



Impact of ICT on Academic Achievement of Students

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Abstract- Current era is the era of online learning and day by day the infrastructure barriers of time and place are being substituted by digital world where physical access to education. The study is an intention to explore teachers' readiness for the use of ICT in classroom at elementary level. The sample comprised of three hundred and sixteen teachers randomly selected from secondary schools. An instrument, ICT use and Performance Survey [ICTPS]. The results revealed that the female teachers had higher performance when use information technology in their classes. Male teachers had positive attitude in using information technology and found to be more competent in applying information technology than that of female teachers. Experience of teachers have significant impact on the challenges when they use information technology. It is recommended to empower the teachers with ICT for better performance and integration with modern era.

Keywords: ICT, Students' achievement, Integration with digital world

I. INTRODUCTION

All the countries around the globe are trying to train their teachers hands on ICT in their classrooms to ensure the institutes in getting urgent information for globalization. Alazam, Bakar, Hamah, and Asmiran (2012a) investigated that ICT use in classrooms has dynamic results in various learning aspects like teachers' teaching willingness, instructional attitude, administrative support, appropriate use of software and hardware, maintenance and infrastructure. Qualification of teachers, ICT training, and teaching experience all make the worth of teachers' proficiency in using ICT. The role of ICT is vital in storing, retrieving, manipulating, and transmission of information by electronic means in digital shape. They are formally called personal computer, digital televisions, emails and android system (Scholten, Velde, & Manen, 2009).

Computer expertise has influenced scholars' learning new experiences for entire world (Cuban, 2001). In the past, the intention to integrate computer technology in classes was more expensive and teachers and institutions use cheaper and accessible resources for information sharing and technological communication problems were common due to lack of expertise and resources.

Lack of planning, less funding and academic appreciation are major extrinsic factors that minimize ICT use in classrooms. Many developing nations like Pakistan facing ICT challenges to achieve the Millennium Development Goals and Education for All (EFA). To enhance the accessibility of quality instruction and education, Pakistan is striving its best to equip the technology in building a knowledge-sharing society. Earle (2002) connected ICT incorporation with an idea of totality to expedite all elements of education system connect together in a single domain.

Pakistan has articulated the vast education sector to implement plan for technology that will deliver quality educations tools, assessments and cooperative learning environment. To achieve those plans, the learning barriers should be identified to overcome the situation. Many barriers are still existing in real practice in the institutions. Information and communication technology (ICT) has unlocked wider opportunities for teachers to use technology-supported tools in the learning and teaching in improving the students' performance (Jonassen, 1995). Using of computer-assisted technology in classrooms will sure provide teachers opportunities and resources in completing instructional tasks with great effort and

purposeful determination for pupils. The use of ICT has become a part and parcel in the subjects of mathematics and sciences. The studies of Stockdill and Moreshouse (1992) explored multiple technological reflections to effect ICT use and its integration with learning and teaching. ICT use has made the society a dynamic living place. It has effected almost every field of life with more innovative and speedy way. One cannot find any field in the world that is now working without the use of ICT.

Sherry and Gibson (2002) claimed that personal, technical, organizational, and social factors may be kept in mind in probing ICT integration and use. Neyland (2011), identified that factors like institutional support, learners' attitude as well as teachers' competence influence online learning in classrooms. Tinio (2002) found that potential of ICTs is increasing access and improving relevance and quality of education in developing countries. Most of the educationists defined the incorporation of ICT in education as the mode of effective and efficient of teaching learning process that includes curriculum, infrastructure, and learning and teaching environment in classrooms.

The ICT integration by the teachers in teaching and learning is based on resources in hand by the institutions and learning organizations (Balanskat, Blamire, & Kefalla, 2007; Chen, 2008; Clausen, 2007; Lim & Chai, 2008; Tondeur; van Braak, & Valcke, 2008). ICT has provided many opportunities for teachers in supported learning material for teaching students in classrooms and improved the achievements of the scholars. It is observed that teachers are not ready to use ICT effectively in classrooms. They are not making its use effectively in learning and teaching process. So, focus of the study is to find the causes due to which our teachers are not able to use ICT in classroom effectively and how the teachers can use ICT in classrooms effectively. Hawkins (2004) and Inwent (2004), current education reforms stress on the quality and equal access of educational resources that emphasizes the significant initiative and innovation in the field of education while using ICT with better services. In Pakistan, the govt. has introduced computers' use in elementary and secondary schools in its current educational policy (NEP, 2009). Pakistani teachers and students need more computer skills for educated workers with ample use of ICT. We need an ICT literate society to compete the rest of the world. This objective can only be achieved if we provide computer-based education, reserve incentives for students and teachers and constant training.

