A STUDY ON THE EFFECTS OF USE OF ICT ON STUDENT'S ACADEMIC ACHIEVEMENTS AT UNIVERSITY LEVEL AMONG UNDERGRADUATE FEMALE STUDENTS' IN SIALKOT

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Abstract:

Information and communication technology is the demand of the present era. The method of teaching and learning is rapidly changing due to the use of ICT in education. ICT is becoming one of the most important tools of learning in education. The purpose of this research is to explore the effects of Use of ICT on student's Academic achievements among undergraduate female students at the university level in Sialkot. The information and communication technology has a great impact on the quality of education. The female students were selected as a target population from Sialkot enrolled in Government College women university classes. Data were analyzed quantitatively. The data were collected by distributing a well developed and detailed questionnaire to the students within the target population in Government College Women University Sialkot. Random sampling is adopted for this study. The survey research method is used to conduct this study whereby the size 150 sample was questioned through a structured questionnaire. Data was analyzed using (Statistical package for social sciences (SPSS Version 21). The obtained data set will be analyzed by using statistical techniques such as Frequency distribution, Cronbach Alpha reliability and logistic regression.

Keywords: Information and Communication Technology, Usage, University Students, Sialkot, Achievements

INTRODUCTION

The focus of academicians is that the facilities should be provided for the actual implementation of information and communication technology in Pakistani universities. ICT can be used as a helpful tool to promote the quality of education while there is no proper implementation mechanism is available. Yet, it has issues of poor infrastructure, lack of awareness about ICT usage and no proper training (Chandio *et al.,* 2018). In Pakistan many students had no access to ICT gadgets at homes. Students could avail sufficient opportunities at the university level about the use of ICT. The study shows that there exists an association between ICT usage and students academic performance. The more use of ICT in studies would increase the academic performances of students at the university level (Ishfaq et al., 2020). Ali, *et, al.,* (2007) argued that the use of ICT in teaching-learning has been the great focus of

educational researchers' and the use of ICT in educational institutions is a relatively new phenomenon and a challenge for teachers and administrators. The results indicated a strong relationship between ICT usage and the teaching-learning process. The study shows a negative relationship between Information and communication technology and students performances in academia because students do not use information and communication technology in their studies. The role of ICT plays an imperative role in academia (Ullah et al., 2019).

Chiraz karamti (2016) did an HML analysis on the effects of information and communication technology (ICT) on the academic performance in the Tunisian setting. It was found that information and communication technology (ICT) did significantly impact the learning but it was negative. Thus, it called for a more in-depth analysis and effective implementation of ICT in Tunisian educational settings. He argues that several studies supported the positive impacts of ICTs on students' academic achievement. (Schacter, 1999) said Interactive media positively affect the learning and feelings of the understudies who contemplate logical subjects. Basri *et al*., 2018 have found that there is a strong relationship between the students who used the information and communication technology in their studies and their performances. The majority of those students who have access to IT gadgets and the internet would have more academic achievements that those Students have no access to mobile phones and the Internet

Khan et al., 2015 have found that those students who do not consider ICT tools in their studies this attitude will harm their grades. Students used information and communication technology in their group assignment because it would help them to achieve higher grades in their studies. ICT can help the students in their studies such as in making assignments, preparing projects and ppt. Sangria *et, al.,* (2010) have found that information and communication technology play an imperative role in improving teaching and learning processes in primary and secondary schools. There exist a strong relationship between ICT usage and students learning process.

"Technology interacts with many variables: student preparation and motivation, how the student or instructor uses technology, and how well the environment supports learning Instead of asking what impact technology has on student learning, ask how you can incorporate the best-known principles about teaching and learning, using technology as a tool for innovation"

