Role of ICT in Capacity Building: A Teacher Perspective

Nazir Ahmad, Wajid Ali
Abasyn University Peshawar Pakistan

Abstract

In this research study, we aimed at exploring "Role of ICT in capacity building: A teacher perspective". The objectives of the study were: 1) To explore the teachers perspective towards the use of ICT for their professional development, 2) To explore the beliefs of teachers about the impact of utilization of ICT in teaching and learning process, 3) To identify the barriers that teachers face in the integration of ICT in classroom. This study has developed, in which data collected through survey approach. All Certified Teachers (CTs) of district Malakand were the target population, which were 316. A sample of 32 CTs was drawn through Proportionate Stratified Random Sampling Technique from the accessible population. The data collected through questionnaire were organized, summarized, analyzed, and interpreted. The Frequencies, Percentages, Mean and Standard Deviation were used as descriptive statistics while "One Sample T Test" was used as inferential statistics. The study recommends that: proper training in ICT, barriers teachers face in ICT teaching, proper budget for ICT infrastructure, and space in curriculum for ICT.

Keywords: information and communication technology, certified teachers, professional development, capacity building, Classroom activities

1. Introduction

The term Information and Communication Technology (ICT) can be defined as: The use of computers and electronic equipment through which electronically data collect, store, use, manipulate and transmit are referred to Information and Communication Technology (ICT) (Cambridge Dictionary). ICT submitted new and more exciting learning styles and opportunities not only for the teachers but also for the students [1]. With the rapid rate at which ICT has evolved since mid-20th century, the integration of ICT reflects a strong role in education globally [2]. In schools, ICT is the technological medium through which educational activities and control of resources are enhanced. These findings agreed with [3]. These authors in their various research works identified ICT skills teachers need and the relevance of these skills in the teaching of schools. Possession of ICT skills will enhance teachers' abilities to exchange information among themselves, their students and parents of their students. For instance, if the teacher wants to pass some information to parents, bulk SMS could be used, because it is cheaper and faster than printing newsletters. The importance of ICT factors enabled to increase the potential development of teaches. These factors are confidence, easily approach, one step clarity and communication and ignoring these factors would result in failure of potential development through ICT [4]. The use of ICT facilitates teachers to save time and to enhance productivity. Now-a-days ICT is an important tool for the teachers to prepare and arrange their work with more accurately and efficiently [5]. ICT helps teachers to solve different problem in decision making by the use of computer, internet and media. ICT enhance teacher motivation in the process of learning and decision making [6]. By the adoption of ICT appliance in teaching and learning basically depends upon the preparation and acceptance of teachers towards ICT. Now ICT along with the help of teachers brings aggressive changes in the education system throughout the world [7]. Most of the countries spending their wealth power in the field of ICT to remove the problems related to the classroom activities and teaching practices. ICT solve these educational problems to improve the quality of education [8].

According to Brinkerhoff [9], ICT is that technology which uses the information to fulfil human needs or other purposes, including processing and exchanging of information from one place to another. The ICT is an umbrella term for all terms, including Information Technology (IT), Educational Technology (ET) and Communication Technology (CT). ICT basically focuses on computer and Internet technologies. The teachers CB enhancing throughout the globe depends upon the significant role of ICT. From different studies it's concluded that ICT has powerful potential to enhanced knowledge, efficiency, skills, and effectiveness of teachers in their professional contents and pupils' performance. Now, ICT is considered as an integral part of our life and ICT is also playing active roles in education.

Statement of the Research Problem

Capacity Building has a key factor of teacher for the enhanced of present knowledge and professional skills. In the present modern world, for the capacity building of teachers different tools, strategies and techniques were being used. One of the most important tools in it is ICT through which teachers enhanced their present knowledge and professional skills, because ICT and capacity building were complementary to each other. Teacher through ICT enhanced the classroom activity and learning outcomes.

Significance of the Study

The present study has significant in the education system as ICT enhanced the present knowledge and professional skills of teachers. In Pakistan all level of education ICT as a teaching tool, strategy or technique for the teachers to enhance the classroom activity and practices. This study has explored that change in teachers' practices occurs where teachers have their individual commitment, dedication, zeal and motivation for ICT application in their professional activities. ICT can reduce hindrances that lessen the teacher's performance in the attainment of modern teaching and learning skills. Also, ICT opens new horizons of knowledge and skills, both for teachers and students. The findings of this study may also be add new knowledge about capacity building of teachers in Khyber Pakhtunkhwa.

