

Role of Information and Communication Technology to Improve Instruction in Special Education Institutions

Muhammad Shokat Zaman¹, Shaukat Ali², Muhammad Ajmal Yaqoob³

Ph.D Education Scholar University of Okara, Okara Pakistan zamanshokat485@gmail.com

Ph.D Education Scholar University of Okara, Okara Pakistan. mehar.shaukatali74@gmail.com

Educator (BS-16), Govt. Institute for Slow Learners Multan, Special Education Department, Govt. of Punjab, Email: muhammadaajmaleduryk@gmail.com

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ABSTRACT— Information and Communication Technology (ICT) used in special educational institutes by teachers for instruction. The need and importance of ICT enhanced during covid-19 era. The objectives of the study were; 1) to investigate the teachers' perception about the role of information and communication technology to improve instruction in special education, 2) To ascertain the present condition of the usage of information and communication technology in special educational institutions. Quantitative survey design employed to conduct the study. The researchers them self-comprising closed ended statements and open-ended questions to analyse the teachers' perception structured a questionnaire. Questionnaire validated through expert opinion and pilot testing. Questionnaire was distributed through social media i.e. WhatsApp and Facebook in form of Google form. The responses of 30 national and international teachers gained. Quantitative data were analysed through statistical techniques i.e. frequency count and percentage. Qualitative data were analysed through thematic analysis. Results revealed that teachers perceived significant role of ICT to improve instruction in special education. Many special education teachers argued that they are using different modes of ICT i.e. multimedia, projector, smart mobile, different videos and simulations and it is helpful in instruction. Special learners take interest and learn better through ICT. Moreover, special education teachers claimed that ICT saves time of teaches. Further research may be conducted through observational designs or mixed methods research designs.

Keywords— Information and Communication Technology (ICT), Instruction, Special Education.

I.INTRODUCTION

Teachers are the most important pillar in the process of teaching. Instruction is the process of transformation of knowledge from one generation to the next generation. Instructional methods are the methods that use teachers in their instruction to transform knowledge i.e. lecture method, direct method, grammar-translation method, inquiry-based method, and question-answer method. Information and communication technology (ICT) refers to the technological means which teachers use in their instruction i.e. mobile, multimedia, computer, internet, and electronic media.

The Twenty-First century is the era of technology. Technology has played a vital role in the educational process in this technologically developing world. Effective teaching

mostly depends on technology. Most teachers are using ICT for instruction. The use of ICT has made teaching easy and impressive. It has improved the quality of education. Teachers use ICT for preparing their lectures. They use technology to enhance their understanding of their topics. ICT helps teachers in the deliverance of the lectures. Most teachers use PowerPoint slides and multimedia for delivering their lectures. It develops collaboration among students and teachers. It develops a sense of creativity among teachers. E-learning improves the method of teaching and learning (Salamat, Ahmad, Bakht, & Saifi, 2018).