(Spurlin, 2006). According to Chandio *et al.,* (2018) ICT is being implemented in Pakistani universities but still, there is a huge lack of resources such as poor infrastructure, lack of digital equipment, proper training and environment. ICT plays an important role in the quality of education. Teachers, academicians, and professors consider information and communication technology as a helpful tool for students learning and promoting quality of education. The universities have no budget to adopt the technology for the enhancement of quality of education. The government should provide a proper mechanism with the allocation of resources so that universities adopt the modern technology as per the requirements of this world. People are giving more consideration to the new digital tools for learning and teaching. Time has changed now due to innovation and students are realizing the fact that the use of technology in classrooms provides many benefits to the students in learning (Acikalin and Duru, 2005). There is evidence that computer-based courses significantly affect the learning abilities and capabilities of students at every level of education. The use of computers is eminent regarding reading, computer writing (through learning about a Word, PowerPoint, Excel etc.) and drafting. The basics of computers are vital to write assignments and write reports of fieldwork and undergraduate projects as well (Zatand and Nicholus, 2018).
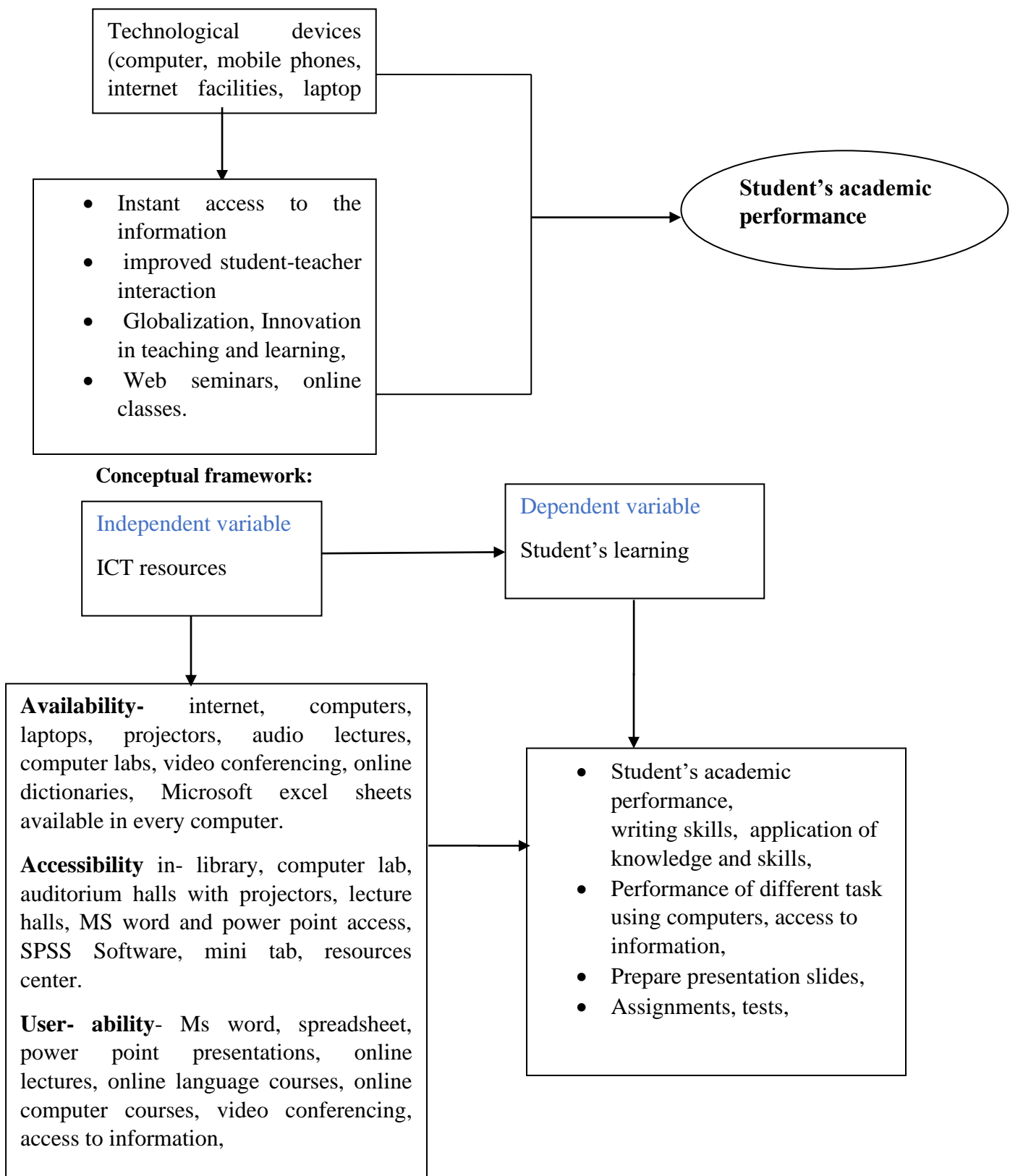
ICT was more helpful in the learning of chemistry students and also an effective tool to attain academic success. If students use ICT to learn the chemistry subject then it would increase the academic grades of students. Teachers should adopt the information and communication technology in teaching so it could enhance the learning of students (Hussain *et al.,* 2017). Training of teachers is an important parameter for teaching information and communication technology in schools. The role of ICT in the education sector helps a lot in enhancing students learning. Those countries where students have access to ICT labs will have more knowledge about the usage of ICT. Hence, students are more involved in learning the ICT tools, teachers teach the students with ICT then it will drastically improve the literacy rate of that country (Olaore, 2014). According to Saravanakumar (2018), the information and communication technology has a great impact on the quality of education. Teachers used ICT to teach their students effectively so that students perform productively. ICT has become an important tool for the development of any country. ICT took place in all spheres of life. ICT also improves the quality of education. Students use ICT in their classrooms for making assignments, preparing exams and projects. According to Hassan and Sajid, (2013) the information and