2. Literature Review

ICT is the source of information by the digital processing through use of the electronic computers. ICT store the data, recapture, manipulate and transmission of information [10]. All forms of electronic equipment in the form of hardware and software used to store, design, create, transmit, manipulate, and interpret information in different formats. These technologies compose of hardware (e.g., computers, laptops, tablets, mobile phones, and many other gadgets) and software applications (e.g., access to the Internet, local networking infrastructure, audio, videoconferencing). ICT with the passage of time changed its focus toward usability of technology in the learning outcomes and education through which the learning process and teaching practices improved [11]. The aim of Capacity Building should be to deal with identified flaws in students' learning and achievement and fulfil them. The content of CB should be emphasized on i) Subject matter, ii) Instructional weaknesses, iii) Teaching methodology, iv) Educational psychology, v) Students' problems and weaknesses, vi) Classroom environment, and vii) Assessment of students' performance. By focusing on such classroom matters, teachers can succeed in achieving educational goals and objectives, improve their practices and improve the quality of the education system [8]. Potential Development programs are designed to train professionals, providing continuing education to keep skills and knowledge up to date; and deliver training on new initiatives and innovations in the education system. A large number of professional careers have a continuing educational demand with a specific number of courses of instruction necessary per year to keep a license or certification. The advance assumption is that all teachers have completed post related training in teaching or a relevant area. Therefore, in-service training is considered essential and significant for teachers, for their individual PD throughout the world. Teacher capability and expertise are necessary for future teacher's preparation, in-service training, teacher evaluation and career advancement. Effective PD is a continuing and lifelong process which includes in-service training and provides sufficient time for the follow-up support. In Pakistan, there are no teachers' competencies that are recognized and agreed nationally or provincially [12].

ICT and Professional Development of CTs

The impact of ICT use has been seen in every field of life, while education is one of them. In Pakistan teachers are trying their best to use ICT in the process of teaching and learning activities to enhance their present knowledge and skills because ICT a potential vehicle for the teachers to enhance their personal and professional development [13]. ICT empower teachers during the classroom activities to apply a sympathy behaviour toward the students. The teachers' sense of advancement enhancing the school perspectives toward educational exercise. Teacher professional development is important for the integration of ICT in the classroom achievement and learning activates. Furthermore, ICT not only play an important role in the enhancing the teaching techniques and learning outcomes, but it also support educationist to fight the barriers of ICT which comes from modern digital world. ICT not only enhancing the transformation of skills, knowledge and judgment but also enriches the human behaviours which is a way for the development of a country to achieve their future aims [14]. By the improving teachers ICT based knowledge and skill helped teachers to improve their professional development to update their present knowledge, skills and techniques to accept the challenge of globalization ICT [15]. According to Hasibuan, ICT based framework and installation in education system depend upon the professional development of teachers. ICT changed the sample of learning instruction in education sector through teacher professional development, classroom activities and learning outcomes. In the ICT

based knowledge the teacher is only the guider for the students to achieve their desired goals [16]. In a study explored that teachers' perception towards ICT is one of the most significant factors which enhances or reduces the usability of ICT into classroom activities. Teachers' attitude and capability ensure ICT adoption and integration, and a promise for more ICT innovations. Therefore, the findings of the above studies indicate the significance and worth of ICT is far beyond measure and its benefits or fruits are countless. ICT changes the classroom environment into a playground where teachers and students easily interact with one another, communicate, and collaborate during instruction [17].

Challenges/Barriers in Using ICT in Government Schools

There were several challenges in using ICT in schools at secondary/high secondary school levels which create hindrances in the usability of ICT. Some important challenges/barriers have been described below:

Teaching with ICT tools is more expensive than traditional teaching, Lack of ICT facilities in secondary/high secondary schools, Non-availability of proper assistance by administration, Teachers use more time on the preparation of lesson, Many teachers perceive ICT as only wastage of time, The curriculum leaves no space for ICT use, Poor management of the ICT equipment, Insufficient pre-service ICT training, Problem with Internet connectivity, Teachers are reluctant to use ICT, Lack of teachers' trust about ICT, Lack of ICT based experts, Lack of proper resources, Proper network problem, Maintenance problems, Lack of security and Energy crisis

The aims of the study

The main objectives of this research study are:

i. To explore the teacher's perspective towards the use of ICT for their professional development.

ii. To explore the beliefs of teachers about the impact of utilization of ICT in teaching and learning process.

iii. To identify the barriers that teachers face in the integration of ICT in classroom.

Hypotheses

i. H_A: There have association between ICT and Professional development.

ii. H_0: There have no association between ICT and Barriers.