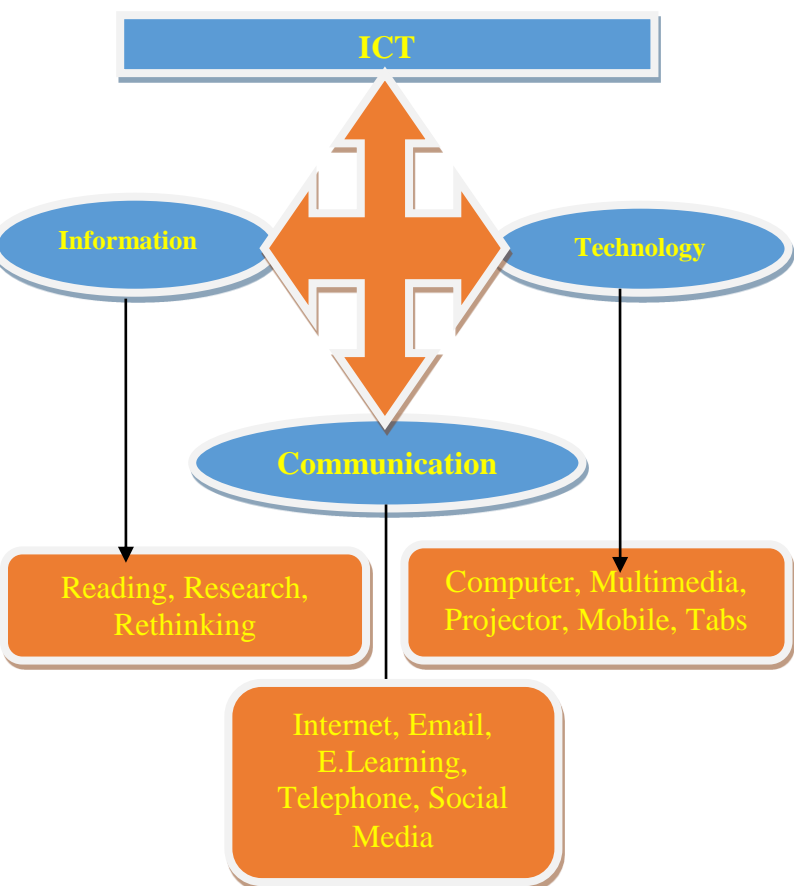


Fig.1 Pictorial View of ICT

II.LITERATURE REVIEW

It is a proven fact that teachers are not able to teach effectively without technology in this era of modern technology. The knowledge and use of information and communication technology has been considered as the national professional standard for teachers in Pakistan (MoE, 2009). The ICT builds contact to different sources of information. It provides authentic knowledge in different shapes.

In this era of technology teaching is not limited to the classroom only. Teachers use ICT to share their knowledge with students. They use social media to get access to the students. ICT enable teachers to achieve their goals in or outside the classroom. Teachers are using different kinds of

ICT in their teaching methods and to interact with students i.e. multimedia, computers, mobile, and telecommunication devices, internet, email, Whatsapp, Facebook, Quick books, YouTube tutorials, Twitter and LinkedIn (Bhattacharya and Sharma, 2007).

ICT can play an important role in improving teaching methodology in the current era of technology (Senthilkumar, Kannan, Sivapragasam, 2016).

Students' high expectations cannot be fulfilled without ICT. Teachers can improve teaching methodology through ICT. They can design their lesson plans by using ICT. They can better understand their curriculum through ICT. ICT is being used in developing and mapping curriculum. Teachers may get help from ICT in instruction even though any method they are using. Word processing programs are being used by teachers to develop puzzles or word searches. They are using videos and different software in their instruction. They include different simulations and animation to develop the interest of students. They prepare different tests and assignments which can be marked by using ICT. It saves a lot of time for teachers and students. They can develop websites and online portals to access their students and manage study plans. Finally, it can be said that ICT helps the teacher in planning their lessons, a variety of instructional methods, a better understanding of the curriculum and preservation of information. It also encourages teachers and students in the process of teaching and learning (Kawade & Kulkarni, 2012). Sharma (2015) claimed that presenting knowledge, leading students, put into practice, and evaluation of learner's learning are the prerequisites of effective instruction. These requirements are not to be fulfilled without technology. A teacher can fulfill these prerequisites by using ICT. Now a day teachers use ICT (multimedia, Projectors, Social media, internet) to teach effectively. They use the internet to do research, engage students in projects, and to communicate with students. He concluded in his study that ICT is creating the main difference in the approaches of teaching. ICT lifted educational settings as dynamic, collaborative, innovative, combinative, and appraising learning as a plus over the traditional method (Sharma, 2015).

Many research studies were reviewed by the researcher. The researcher viewed that teachers are using ICT in their instruction to improve their teaching methodology. Many research studies were conducted to know about the role of ICT in education. The researcher found that there is no any study which is conducted to investigate the role of ICT to improve instruction in special education institutes. Therefore, it is important to investigate the role of ICT to improve the instruction in special educational institutes.

Aim and Objectives

The present study aimed to investigate the role of information and communication technology to improve instruction. The following objectives addressed in the study.