communication technology plays an important role in every sphere of life. ICTs have a great impact on the education sector. The integration of ICTs should be implemented in Pakistani schools so that students learn from ICT labs digitally. The implementation of information and communication labs in Pakistani schools which can be achieved only when schools have funds. It would be beneficial for students in learning as well as for teachers in teaching. Saleem and Zahra claimed that If students have access to the availability of ICT resources then it will drastically improve the learning of students in schools. Ishtiaq Hussain, *et, al.,* (2017) recommended that information and communication technology must be used in teaching chemistry for enhancing students' academic achievement at the secondary level. The study shows that there exists no association between ICT usage and students academic achievement. The usage of ICT among Female students was lower as compared to male students. Men perform better as compared to women. Male students had access outside home and school while female students paid more attention at home for computer usage (AYPAY, 2010).

Objectives of the study

- The aim is to find out how, when and in what context ICT use in the work with students.
- To check the effects of the accessibility of ICT resources on student's learning in Sialkot different universities.
- To find out the impact of ICT on students learning in Sialkot.

A Conceptual Framework shows the strong Connection between ICT and Students Academic Performance

Technological devices (computer, mobile phones, internet facilities, laptop

- Instant access to the information
- improved student-teacher interaction
- Globalization, Innovation in teaching and learning,
- Web seminars, online classes.

Student's academic performance

Conceptual framework:

Independent variable

ICT resources

Dependent variable

Student's learning

Availability- internet, computers, laptops, projectors, audio lectures, computer labs, video conferencing, online dictionaries, Microsoft excel sheets available in every computer.

Accessibility in- library, computer lab, auditorium halls with projectors, lecture halls, MS word and power point access, SPSS Software, mini tab, resources center.

User- ability- Ms word, spreadsheet, power point presentations, online lectures, online language courses, online computer courses, video conferencing, access to information,

- Student's academic performance, writing skills, application of knowledge and skills,
- Performance of different task using computers, access to information,
- Prepare presentation slides,
- Assignments, tests,

Methodology

The Methodology adopted for this study is Quantitative. The female students were selected as a target population from Sialkot enrolled in Government College women university classes. The data were collected by distributing a well developed and detailed questionnaire to the students within the target population in Government College Women University Sialkot. Random sampling is adopted for this study. The sample size of 150 undergraduate students was selected through simple random sampling. Statistical package for social sciences (SPSS Version

21) was used for the data analysis. Chronbach's Alpha test was conducted to ensure that the research would proceed as predicted and to test the reliability of the data. The obtained data set will be analyzed by using statistical techniques such as Frequency distribution, Cronbach Alpha reliability and logistic regression. The questionnaire contains categorical questions and Likert Scale items. The dependent variable of the model is the average scores of agreements on academic performance using ICT which is calculated as the sum of Likert scale items, ICT improves Academic Performance, Knowledge and Skill Acquisition through ICT and ICT enhance learning and divided by 3. The composition of variables is defined as the dependent variable computer-skills is the average score of agreement about the use and practice of skill and software related to computer. The statements used to calculate the study measure computer skills are a level of agreement about using Word processing, Spreadsheet, Presentation, projectors and computer used to complete projects. The second independent variable is calculated as the average scores of the level of agreement about the use and practices of Internet-based applications such as online instruction, online web seminars, online classes, course notes, learning using computer and internet, internet use for information, ICT develop an interest in learning, using ICT to learn new things, Using ICT to get online experts to help, using ICT to Communicate with people and using ICT to search and manage information of relationships. The primary data is analyzed using the statistical technique, frequency distribution, descriptive analysis, multiple regressions, and Logistic analysis. The functional form of the multiple regressions is given below

$$Y_i = \beta_0 + \beta_1 \text{Computer-Skill}_s + \beta_2 \text{Internet-Use} + \beta_3 \text{Age} + \beta_4 \text{Qualification}_s + \mu_i$$

Where i=1,2,..100 and Y_i is dichotomous dependent variable measure the academic performance and have to possible values 0 for negative performance and 1 for positive performance.

