UTILIZATION OF ICTs IN TEACHING LEARNING PROCESS AT UNIVERSITY LEVEL IN KHYBER PAKHTUNKHWA

Allah Noor Khan[1], Sohail Ahmad Shah[2] & Mati Ullah Khan[3]

[1]Institute of Education & Research, Gomal University, Dera Ismail Khan, KP, Pakistan
[2]M.Phil Student, Institute of Education & Research, Gomal University, Dera Ismail Khan
[3]Department of Education & Research, Sub-Campus Lakki Marwat, UST Bannu

ABSTRACT

The study was descriptive in nature. The key objective of the study was to examine both gender and faculty-based responses of the respondents regarding utilization of ICTs in teaching learning process at university level. The population of the study included all teachers and students of five faculties of Gomal university Dera Ismail Khan i.e. faculty of arts, science, agriculture, pharmacy and IET. There were approximately 5000 students and 300 teachers in the faculties. The sample was selected according to 10% sample of large population and 20% of small population. It was quite difficult for the researcher to collect data from all the teachers and students so the researcher selected only 500 students (10%) and 150 teachers (20%) from the five faculty of Gomal University Dera Ismail Khan by applying stratified random sampling technique. The main purpose of the study was to determine utilization of ICTs in teaching learning process at university level in Khyber Pakhtunkhwa. Data was collected through questionnaire by using five points Likert scale. Major findings and results of the research study showed that both genders (Male & Female) teachers and students in all the sampled faculties have positive responses regarding utilization of ICTs in teaching learning process at university level in Khyber Pakhtunkhwa, Pakistan. Therefore, null hypothesis was hereby accepted.

Keywords: *ICTs, Teaching-Learning Process, Teachers, Students & University Level*

INTRODUCTION

ICTs includes communication device or application such as radio, television, cellular phones, computer and network hardware and software, satellite systems etc. or various services and applications related with them, such as video conferencing and distance learning (Rouse, 2005). In past Peoples used different equipment and methods for communication process such as stones, papyrus, leaves of palm, leather of animals and skillfully hand crafted and illuminated manuscripts for storing and transmitting the information from one place to another place; today education depends upon print and graphic aids so computer and its linked technologies may also be used in education (Hussain, 2004). ICT covers those items that will store, recover, control, transmit or get data electronically in a computerized shape like PCs, computerized TV, email, robots, get to cards, cell phones, scanner, therapeutic instruments, TV remote controls, microwaves Ovens, DVD players, advanced cameras and so forth (Wikitext, 2010). Education has fully developed in the 21st century because of development of ICTs and most of the advanced universities use latest

technology i.e. multimedia, projector and computer etc. for administrative and teaching-learning purposes (UNESCO, 2002; & GoP, 2003).

The quality of teachers' instructional materials and their teaching methodologies can be improved through proper use of ICTs (Albirini, 2006; Baylor & Ritchie, 2002). Pakistan is positioned at 102 (score 3.39) in front of Iran (104, score 3.36) and Bangladesh (113, score 3.20) while behind India (69, score 3.89) and China (51, score 4.11). Numerous key activities particularly explanations of IT approach, activity arrangement, National Data and Correspondence Innovation (NICT) System for Training in Pakistan, have been taken for the advancement of ICTs in Pakistan (WEF, 2012). Developed countries utilize information technology as necessary element in teaching learning process. She says that, 21st century education will be based on this new technology (Pernia, 2008). ICTs are helpful for developing confidence, enhancing quality of work and developing positive attitude in students towards school work (Passey & Rogers, 2004).

LITERATURE REVIEW

(Wikitext, 2010) found that ICTs are characterized as computer based assets, arranged & standalone with equipment & important programming. (Reddi, 2004) described that in rising nations of Asia, every single nation is attempting to make a group of labors to build openings for work in PCs i.e. in equipment and programming making or preparing of individuals in the field of PC designing. Frequently, ICTs in Education strategy of an administration portrays how PCs will be put in schools. So here is the point that how educators and understudies will be given the fundamental PC preparing aptitudes to supply to the rising occupation advertises in PC based innovations. (Reddi, 2004) explained that remove instruction colleges generally utilize ICT to bolster the print content that they pass on to the understudies. These include communicate sound and video, for example, radio and TV programs. The sound and video tapes are likewise conveyed to understudies for learning. Presently days, mixed media substance, for example, lessons which are likewise conveyed to understudies for learning in type of CDs. This sort of training is here and there called sight and sound instruction; in interactive media training different media are utilized to bolster learning.

