

Table 8. Binary logistic regression.

Variables	B	S.E.	Wald	df	Sig.	Exp(B)
Economic cost	.844	.193	19.112	1	.000	2.325
Unit cost	.690	.238	8.394	1	.004	1.994
Gender preferences	.324	.164	3.898	1	.048	1.382
Job career	.444	.165	7.251	1	.007	1.559
Access to internet	.393	.159	6.129	1	.013	1.482
Cost effectiveness	-.062	.159	.152	1	.696	.940
Constant	-8.103	1.231	43.348	1	.000	.000

The impact of independent variable of unit cost on the perception about opportunity cost of virtual learning is positive and highly significant. The odds ratio 1.99 indicate that the perception about low opportunity cost of virtual learning will more likely to increase by 1.99 times positively, if the unit cost will be low in virtual learning. The results indicate that as the low unit cost of the virtual learning chances increases the perception about low opportunity of virtual learning will increases. it is concluded that the perception about low opportunity cost of virtual learning could be high as there would be high chances of low unit cost.

The impact of independent variable of gender preferences on the perception of opportunity cost of virtual learning is positive and significant. The odds ratio 1.38 indicates that the women 's perception about low opportunity cost of virtual learning will more likely to increase then men by 1.38 times positively if virtual learning is mostly preferred by women as compared to men. The results shows that positive perception about low opportunity cost of virtual learning by women is greater than men. It is concluded that virtual learning varies gender to gender due to their different natures.

The impact of independent variable of job career on the perception of low opportunity cost of virtual learning has a positive and highly significant. The odds ratio 1.56 shows that if the job opportunities for virtual degree holder increases, they prefer virtual learning so that the perception about low opportunity cost of virtual learning increases by 1.56 times positively. The results shows that perception about low opportunity cost of virtual learning positively effects due to job career. It is concluded that if job career opportunities high then the positive perception about low opportunity cost would be high.

The impact of independent variable of access to internet on the perception of low opportunity cost of virtual learning has a positive and highly significant. The odds ratio 1.48 indicates that the perception about low opportunity cost of virtual learning will more likely to increase by 1.48 times positively, if students have easy and less costly access to computer. The results indicate that the perception about low opportunity cost of virtual learning positively increase due to increase in access to internet. It is concluded that the perception about low opportunity cost of virtual learning could be increase positively if students would be easy access to internet. The impact of independent variable of cost effectiveness has negative and highly insignificant.

Table 9. Hosmer lemeshow test for goodness fit of the data.

Hosmer and Lemeshow Test		
Chi-square	df	Sig.
11.518	8	.174

In Table 9, the hosmer lemeshow test is conducted for goodness fit of the data for the model. When the P> 0.05 then model is too good to fit. In table the P value 0.175 which is greater than 0.05, so it is concluded that the model is too fit.

Table 10. Linear regression.

Variables	B	Std. Error	Beta	t	sig
(Constant)	2.171	.522		4.157	.000
Economic cost	.352	.046	.382	7.623	.000
Unit cost	.332	.052	.317	6.369	.000
Gender	-.093	.066	-.056	-1.411	.159
Education of respondent	-.059	.030	-.079	-1.979	.049
Marital status	.039	.065	.024	.602	.548

In Table 10, the perception about opportunity cost of virtual learning is estimate with different explanatory variables by using linear regression to check which factor positively an which negatively contributes to the perception of virtual learning. The independent variable is in 5-point Likert scale.

The impact of independent variable of economic cost on the perception about opportunity cost of virtual learning is positive and highly significant. If the chance of low economic cost will increase by one unit, then the perception about low opportunity cost of virtual learning will increase positively by 0.352 units. It is concluded that perception about low opportunity cost of virtual learning will increase positively when there are chances of low economic cost increases.

The impact of independent variable of unit cost on the perception of low opportunity cost of virtual learning is positive and highly significant. The perception about low opportunity cost of virtual learning will increase positively by 0.332 units if the chances of low unit cost increases by one unit. It is concluded that if the unit cost is low in virtual learning as compared to traditional learning the the perception about low opportunity cost of virtual learning will increase positively.

The impact of independent variable of gender on the perception about low opportunity cost of virtual learning is negative and highly insignificant.

The impact of independent variable of education of the respondent on the perception about low opportunity cost of virtual learning is negative and highly significant. The inverse relation shows that virtual learning is mostly preferred by those students who are not highly qualified due to many reasons.

The impact of independent variable of marital status on the perception about low opportunity cost of virtual learning is positive but highly insignificant.

Conclusions and Policy Recommendations

The impact of the independent variable of economic cost on the perception of the opportunity cost of virtual learning is positive and highly significant. It is concluded that virtual learning is more economical as compared to traditional learning. The results show that the perception of low opportunity cost of virtual learning could be high as there would be high chances of low unit cost. The impact of the independent variable of gender preferences on the perception of the opportunity cost of virtual learning is positive and significant. It is concluded that virtual learning varies from gender to gender due to their different natures. The impact of gender, time-saving, institutional environment, income of the father, cost-effectiveness, and marital status on the perception of virtual learning and the opportunity cost of virtual learning is highly insignificant. Results showed that students have a highly positive perception of the low opportunity cost of virtual learning as a percentage is 79.6 which is greater than the negative perception. The perception of the opportunity cost of virtual learning is also checked on a 5-point Likert scale. The cumulative percentage 79.6 of agree 63.3 and strongly agree 16.3 shows that students prefer virtual learning because it has always a low opportunity cost. Virtual learning has a low economic cost as compared to traditional learning. Students have a highly positive perception of the low economic cost of virtual learning as a cumulative percentage is 81.4 of agree 62.5 and strongly agree 18.9. The cumulative percentage of 85.0 of agree 65.6 and strongly agree 19.4 shows that

students prefer virtual learning because it has a low unit cost as compared to traditional learning. The virtual learner has to bear the social isolation from his peers and teachers. The positive perception of students about increasing social cost is cumulatively 77.5 %, of agree 61.7 and strongly agree 15.8 shows that social cost is increased by virtual learning. Total cost is the cost that is reduced with virtual learning. The cumulative percentage of 84.6 of agree 54.8 and strongly agree 29.8 which is higher than other percentages, shows that virtual learning must decrease the total cost.

The results of this study suggest that in the present technological era, the government should introduce virtual learning through proper channels. Due to virtual learning, a student can get an education from any corner of the world at a low opportunity cost as it is proved in this research. Traditional learning gives just a bookish knowledge to students 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 for any economy. Traditional learning cannot fulfill the requirements of education for all. The government can ensure education for all by introducing virtual learning. There are many bright students who want to get an education but due to a lot of expenses of getting an education on campus, they quit their studies. Virtual learning can fulfill their desire to get an education at a low cost.

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