3. Research Methodology

This study was development in which data collected through survey approach. The researcher used quantitative approach to perform this study. If the researcher wants to get reliable information from the target population, then he must use the quantitative approach [18]. The Proportionate Stratified Random Sampling (PSRS) has a technique through which a specific percentage was taken from the total population and then specific sub-groups or strata have been selected for the sample in the same proportion as they exist in the accessible population [19].

Delimitation of the Study

Because of less time and lack of facilities, the study has surrounded only to:

- Government boy's Secondary and Higher Secondary Schools in district Malakand

- The present study has delimited to the certified teachers (CTs) in Government boy's Secondary and Higher Secondary Schools of District Malakand only.

- Only five government boy's Secondary/High Secondary schools in district Malakand has taken.

Population of the Study

All Certified Teachers (CTs) of Government Secondary and High Secondary boys Schools in district Malakand was the target population for the study.

Sample and sample of the study

A random sampling technique was used for the data collection in the district of Malakand. The data was only collected from the certified teachers. The accessible population of the study was 316 CTs of Government Secondary/ High Secondary boy's schools of district Malakand. A sample of 10% was taken for the selection, from the accessible population of 51 Schools and 316 Certified Teachers (CTs), a sample of five ICT based government boys' schools and 32 CTs were taken through Proportionate Stratified Random Sampling Technique.

Instrument of the study

A self-developed questionnaire was used to explore the need analysis of CB of CTs in this study. Five-point Likert Rating Scale was used for the development of questionnaire. The Likert Rating Scale is commonly used in social sciences, and it allows the researchers for assessing differences in degree or amount on a

particular attribute or characteristic and is less difficult to make than other type of rating scales [20].

Data Collection and Analysis

The data collected through questionnaire was used for the construction of data tables, analyzed the data and interpreted the data. IBM SPSS software (Version 19) was used for the data analyzing collected through questionnaire. The Mean, Frequencies, Percentages and Standard Deviation were used to organizing and summarizing data through descriptive statistics, while "One Sample T Test" was used as inferential statistics to analyze data.

3. Results of the Study

On the basis of data analysis, the following findings were made. From the Table 1, the mean values of all the statements were greater than 3, which shows most of the

certified teachers were agreed about the statements ("Use of ICT has a Positive Effect on Teaching", "Use of ICT in Classroom Saves Time", "Teachers have proper skills to use ICT", "ICT provides easy access to a lot of information", "Using ICT Requires More Time and Personal Efforts", "ICT Training is Useful for Teachers' Personal Development", "ICT Helps Teachers' in Making Their Teaching More Effective", "ICT is a Valuable Tool for Teachers to Improve Classroom Activities", "Use of ICT increases interaction between teacher and students" "Use of ICT helps teachers to understand difficult concepts in a more effective way").

A standard alpha level is (.05) and our significant values for all statements are (.000), which smaller than .05, so the null hypothesis were rejected in every statement. From table means values and Standard deviations (SDs) it has concluded that "All the Certified Teachers were agreed about all the statements in the table.

Table 1. Comparison of Perceptions of Certified Teachers

	Statements	N	M	SD	Df	Sig	T
	Group Statistics Test Value = 3			Group: Certified Teachers 95 % confidence interval			
1.	Use of ICT has a Positive Effect on Teaching.	32	4.56	0.619	31	.000	14.28
2.	Use of ICT in Classroom Saves Time.	32	4.22	0.659	31	.000	10.45
3.	Teachers have proper skills to use ICT.	32	3.5	0.916	31	.001	-6.17
4.	ICT provides easy access to a lot of information.	32	4.34	0.653	31	.000	11.64
5.	Using ICT Requires More Time and Personal Efforts.	32	3.63	1.12	31	.008	2.856
6.	ICT Training is Useful for Teachers' Personal Development.	32	4.34	0.745	31	.000	10.19
7.	ICT Helps Teachers' in Making Their Teaching More Effective.	32	4.34	0.745	31	.000	10.19
8.	ICT is a Valuable Tool for Teachers to Improve Classroom Activities.	32	4.38	0.751	31	.000	10.35
9.	Use of ICT increases interaction between teacher and students.	32	4.28	0.683	31	.000	10.60
10.	Use of ICT helps teachers to understand difficult concepts in a more effective way.	32	4.31	0.821	31	.000	9.048