(Reddi, 2004) asserted that ICTs empowered instruction is those instructive projects that is absolutely conveyed through ICTs or with ICTs conveyed such as online courses through the web. Fulton, (2004) investigated that it is mandatory for teachers to learn ICTs during their training and to every now and then update their knowledge while practicing to keep up with the rapid technological changes. (Pernia, 2008) pointed out that developed countries utilize information technology as necessary element in teaching learning process because it provides psychological support to the learners and it is source of motivation and interest of the students. Passey and Rogers (2004) found that ICTs are helpful for developing confidence, enhancing quality of work and developing positive attitude in students towards school work. to (Wills & Finch, 2016) investigated that developing countries are trying to improve the quality of education through using ICTs; ICTs

provide teachers and students opportunities to gain information and assistance from developed countries; through Distance Education, ICTs are helpful to educate the students in rural areas and it may assess the special children as well as girls' students who cannot attend their institutions due to social constraints.

Pernia, (2008) claimed that teachers and the students get expert opinion and easily increase their knowledge through using ICTs; teachers and students depend on print materials but they also gain worldwide information through using ICTs such as South Asian countries feel the need of using ICTs for School Education because it improve curriculum, instructional standard and administrative tasks. Noor ul Amin (2013) and Long (2001) described that radio, TV, computer, multimedia, projector, internet etc. are latest sources due to which the quality of education can be highly improved and enhanced. (Elemiafi, 2004) inspected that computer training may end up being preposterous for the understudies in light of cost of convenient Computers, remote extensive band, projectors, gear and programming of Computers and repairing all these things. Other than in the making countries like Pakistan there is an issue of annihilation of force especially in common extents and in less made urban regions. The pile shedding is around 16-18 hours for consistently while the telephone promoters are various miles far from the schools. Classrooms space, security, purchase of gear and programming moreover staff get ready is required yet our educational spending arrangement is confined. In our entire spending arrangement, only 2.5 percent is given to the guideline. In such a school spending arrangement, it is difficult to deal with the expense of ICTs at discretionary school level.

When understudies use compact workstations or tablets for their studies and they have online tests then a bit of the understudies use interpersonal association districts like Twitter and Facebook. They take less eagerness for teacher's headings and play different entertainments realizing securing low academic assessments. (Esfandiari, 2012) found that 90% of male undergraduate use interpersonal organizations. The understudies use portable workstations, pocket computers, I-cushion and basic cellular telephones for interpersonal organizations. (Kent & Facer, 2004) demonstrated that school is a basic space in which understudies appreciate a broad assortment of PC activities, while the home serves as a vital site for typical engagement in a littler course of action of PC activities. Progressively, ICT is being connected successfully in course, learning, and evaluation. ICT is viewed as an extreme gadget for educational change and change. (Hinostroza, et al., 2004) investigated that ICTs are highly essential for the advancement of schools, teachers' training and students. (Guma & Haolader, 2013) explained that ICTs are quite helpful for learners by creating intellectual abilities, basic intuition capacities, data access, assessment and composing skills; ICTs give quick and exact input to learners. (Lowther, 2008) communicated that there are three basic ascribes are required to develop awesome quality educating and learning with ICT: independence, capacity, and imaginativeness.

Conceptual Framework Regarding ICTs at University Level

Statement of Problem

It is very important to introduce the concept of ICTs at university level in order to increase the teaching and learning standard of both teachers and students. The problem of the study was to examine the responses of teachers and students of both genders (Male and Female) regarding utilization of ICTs in teaching learning process at university level in Khyber Pakhtunkhwa.