Table 1: Reliability Analysis

Overall Reliability Statistics			
Cronbach's Alpha		N of Items	
.842		36	

Item-Total Statistics			
Item	Cronbach's Alpha	**Item**	Cronbach's Alpha
Age	.842	Spreadsheet	.836
Gender	.844	Presentation	.836

GPA	.847		Online Instruction Blackboard	.835	
what is your highest academic qualification?	.838		Online Web seminars	.831	
Do you like to use ICT?	.843		Online Classes	.831	
Do you have a computer?	.843		Projectors	.834	
How much time do you spend per day on your computer?	.829		Course Notes	.838	
Do ICT and Internet helpful to achieve your academic performance?	.843		ICT improve Academic Performance	.s845	
Do you have a smartphone?	.843		Use Computer to Complete Projects	.845	
How often do you use the smartphone for your studies?	.834		learn Using Computer and Internet	.862	
Does your university have a learning platform or virtual learning environment?	.842		Knowledge and Skill Acquisition	.832	
Computer in classroom	.828		Use Internet for information	.833	
Internet and email	.832		Workforce Presentation	.834	
Projector	.829		ICT develop interest in learning	.839	
Software	.829		use ICT to learn new things	.839	
Computer Lab	.833		Using ICT get online experts help	.845	
Video Conferencing Equipment	.829		Use ICT to Communicate	.841	
Word Processing	.838		use ICT to search and manage information of relationships	.845	

Table 1 showed the reliability of the tool, whereas the overall reliability figure of Cronbach's Alpha is 0.84 which is highly reliable value as well as the table also illustrate the item-wise Chronbach's Alpha value which is higher than .80.

Table 2

	Frequency	Percent		Frequency	Percent
Respondents' age			**Respondents' GPA**		
10-20	33	33.0	2.0-2.59	2	2.0
21-30	64	64.0	2.60-3.09	22	22.0
31-40	2	2.0	3.1-3.59	57	57.0
41-50	1	1.0	3.60-4.00	19	19.0
Total	100	100.0	Total	100	100.0
Respondents' Gender			**Respondents' academic qualification**		
			Intermediate	10	10.0

Male	7	7.0	Graduation	45	45.0
Female	93	93.0	Master	40	40.0
Total	100	100.0	MPhil	5	5.0
			Total	100	100.0

Table 2 presents the frequency distribution of categorical measures. The first column of the table contains the categories of the variables while the second column, the third column, and the fourth column, present the frequency of the categories, the percentages of the frequencies and cumulative percentages respectively. The Majority of the respondent's age 21-30 comprising 64 % and the first column contains 10-20 contain 33 respondent's and the third column 31-40 contains 2 respondent's and the last one 41-50 contains 1 respondent. The results of the table show that there is 93 percent of the respondents are female While 7 percent of the respondents are male. The first column contains the respondent's GPA is 2.0- 2.59 comprising 2%, and the second column contains 2.60-3.09 comprising 22% and the third column contains 3.1- 3.59 comprising 57% and fourth contains 3.60-4.00 comprising 19%. The respondent's academic qualification contains intermediate, graduation, masters and MPhil and first column contain 10 respondent's and the second column contains 45 respondent's and third contains 40 respondent's and fourth contains 5 respondent's.

Table 3

	Frequency (Percent)		Frequency (Percent)
Do you like to use ICT?		**Do you have a smartphone?**	
No	6 (6)	No	2(2)
Yes	94(94)	Yes	98(98)
Total	100(100)	Total	100(100)
Do you have a computer?		**How often do you use the smartphone for your studies?**	
No	4(4)	Never	1(1)
Yes	96(96)	Rarely	1(1)
Total	100(100)	Sometimes	16(16)
How much time do you spend per day on your computer?		Often	22(22)
Never	9(9)	Always	60(60)
Rarely	14(14)	Total	100(100)
Sometimes	46	**Does your university have a learning platform or virtual learning environment?**	
Often	21(21)	No	17(17)
Always	10(10)	Yes	83(83)
Total	100(100)	Total	100(100)
Do ICT and Internet helpful to achieve your academic performance?			