Table 2. Barriers Comparison of Perceptions of Certified Teachers

	Statements	N	M	SD	Df	Sig	T
	Group Statistics Test Value = 3			Group: Certified Teachers 95 % confidence interval			
1.	Lack of Proper Familiarity with ICT	32	3.75	1.295	31	.003	3.276
2.	Lack of Proper ICT Training	32	4.00	1.270	31	.000	4.454
3.	Lack of Proper Time in School	32	4.19	0.821	31	.003	8.186
4.	Lack of Internet Facility at School	32	2.00	-1.211	31	.042	-1.02
5.	Insufficient Pre-Service ICT Training	32	4.09	1.058	31	.008	5.846
6.	Lack of ICT Tools at School	32	4.16	0.847	31	.000	7.726
7.	Insufficient Space to Use ICT in Classrooms	32	3.78	1.099	31	.000	4.020
8.	Large Size Classes Limit in the Use of ICT	32	3.97	0.967	31	.000	5.669
9.	Unsatisfactory Technical Support for ICT	32	3.91	0.818	31	.000	6.272
10.	Curriculum Leaves No Space for ICT Use	32	3.59	1.241	31	.011	2.707

From the Table 2, the mean values of the most statements were greater than 3, which shows most of the certified teachers were agreed about the statements ("Teachers have Lack of Proper Familiarity with ICT",

"Lack of Proper ICT Training", "Lack of Proper Time in School", "Insufficient Pre-Service ICT Training", "Lack of ICT Tools at School", "Insufficient Space to Use ICT in Classrooms", "Large Size Classes Limit in

the Use of ICT", "Unsatisfactory Technical Support for ICT", "Curriculum Leaves No Space for ICT Use"). A standard alpha level is (.05) and our significant values of most statements are (.000), which smaller than .05, so the null hypothesis were rejected in most statement. From Table 2 most means values and most Standard deviations (SDs) it is concluded that "All the Certified Teachers were agreed about most of the statements. Similarly, from the question 4 the mean value of the statement is 2 which was less than 3, thus most of the certified teachers were not agreed about the statement that "Lack of Internet Facility at School". A standard alpha level is (.05) and our significant value is (0.42), which is greater than .05, so failed to reject null hypothesis. Furthermore, from table mean (2.0) and SD (-1.211) it has concluded that larger numbers of schools have the Internet facility.

4. Recommendations

Proper ICT based training programs and workshops should be conducted before or after school duration, also extended ICT based workshops on holidays/weekends, so that ICT based teachers' knowledge and skills could be improved and enhanced. As the results of this study portrays that CTs face different barriers in ICT integration in teaching and learning activities such as no proper time in school, insufficient pre-service ICT training for teachers', lack of ICT instruments in schools, insufficient space in classrooms, large size classes, unsatisfactory technical support for ICT and lengthy syllabus, so Education Department and Administration should take proper initiatives on the priority basis for the elimination of such obstacles to provides quality education to pupils at secondary and high secondary level. As there is a serious energy crisis in the country, therefore, CTs should be used laptops, smart phones, and tablets instead of computers to deal with load shedding crisis; and the provision of full-time standby generator should be made compulsory to deal with the power failure in schools. Proper school development budget should be allocated to the staff development and provision of ICT infrastructure in secondary and high secondary schools.

Lessen teachers' workload, enough time should be allocated for CTs to participate in ICT based training, curriculum should be revised and updated; and the provision of incentives for teachers who participate in ICT based programs. The proposed study should be implemented on priority basis at the secondary and high secondary level for the improvement of CTs' professional development. Similar research should be conducted on ICT based for CB of Primary School Teachers (PSTs) and Secondary School Teachers (SSTs) at primary and secondary level in government Schools of Khyber Pakhtunkhwa respectively.

5. Conclusion

Major conclusions which come out from the findings of the study were listed below: The majority of the research subjects indicated that usability of ICT use in teaching has positive effect, ICT saves lessons time in classroom, majority of the teacher have proper skills to use ICT, ICT is an easy source for the getting a lot of information, ICT using requires personal efforts and more time, training of ICT for teachers is useful, by the help of ICT teachers makes their teaching more effective, for the improvement of classroom activities ICT is a reliable tool for teachers, ICT use increases the interaction among students and teacher, ICT provides more effect way for teachers to solve difficult concepts. The majority of the respondents reported that CTs have lack of proper ICT training at the secondary and high secondary level, lack of proper time in school. Majority of CTs were not agreed about the statement that secondary and high secondary schools were lack of Internet facility, pre-service ICT training for CTs were insufficient, lack of ICT tools in schools, for ICT use insufficient space in classrooms, ICT use limit by small size, lack of technical support for ICT and for ICT use no proper space were left in curriculum.

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