1. To investigate the teachers' perception about the role of information and communication technology to improve instruction in special education institutions.
2. To ascertain the present condition of the usage of information and communication technology in special educational institutions.
3. To determine the role of ICT based instruction in the learning of students of special education Institutions.

Research Questions

1. What is the role of information and communication technology to improve instruction in special education?
2. What is the present condition of the usage of information and communication technology in special educational institutions?
3. What is the role of ICT based instruction in the learning of students in special education Institutions?

III. METHODOLOGY

Main purpose of the study was to investigate the role of information and communication technology to improve instruction. A questionnaire was developed by the researcher himself and validated by experts' opinion and pilot testing. The questionnaire has three parts. The first part was investigation of demographic information, second part comprised the restricted response statements with response

'Yes' or 'No' and third part of the questionnaire was comprised open ended questions. It was sent to experts for their expert opinion. After getting their expert opinion it was revised and piloted. After pilot test it was considered consistent and valid. Chronbach's Alpha test was also applied to check the reliability of the questionnaire. The chronbach Alpha value was .76 which was valid and reliable to implement. Then the questionnaire further processed to collect response of the teachers. Convenient sampling technique was employed to select sample size. The questionnaire was distributed among national and international teachers through Google form by sharing on WhatsApp and facebook. Thirty teaches were replied to this questionnaire. The quantitative data were analyzed applying statistical techniques i.e. frequency count, and percentage. Results were drawn and conclusions were made on the base of results.

IV. DATA ANALYSIS & RESULTS

Demographic Information of Sample Respondents

Table 1 Demographic Information of Sample Respondents

Demographic Variables		Participants' Responses	
		Frequency	%age
Gender	Male	18	60.0
	Female	12	40.0
Age	21-30 Years	9	30.0
	31-40 Years	12	40.0
	41-50 Years	5	16.66
	51-60 Years	4	13.33
Experience	0-5 Years	9	30.0
	6-10 Years	11	22.7
	11-15 Years	4	36.6
	16 Years or More	6	20.0
Academic Qualification	BA/BSc	4	13.33
	Masters(MA/ MSc/BS)	19	63.33
	M. Phil/MS	5	16.66
	Doctorate	2	6.66
Professional Qualification	B.Ed(Educatin/ Special Education)	13	43.33
	M.Ed(Education/ Special Education)	17	56.66

Table 1 shows descriptive statistics used to analyze sample participants' demographic information. The table displays that 60.0% sample teachers were male and 40.0% teachers were female. In terms of age, 30.0% teachers were between 21-30 years, 40.0% were between 31- 40 years, 16.66% participants' age was between 41-50 years and 13.33% were between 51-60 years of age. As regards years of teaching experience, Table 1 reveals that 30.0% teachers selected their teaching experience between the ranges of 0-5 years; 22.7% were between 6-10 years; 36.6% between 11-15 and 20.0% had over 16 years of teaching experience. Similarly, sample teachers categorized their academic qualification into four categories i.e., bachelor (13.33%), Masters (63.33%) M. Phil/MS (16.66%) and Doctorate (6.66%). Moreover, 43.33% teachers selected their professional qualification as B. Ed. (Education/Special Education) and 56.6% selected their professional qualification as M. Ed (Education/Special Education).

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Quantitative Data Analysis Results regarding Teachers' Perceptions about the Role of Information and Communication Technology to Improve Instruction in Special Education

Responses of teachers were gained through restricted statements with the answer "Yes" or "No". Quantitative data were analyzed through frequency count and percentage. Results were interpreted in below table.