Yes	100(100)

Table 3 shows the frequency distribution of different questions: in our first question Do you like to use ICT? 94% have replied yes while 6% have replied no. the second question: Do you have a computer? From the respondents, 96% have replied yes while 4% of the respondents have no computers. The third question shows the frequency distribution: How much time do you spend per day on your computer? 9% have replied never, 14% have replied rarely, 46% have replied sometimes, 21% have replied often, 10% have replied always. The fourth question: Do ICT and Internet helpful to achieve your academic performance? 100% of respondents have replied yes. In our fifth question; Do you have a smartphone? From the respondents, 98% have replied yes while 2% of the respondents have no Smartphone. In our sixth question, How often do you use the smartphone for your studies? 1% has replied never, 1% has replied rarely, 16% have replied sometimes, 22% have replied often, 60% have replied always. In our last question: Does your university have a learning platform or virtual learning environment? From the respondents, 83% have replied yes while 17% have replied no.

Table 4: The Distribution of Response about Study Measures

The availability of flowing ICT resources in your University	Not Available	Fairly Available	Available	Total
Computer in classroom	52%	18%	30%	100%
Internet and email	9%	43%	48%	100%
Projector	33%	27%	40%	100%
Software	38%	30%	32%	100%
Computer Lab	14%	36%	50%	100%
Video Conferencing Equipment	46%	27%	27%	

How do you equate your knowledge and skills to use the following ICT tools	very Poor	Poor	Good	Very Good	Fair	Total
Word Processing	8%	15%	65%	10%	2%	100%
Spreadsheet	18%	25%	45%	11%	1%	100%
Presentation	7%	14%	55%	22%	2%	100%
Online Instruction Blackboard	14%	36%	42%	7%	1%	100%
Online Web seminars	18%	37%	29%	14%	2%	100%
Online Classes	15%	33%	35%	16%	1%	100%
Projectors	18%	26%	49%	4%	3%	100%
Course Notes	6%	15%	67%	10%	2%	100%

How do you agree and disagree with following statements	Disagree	Don't Know	Agree	Strongly Agree	Total
ICT improve Academic Performance	2%	1%	67%	30%	100%
Use Computer to Complete Projects	2%	1%	66%	31%	100%
learn Using Computer and Internet	8%		57%	35%	100%
Knowledge and Skill Acquisition	1%	2%	61%	36%	100%
Use the Internet for information	3%		60%	37%	100%
Workforce Presentation		6%	57%	37%	100%
ICT develop interest in learning	8%	1%	56%	35%	100%
use ICT to learn new things	8%		51%	41%	100%

Using ICT get online experts help	8%	1%	63%	28	100%
Use ICT to Communicate	2%		57%	41	100%
use ICT to search and manage information of relationships	2%		64%	34	100%

Many students consider ICT tools veryhelpful in that it helps them to do assignments. Teachers see that ICT enables students with special needs or difficulties. It also helps to reduce the social disparities between students, since they work inteams in order to achieve agiven task. Students also assume responsibilities when they use ICT to organize their work through digital portfolios or projects. In addition, the study showed that ICT has significantimpact on students and learning processes. By virtue of university administration and training seminars organized in this regard, ICT tools stimulate students. Indeed, an absolute majority of students in GC University claim to use ICT to do tasks, such as preparing assignments and sequencing classroom activities. Therefore, students plan their lessons more efficiently. ICT also help students to work in teams and share ideasrelated to the curriculum. There is also evidence that broadband and interactive whiteboards play a central role in fostering students' communication and increasing collaboration between educator

From table 4 one of the major aspect affecting the integration of ICT in learning in the classroom which was cited by a majority of respondents 52% said ICTnot available in classrooms, 18% have replied fairly available,30% said available. A small no of 9% respondents said internet and email not available, 43% said fairly available, 48% said available. Projectors for learning purposes was seen as 33% respondents said not available, 27% respondents said fairly available, 40% said available. Software for learning purposes 38% said not available,30% said fairly available, 32% said available. The column fifth shows that majority of the respondents responded to computer lab as available in university, 36 have replied fairly available, 14% said not available. video conferencing equipment for learning purposes was seen as 46% respondents responded to video conferencing not available, 27% respondents said fairly available, 27 respondent to available.