The leadership capabilities may improve the organizations' capacity in an innovative way (Hallinger & Heck, 1998), and adopt capacity building learning environment for school (Leithwood, 1994). The notion of collaborative learning environment is the basic theme of modern technologies that help in building learning relationship among students and with other potential stakeholders (Senge, 1990; Fullan, 1993). Ertmer (2005) planned three approaches for endorsing revolution in teachers' beliefs for integration of technology. First is about the Personal experiences: self-efficacy belief (Schunk, 2000) highlighted to improve teachers' confidence under successful involvement from personal to combined beliefs.

The developing nations have many problems of integration of ICT in education. Pakistan being a developing country is facing many complications in all sectors especially in education as it is far behind to fulfill the dream of developed nations. The literacy level in ICT is near zero. ICT integration policy is missing in learning and teaching. The rest of the world uses modern tools and techniques of teaching and learning but unfortunately here situation is not very good.

The review about to integrate ICT in education was initiated with the help of financial assistance under United States Agency, UNESCO, Pakistan. The board formed to evaluate teachers' education studied curriculum, teaching practice used by teachers and resources available for teachers' education institutes (Jamil, 2004; UNESCO, 2003). The review resulted in change in the teachers' curriculum about education, training of teacher educators at the national level and providing resources to teacher educational departments and institutes. The review committee suggested National Professional Standards for Teachers in Pakistan, a guide line for teacher educators teaching pre-service teachers' education courses at the college or university level.

The role of ICT is to coordinate skills and knowledge with better leadership positions in all educational institutions. It is suggested that instructor with full-time availability and has expertise in ICT skills must be available in school for the help of students (Lai & Pratt, 2004). ICT use and performance of Students According to Chandra and Lloyed (2008), ICT enhances the students' achievement when teachers apply excessive use of technology. Youssef and Dhamani (2008) explored that ICT had an impact on teaching and learning process when empowered to students and teachers with ICT resources.

Objective of the Study

The current study has following objectives:

1. To find out the performance when teachers use of ICTs in classroom.
2. To explore the teachers' attitude when they use ICTs in secondary school classrooms.
3. To trace out the impact of teachers' experience on the challenges in using of information technology.

Hypotheses of the Study

The null hypotheses are as under:

Ho1: There is no significant difference between male and female teachers' performance when use information technology in classes.

Ho2: There is no significant difference between male and female teachers' attitude regarding the use of information technology.

Ho3: There is no significant impact of teachers' experience on the challenges in using of information technology.

II. RESEARCH DESIGN

It was survey study with and descriptive research design was used for the completion of the study.

Population and Sample

The current study was carried on secondary school teachers selected as the population of the study from a district in Punjab province. The sample comprised of three hundred and sixteen teachers randomly selected from secondary schools. Both categories had equal participation as a sample of the study. 158 teachers were selected in each category. There were forty-two percent Master level respondents. BS level respondents were five percent and BSc level respondents were twenty-seven percent. The respondents belonged to MSc level were fifteen percent and that of MPhil level were seven percent.

Instrument

The instrument, ICT and Performance Survey [ICTPS] was used for data collection purpose. The instrument was validated by research experts. The reliability was checked on the sample of 40 teachers not included in the final sample. The Cronbach Alpha reliability was calculated as .950 for forty items which was excellent for conducting the educational research. The instrument was then finalized for data collection. The questionnaires were delivered to teachers using both postal mailed and personal survey by the researchers. The teachers filled the questionnaires and returned to researchers. The results of respective classes of the teachers was collected as the performance of teachers.