Objectives of Study

The following were the key objectives of the study:

- To examine gender-based responses of different faculties' teachers regarding utilization of ICTs at university level in Khyber Pakhtunkhwa.
- To determine gender-based views of different faculties' students about utilization of ICTs at university level in Khyber Pakhtunkhwa.
- To compare the responses of teachers and students of both genders regarding utilization of ICTs at University level in Khyber Pakhtunkhwa.

Hypotheses of Study

The following are the hypotheses of the study:

H_1: The responses of different faculties' teachers of both genders are positive regarding utilization of ICTs at university level in Khyber Pakhtunkhwa.

H_2: The views of different faculties' students of both genders are positive regarding utilization of ICTs at university level in Khyber Pakhtunkhwa

H_3: There is no significant difference between the views of different faculties' teachers and students of both genders about utilization of ICTs at university level in Khyber Pakhtunkhwa

RESEARCH METHODOLOGY

Design of Study

The study was descriptive in nature.

Population of Study

The population of the study included all teachers and students of five faculties of Gomal University Dera Ismail Khan. There are total 1160 students and 99 teachers in faculty of Science, 1040 students and 78 teachers in faculty of Arts, 1013 students and 67 teachers in faculty of Agriculture, 1067 students and 32 teachers in faculty of Pharmacy, 720 students and 24 teachers in faculty of Engineering and Technologies. The population is presented in the table below.

Table 1: Population of the Study

Faculties	Total Teachers	Total Students	Grand Total
Science	99	1160	1259
Arts	78	1040	1118
Agriculture	67	1013	1080
Pharmacy	32	1067	1099
Engineering and Technologies	24	720	744
Total	300	5000	5300

Sample of Study

In this particular descriptive study (survey method), only Gomal University Dera Ismail Khan was selected as a sample out of the three universities in Dera Ismail Khan i.e. Gomal University Dera Ismail Khan, Qurtaba university Dera Ismail Khan and Sarhad University Dera Ismail Khan. There are five faculties in Gomal University i.e. (Faculty of Arts, Faculty of Science, Faculty of Agriculture, Faculty of Pharmacy and Faculty of Engineering and Technology). There are approximately 5000 students and 300 teachers in the above-mentioned faculties. The sample was selected according to the Gay, (2003), He suggests 10% sample of large population and 20% sample of small population. It is quite difficult for the researcher to collect the data from all the teachers and students so the researcher selected only 500 students (10%) and 150 teachers (20%) from the Five Faculty of Gomal University Dera Ismail Khan by applying stratified random sampling technique. Sample is shown in the table below:

Table 2: Description of Sample

Faculties	Teachers	Students	Total
Faculty of Arts	30	100	130
Faculty of Science	30	100	130
Faculty of Agriculture	30	100	130
Faculty of Pharmacy	30	100	130
Faculty of Engineering and technology	30	100	130
Total	150	500	**650**

Gay, (2003) Sample Size

Population Size	Sample Size
< 100	Entire Population
~ 500	50% (250)
~1,500	20% (300)
> 5,000	500

John Curray Sample Size Rule of Thumb as shown below

Size of Population	Sampling Percentage
10-100	100%
101-1,000	10%
1,001-5,000	5%
5,001-10,000	3%
10,000+	1%

Instrumentation

Questionnaire was used as research tool for the collection of data. The questionnaire items for this study were in the form of Five Points Likert Scale i.e. Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA) and Strongly Disagree (SDA) carrying values 5, 4, 3, 2 and 1. The questionnaire was designed to collect information on students and teachers about utilization of ICTs in teaching learning process at Gomal University Dera Ismail Khan.

Pilot Testing

The research instrument was 1st pilot tested on hundred students and twenty teachers. The following changes were made to the instrument in accordance with the suggestions of respondents.

- Ambiguity from items
- Clarification of the wording in the statement
- Identification of complications in the questionnaires
- Identification of the features for the improvement of research tools.

Reliability and Validity of Instrument

Reliability was checked through SPSS (Version 20.0) which was 0.922 and 0.903 (Cronbach's alpha).

Cronbach's alpha a commonly accepted rule for describing internal consistency.