Knowledge and skills compare with the help of ICT

Results shows us that greater part of the 65% respondents emphasized that their skills to use MS word is Good, 10% said very good, 15% said poor, 8% said very poorly, 2% said very poorly. For spreadsheet 18% said very poor, 25% said poor,45% responds to good, 11% responds to very good, 1% respondents said fair. The presentation used for better communication and learning 7% respond to very

poor, 14% responds to the poor, 55% respondents said good, 22% respondents respond to very good, 2% said fair. Online instruction blackboard for learning purposes majority of the 42% respondents responds to good, 7% respondents said very good, 36% said poor, 14% said very poorly. 1% responds to fair. Online seminars for learning purposes 18% responds to very poor, 37% responds to the poor, 29% responds to good, 14% responds to very good, 2% responds to fair. Online classes for learning purposes 15% said very poorly,33% responds to poor, 35% responds to Good,16% responds to very good, 1% respondent said fair. Projectors for learning purposes was seen as 18% said very poor, 26% poor,49% said good, 4% said very good, 3% said fair. Course notes used for exams reparation, tests, assignments: 6% respondents said very poor, 15% said poor, 67% responds to good, 10% responds to very good, 2% respondents respond to fair.

Discussion

I. 67% agree with the statement that ICT improve my academic performance, 30% strongly agree, 2% disagree, 1% don't know.

II. 66% agree with the statement that they use a computer to complete their projects.31% strongly agree, 2% disagree, 1% of respondents don't know.

III. 57% respondents agree with the statement that they use the internet for learning, 35% strongly agree, 8% disagree.

IV. 61% respondents agree that they use ICT for knowledge and acquisition, 36% of respondents strongly agree, 3% of respondents disagree with the statement.

V. 60% respondents agree that they use the internet for information, 37% strongly agree, 3% respondents disagree.

VI. 57% respondents agree that they use ICT for workforce preparation, 37% respondents strongly agree, 6% of respondents don't know.

VII. 56% respondents agree that ICT develop an interest in learning, 35 % respondents strongly agree, 8% disagree, 1% don't know.

VIII. 51% respondents agree that they ICT to learn new things,41% respondents strongly agree, 8% respondents disagree.

IX. 63% respondents agree that they use ICT get online experts to help, 8% disagree, 25% strongly agree.

The availability of the following ICT resources in your university
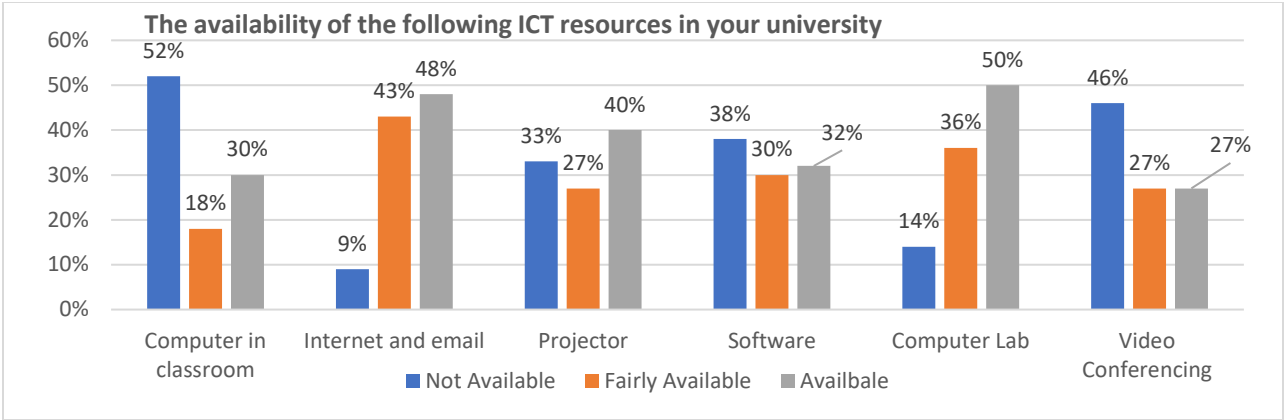
The above figure depicts that majority (52%) of the respondents did not have computer in their class rooms while majority (48%) of the respondents have email and internet facility in their class rooms. The majority (40%) of the respondents reported that they have projector facility in their university. The maximum respondents reported that the software are provided by their university while the majority of the students have computer lab in their universities. The majority (46%) of the students reported that they did not have video conferencing facility in the university.