Data Analysis

Merely collection of raw data is of no use. It must be in a presentable form for inferring some sort of conclusions (Khan, 2007). The data were analyzed through computer software SPSS. Quantitative data was analyzed through various statistical techniques like mean, sd, t-test, ANOVA.

III. RESULTS OF THE ANALYSIS OF DATA

Ho1: There is no significant difference between male and female teachers' performance when use information technology in classes.

Table 1

<i>Comparison between Male and Female Teachers' Performance under use of Information Technology</i>					
Gender	N	Mean	Std. Deviation	t-value	Sig.
Male	158	64.86	12.62	2.298	.022*
Female	158	67.98	11.53		

*p<0.05

According to table 1, t-test was used to explore the difference between male and female teachers' performance when they use of information technology. It is evident that there exists a significant difference in male and female teachers' performance in class with respect to use of information technology. The mean achievement score of male teachers (M =64.86, SD = 12.62) and female teachers (M = 67.98, SD = 11.53, t (314), 2.298, p<0.05). The mean achievement score revealed that the female teachers had higher performance when use information technology in their classes. The null hypothesis was rejected.

Ho2: There is no significant difference between male and female teachers' attitude regarding the use of information technology.

Table 2
Comparison between Male and Female Teachers' Attitude in using of Information Technology

Gender	N	Mean	Std. Deviation	t-value	Sig.
Male	158	3.77	.67	4.820	.000**
Female	158	3.33	.91		

**p<0.01

According to table 2, t-test was applied to investigate the difference between male and female teachers' attitude when they use of information technology. It is evident that there exists a significant difference in male and female teachers' attitude with respect to use of information technology. The mean achievement score of male teachers (M = 3.77, SD = .67) and female teachers (M = 3.33, SD = .91, t (314), 4.820, p<0.01). The mean achievement score revealed that the male teachers had positive attitude in using information technology than that of female teachers. The stated hypothesis was rejected as the difference existed in teachers' attitude.

Ho3: There is no significant impact of teachers' experience on the challenges in using of information technology.

Table 3
Impact of Teachers' Experience towards Challenges of the Information Technology

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	59.104	2	29.552	59.304	.000**
Within Groups	155.974	313	.498		
Total	215.079	315			

**p<0.01

According to table 3, ANOVA was performed to explore the significant impact of teachers' experience on the challenges when they use information technology. Results F (2, 29.552) = 59.304, p<0.01 indicate that experience of teachers have significant impact on the challenges when they use information technology.

IV. CONCLUSION AND DISCUSSION

The current study explored the teachers' opinions about the use of ICT in classrooms. It is evident that there exists a significant difference in male and female teachers' performance in class with respect to use of information technology. The mean achievement score revealed that the female teachers had higher performance when use information technology in their classes.

Almekhlafi and Almeqdadi (2010) explained that un-supportive management, missing technical skills and un-availability of computer labs restrict the use of ICT in classes. Unfortunately, this situation is mostly observed in Pakistani Public sector institutions where basis life requirements are still missing. What about the question of ICT use?

It is evident that there exists a significant difference in male and female teachers' attitude with respect to use of information technology. The mean achievement score revealed that the male teachers had positive attitude in using information technology than that of female teachers. The stated hypothesis was rejected as the difference existed in teachers' attitude. The study of Tondeur, Van Braak, and Valcke (2006) investigated teachers' view point about using ICT based on their attitude and level of experience and information.

It was indicated that experience of teachers have significant impact on the challenges when they use information technology. According to Chandra and Lloyed (2008), ICT enhances the students' achievement when teachers apply excessive use of technology. Youssef and Dhamani (2008) explored that ICT had an impact on teaching and learning process when empowered to students and teachers with ICT resources. There is a positive correlation between ICT use and pupils' achievement. Aristovnik (2012) investigated that ICT had an impact on academic performance with great possibility of efficient and better research outcomes.

V. RECOMMENDATIONS FOR FURTHER STUDY

The institutions should have ample facilities of using ICT in classes. ICT in educational institutions should be introduced as an elected subject like other subjects. ICT labs should be designed and furnished with modern ICT resources. The teachers should have opportunities for training in ICT use. Teachers' ICT training should be based on ICT integration syllabus and curriculum. The access and use of internet should be compulsory for educational institutions.

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