Cronbach's Alpha	**Internal Consistency**
α ≥0.9	Excellent
0.9 > α ≥0 .8	Good
0.8 > α ≥ 0 .7	Acceptable
0.7 > α ≥0.6	Questionable
0.6 > α ≥0 .5	Poor
0.5 > α	Unacceptable

To make the instrument valid, it was sent for expert's opinion to committee of educationists, researchers, statisticians, and language experts. Their opinions were incorporated for betterment.

Data Collection

The researcher personally visited all faculties of Gomal University D.I.Khan to collect data and friends help was taken in this regard. A reference letter was presented before the heads of the faculties and teacher's cooperation was sought through their heads.

Data Analysis

The coded data were analyzed by utilizing statistical techniques such as Mean; independent samples t-test, one sample t-test, one-way ANOVA and tuky test for multiple comparisons. For the measurement of overall utilization of ICTs in TLP at university level, Mean scores were placed into three categories:

1.00 – 2.49 = Below Average
2.50 – 3.49 = Average
3.50 – 5.00 = Above Average

Significance of Study

Utilization of ICTs is very significant at university level because ICTs enhance teaching learning process as shown below:

- ICTs include Internet, Multimedia, Projector, Remote Systems, Cell Phone, TV, Video Conferencing and other correspondence mediums and without all these technologies teaching learning process never improve and enhance at university level in Khyber Pakhtunkhwa.

- The specific study may help the university students to recognize and utilize ICTs by making the learning procedure more successful in Khyber Pakhtunkhwa.
- This study may be useful for the new scientists to diminish the hindrances at university level in Khyber Pakhtunkhwa.
- The study may be useful for improving the instructional capabilities of university teachers in Khyber Pakhtunkhwa.
- The study may give guidance to the individuals who attempt inquiries regarding this field.

Table 3: Demographic information of Teachers

Demographic Figures/Information		**Frequency and Percentage**	**Total**
Gender	Male	75 (50%)	150 (100%)
	Female	75 (50%)	
Qualifications	Master	5 (3.3%)	150 (100%)
	M.Phil.	50 (33.3%)	
	Ph.D.	95 (63.3%)	
ICTs Experience	1-6 years	62 (41.7%)	150 (100%)
	7-12 years	65 (43.3%)	
	13-18 years	23 (15%)	
Teaching Experience	1-10 years	102 (68.3%)	150 (100%)
	11-20 years	33 (21.7%)	
	21-30 years	15 (10%)	
Designations	Lecturer	25 (16.7%)	150 (100%)
	Assistant Professor	50 (33.3%)	
	Associate Professor	50 (33.3%)	
	Professor	25 (16.7%)	
Age	21-32 years	25 (16.7%)	150 (100%)
	33-44 years	75 (50%)	
	45-56 years	50 (33.3%)	
Faculties	Arts	30 (20%)	150 (100%)
	Science	30 (20%)	
	Agriculture	30 (20%)	
	Pharmacy	30 (20%)	
	IET	30 (20%)	
Students' Demographic Information			
Faculties		**Selected Respondents**	500
Faculty of Arts		100	
Faculty of Science		100	
Faculty of Agriculture		100	
Faculty of Pharmacy		100	
Faculty of IET		100	

Table 3 along with figure shows that out of teachers' respondents (n=150, 75 male teachers and 75 female); likewise out of students' respondents (n = 500, 100 respondents are taken from each faculty in Gomal University, D.I.Khan. Similarly, the qualifications of 3.3% teachers are Masters, 33.3% M.Phil and 63.3% teachers are Ph.D degree holders at university level; teachers with ICTs experience of 1-6 years are 41.7%, teachers having 7-12 years' experience are 43.3% and teachers

with 13-18 years' experience are 15% respectively. Teaching experience of teachers are 68.3% teachers have 1-10 years' teaching experience, 21.7% teachers have 11-20 years' experience and 10% teachers have 21-30 years' experience at university level in Khyber Pakhtunkhwa. Likewise from designation point of view, 16.7% teachers are lecturers, 33.3% teachers are Assistant Professors, 33.3% teachers are Associate Professors and 16.7% teachers are Professors at university level in Khyber Pakhtunkhwa, Pakistan. In the same way 16.7% teachers were 21-32 years old, 50% teachers have 33-44 years ages and teachers of 45-56 years ages are 33.3% respectively and 20% teachers are taken from each faculty i.e. faculty of arts, science, agriculture, pharmacy and IET.