How do you equate your knowledge and skills to use the following ICT tools
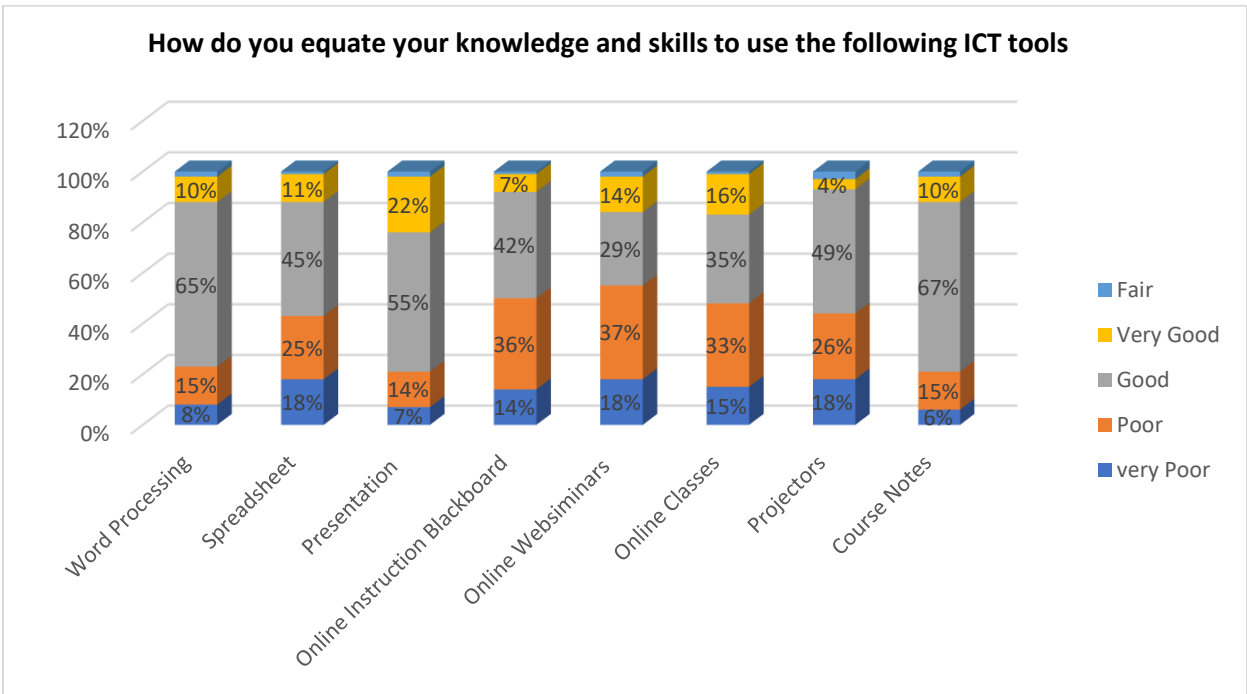
The above figure shows that the majority of the respondents have a good amount of skills to handle these software. The students relatively reported poor skills in word processing, spreadsheets, presentation, and course notes.