Table 4: Teachers and Students' responses regarding utilization of ICTs

Demographic Figures		**Mean Value**	**Std. Deviation**	**t-value**	**p-value**	**n**	**N**	**Total Numbers of respondents as samples = 650**
Teachers' Responses								
Gender Based Teachers' Views	Male Teachers	3.8890	.32812	14.840	.000	75	150	
	Female Teachers	3.8960	.28088	17.472	.000	75		
Faculty Based Teachers' Views	Arts Faculty	3.8925	.30284	22.828	.000	30	150	
	Science Faculty	3.7983	.34957	7.911	.000	30		
	Agriculture Faculty	3.7717	.33726	7.926	.000	30		
	Pharmacy Faculty	3.9900	.26475	12.954	.000	30		
	IET faculty	4.1042	.14311	26.727	.000	30		
Students' Responses								
Gender-Based Students' Responses	Male Students	3.7264	.55415	20.727	.000	250	500	
	Female Students	3.8273	.49861	26.235	.000	250		
Faculty-Based Students' Responses	Arts Faculty	3.7164	.48223	14.856	.000	100	500	
	Science Faculty	3.7007	.51529	13.598	.000	100		
	Agriculture Faculty	3.7721	.47557	16.235	.000	100		
	Pharmacy Faculty	4.0010	.58329	17.161	.000	100		
	IET faculty	3.6942	.52805	13.147	.000	100		

Table 4 shows that the Mean values of gender-based responses of teachers are 3.8890 male, 3.8960 female; SD = .32812 male, .28088 female; t-value = 14.840 male, 17.472 female and p-value = .000 of both genders which is less than 0.05. It means that the responses of both genders (male & female) teachers are positive regarding utilization of ICTs in teaching learning process at university level in Khyber Pakhtunkhwa, Pakistan. Therefore, null hypothesis is hereby accepted. Likewise the Mean values of faculty-based teachers i.e. Arts Faculty, Science Faculty, Agriculture Faculty,

Pharmacy Faculty and IET Faculty are 3.8925, 3.7983, 3.7717, 3.9900, and 4.1042; SD = .30284, .34957, .33726, .26475 and .14311; t-value = 22.828, 7.911, 7.926, 12.954 and 26.727; and p-value of each faculty is 0.000 < 0.05 which indicates that teachers' views of Arts, Science, Agriculture, Pharmacy and IET faculties are positive regarding the utilization of ICTs in teaching learning process at university level. Hence null hypothesis is here by accepted.

The Mean values of gender-based responses of students are 3.7264 male students, 3.8273 female students; SD = .55415 male students, .49861 female students; t-values = 20.727 male students, 26.235 female students and p- value .000 < 0.05 which indicates the responses of both genders (male & female) students are positive about the utilization of ICTs in teaching learning process at university level in Khyber Pakhtunkhwa, Pakistan. Therefore, null hypothesis is hereby accepted. Similarly the faculties of Arts, Science, Agriculture, Pharmacy and IET of students have Mean values 3.7164, 3.7007, 3.7721, 4.0010 and 3.6942; SD = .48223, .51529, .47557, .58329 and .52805; t-value = 14.856, 13.598, 16.235, 17.161 and 13.147 respectively while p-value of each faculty of students is .000 < 0.05 which reveals that students' responses of Arts, Science, Agriculture, Pharmacy and IET faculties are positive regarding the utilization of ICTs in teaching learning process at university level. Hence null hypothesis is here by accepted.

RESULTS AND DISCUSSION

Data was taken from (N = 650 respondents) in which (n = 150 respondents were teachers and n = 500 respondents were students). The sampled respondents were selected from five faculties in Gomal University i.e. faculty of arts, faculty of science, faculty of agriculture, faculty of pharmacy and faculty of IET. The numbers of sampled respondents from each faculty were 30 teachers and 100 students. Questionnaires were properly distributed among the sampled respondents and their responses were taken and sought out. The result was shown in tabulation form and it was finally found and indicated in the result that the responses of both genders (Male and Female) in teachers and students in the selected five faculties were positive regarding the utilization of ICTs in teaching learning process at university level in Khyber Pakhtunkhwa, Pakistan and null hypothesis was accepted.