How do you agree and disagree with following statements
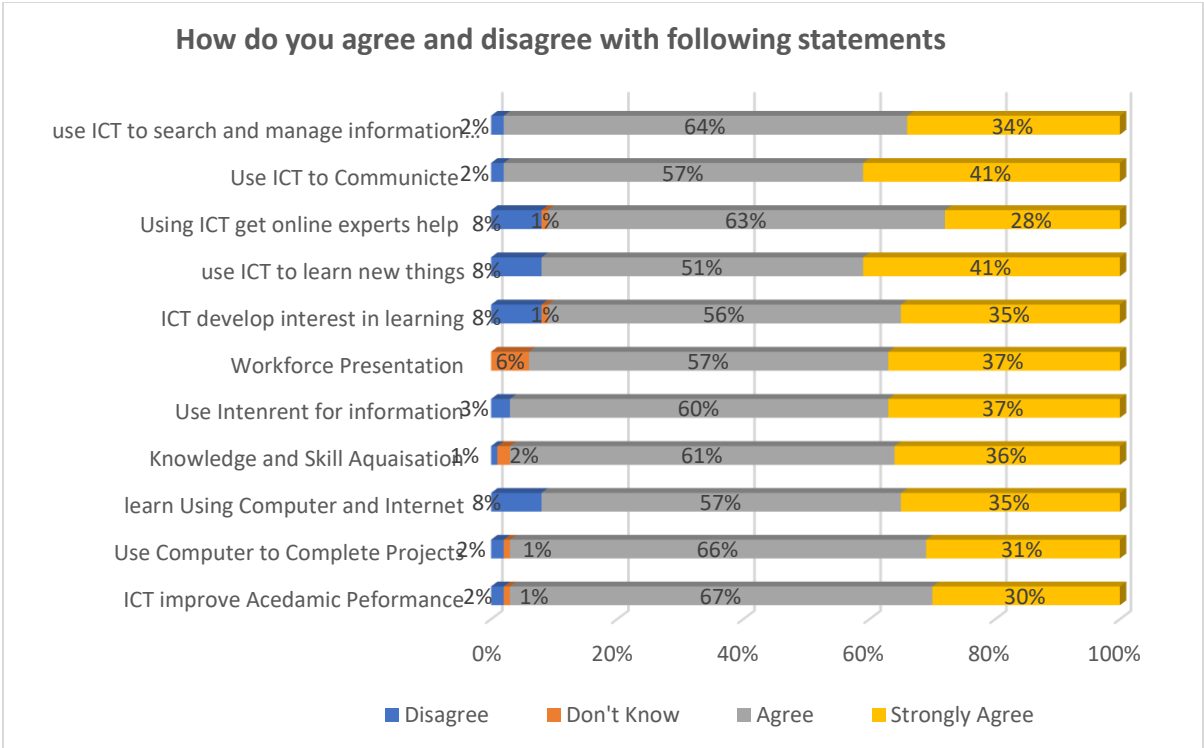
The above figures depict that the majority of the respondents are agreed about the relevant use of ICT application. The second majority of the respondents are strongly agreed about the relevant use of ICT application.

Table 4: Logistic Regression Analysis

Academic Performance	Odds Ratio	Std. Err.	[95% Conf.	Interval]
Odd Ratios				
Computer Skills	1.898011*	0.46888	0.322732	2.498741
Internet Use	1.918149*	4.340029	0.872283	27.72975
Respondents' Age				
21-30	0.839453	0.456692	0.28901	2.438257
31-40	1.534134*	5.079821	0.049836	128.8586
Respondent's Qualification				
Graduation	0.5397	0.479801	0.094498	3.082352
Master	0.435615*	0.407404	0.069667	2.723827
M.Phil.	1.507898*	0.16526	0.005362	2.17142
_cons	0.02073	0.055856	0.000106	4.074867
Model Summary				
N				91
LR chi2(7)				7.23*
Pseudo R2				0.1719

(" * "indicate the value is statistically significant at 5% level of significance)

The logistic regression model has one binary dependent variable with interval scale variables such as Computer Skills and internet use and two indicator variables such as Respondents' Age and Respondents' Qualification. The results of model summary statistics show that the model is statistically significant as the p-value of the LR chi-square value is less than a 5% level of significance. The computer skills increase the odds of good (positive) academic performance by 89% significantly While additional use of the internet significantly increases the odds of good (positive) academic performance by 92%. The age group of 31-40 years has 53% high the odds of performing good in academics relative to the age group of 10-20 years and the odds ratio is statistically significant at 5% level of significance. The students of the master program have 56% lower the odds of performing well in academics relative to the intermediate students and the odds ratio is statistically significant at 5% level of significance. The MPhil students have 51% higher and significant odds of performing well in academics relative to the intermediate students.

Conclusion

Information and communication technology has a significant role in the quality of education and it is the demand of students also. ICT has brought a huge change in academia.   Additional findings of the study revealed that students' computer skills increase the odds of good (positive) academic performance significantly while the additional use of the internet significantly increases the odds of good (positive) academic performance using ICT. The majority of the students have a good amount of skills to handle ICT based on the internet while some students reported poor skills in computer software. Further, the age group of 31-40 years has high odds of performing well in academics using ICT relative to the age group of 10-20 years. Furthermore, the Research students have higher odds of performing well in academics using ICT relative to the intermediate students. The results of the study showed that the increased use of ICT in studies would increase the chances of good performance in academia. ICT played an imperative role in students' academic achievements.

Recommendation

It is recommended that proper ICT facilities must be provided to the students at the university level so that students use the ICT facilities in their studies to improve the academic performances. Appropriate training should be given to teachers so that students can learn from them about ICT skills.

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