CONCLUSION

It was concluded in the light of findings and results that ICTs play a vital role in the development and enhancement of education at university level in Khyber Pakhtunkhwa because the responses of both genders in teachers and students in all sampled faculties of Gomal University D.I. Khan were positive about the utilization of ICTs in teaching learning process at university level.

References

Albirini, A. A. (2006). Teacher's attitudes toward information and communication technologies: the case of Syrian EFL teachers. *Journal of Computers and Education*, 47, 373-398.

Baylor, A., & Ritchie, D. (2002). What factors facilitate teacher skill, teacher morale, and perceived student learning in technology-using classrooms? *Journal of Computers & Education*, 39 (1), 395-414.

Elemiafi. (2004). Disadvantages of using ICT in Schools Retrieved from: http//ictlearningi nschools.weebly.comdisadvantagesofusingICTinschools.html.

Esfandiari. (2012). Improving multi agent systems based on reinforcement: J. Cain, Online Social networking issues with in academia and pharmacy education. *American Journal of Pharmaceutical Education*, 72, 10.

Fulton. (2004).. Learning Point Associates, 1120 East Diehl Road, Suite 200, Naperville, IL 60563-1486-800-356-2735. *Teacher Education and Technology Planning Guide;* 630, 649-6500.

GoP. (2003).National Information and Communication Technology Strategy for Education in Pakistan, Islamabad.

Guma, A., & Haolader. F. A, (2013). The role of ICTs to make teaching-learning effective in higher institutions of learning in Uganda. *International Journal of Innovative Research in Science, Engineering and Technology*, 2 (8), 4061–4073.

Hinostroza, S.E., Hepp, K. P., Laval, M.E., Rehbein, L. F. (2004). Technology in schools: Education, ICTs and the Knowledge Society. [Internet] OECD. Retrieved September 25, 2010 from: www1.worldbank.org/education/pdf/ICT_report_oct04a.pdf.

Hussain, I. (2004). A study of emerging technologies and their impact on teaching learning process and their impact on teaching learning process, 286.

Kent, N., & Facer, K. (2004). Different worlds? A comparison of young people's home and school ICTs use. *Journal of Computer Assisted Learning*, 20, 440-455.

Long, S. (2001). Multimedia in the art curriculum: Crossing boundaries. *Journal of Art and Design Education*, 20 (3), 255-263.

Lowther, D. L. (2008). Does technology integration work when key barriers are removed? *Educational Media International*, 45, 195-213.

Noor, S. (2013). An effective use of ICTs for education and learning by drawing on worldwide knowledge, research and experience. *ICTs as a Change Agent for Education*, 1–13.

Passey & Rogers. (2004). The motivational effects of ICT on pupils. *Research Report*, Department of Educational Research Lancaster University.

Pernia, E.E. (2008). Strategy frame work for promoting ICT literacy in Asia pacific region, UNESCO Bangkok communication and information unit Asia and pacific regional bureau for education Thailand.

Reddi, U. V. (2004). Role of ICTs in education and development: Potential, pitfalls and challenges. In Participatory lifelong learning and information and communication technologies (1st Ed.) India. 173–186.

Rouse, M. (2005). History of ICT - CS1105 Group Reports 2008 - Wiki. Retrieved from http:// searchcio.techtarget.com/definition/ICTand-communications-technology-or-technologies.

UNESCO. (2002). Open and distance learning trends, policy and strategy considerations, 14. WEF. (2012). *Malaysia in the Global Competitiveness Report.* 2011-2012, 27.

UNESCO. (2002). Information and communication technology in education–A curriculum for Schools and Program for Teacher Development. Paris: UNESCO.

Wikitext. (2010). History of ICT – Wiki Educator. Retrieved from http://wikieducator.org/index.php?title=History_of_ict&action=info

Wills, B. A., & Finch, J. A. (2016). Introduction wills mineral processing technology, (October 2002), 1–27. http://doi.org/10.1016/B978-0-08-097053-0.00001-7