Table 2 Teachers' Perceptions about the Role of Information and Communication Technology to Improve Instruction in Special Education

Statement	Frequency		Percentage	
	Yes	No	Yes %	NO%
Do you feel the use of ICT make your instruction more effective?	25	5	83.33	16.66
Does ICT save your time?	23	7	76.66	23.33
Do you plan your lesson by using computer?	21	9	70.00	30.00
Do you use different videos and simulations in instruction?	19	11	63.33	36.66
Do you use smart mobile in instruction?	22	8	73.33	26.66
Do the students feel easy to interact with you through social media?	23	7	76.66	23.33
Do you use internet to get information about your topic?	20	10	66.66	33.33
Is internet helpful for you to get reliable and authentic information about your topic?	18	12	60.00	40.00
Do the students use tabs in classrooms?	11	19	36.66	63.33
Do you feel more confident in instruction when you use ICT?	22	8	73.33	26.66

Table 2 demonstrates that a lot of special education teachers (83.33%) in the favor that ICT make instruction more effective. Majority of sample respondents (76.66%) recommended that ICT saves time. Similarly, a big number of teachers (70%) plan the lessons by using computer, many teachers (63.33%) use different videos and simulations in instruction, majority of teachers (73.33%) use smart mobile in instruction, a lot of teachers (76.66%) claimed that students feel easy to interact with teachers through social media, many teachers (66.66%) use internet to get information about topic, most of teachers (60%) were in the favor that internet is helpful for them to get reliable and authentic information about topic, bulk of teachers (73.33%) feel more confident in instruction when they use ICT.

through any software and is multimedia or projector available in your institute, and 63.33% teachers are not in the favor of the statement “students use tabs in classrooms”.

Table 3 Present condition of the usage of information and communication technology in special educational institutions

Statement	Frequency		Percentage	
	Yes	No	Yes %	NO %
Do you use ICT in your instruction?	23	7	76.66	23.33
Is the use of ICT in instruction helpful to deal with students?	23	7	76.66	23.33
Is the use of ICT in instruction helpful for students to understand complex topics?	21	9	70.00	30.00
Do you use ICT to develop activities for instruction?	17	13	56.66	43.33
Do you use ICT to map curriculum?	20	10	66.66	33.33
Do you use ICT to prepare assignments for students?	18	12	60.00	40.00
Do you use ICT to prepare question paper for assessment of students?	24	6	80.00	20.00
Do you mark objective answer sheets of students through any software?	8	22	73.33	26.66
Does the management support you in provision of ICT for instruction?	21	09	70.00	30.00
Is multimedia or projector available in your institute?	13	17	43.33	56.66

Table 2 depicts that majority (76%) of special education teachers were using ICT in their instruction. A lot of teachers (76.66%) recommended that the use of ICT in instruction helpful to deal with students. Many teachers (70%) supported that the use of ICT in instruction is helpful for students to understand complex concepts, Majority of sample teachers (56.66%) are using ICT to develop activities for instruction, A bulk of teachers (66.66%) use ICT to map curriculum, while 60% teachers use ICT to prepare assignments for students. Similarly numbers of teachers (80%) use ICT to prepare question paper for assessment of students. and 70% are in favor that management supports them in provision of ICT for instruction. Interestingly (73.33%) are opted “No” in the favor of “mark objective answer sheets of students

Qualitative Data Analysis

Some open-ended questions are asked to investigate the phenomenon in depth and obtained data were analyzed through thematic analysis technique. The major themes that appeared from data are as under;

Effective Source of Instruction

Most of the teachers argued that ICT enhance the effectiveness of instruction. Teachers use ICT to improve the quality of instruction. ICT provides different sources for enhancing instruction i.e. projector, multimedia, PPTs, smart mobile, simulations, videos. A teacher expressed his views “teachers can improve teaching methodology through ICT. They can design their lesson plans by using ICT. They can better understand their curriculum through ICT. ICT is used in developing and mapping curriculum”. Finally, it can be said that ICT helps the teacher in planning their lessons, a variety of instructional methods, a better understanding of the curriculum and preservation of information. It also encourages teachers and students in the process of teaching and learning.

Helpful for Instruction

Special education teachers viewed ICT as helpful source for instruction. A teacher explained “Teachers may get help from ICT in instruction even though any method they are using. Word processing programs are being used by teachers to develop puzzles or word searches”. Another teacher revealed, “They are using videos and different software in their instruction. They include different simulations and animation to develop the interest of students. They prepare different tests and assignments which can be marked by using ICT”. Therefore, it may be concluded that ICT is helpful for instruction.

Use of Smart Phone in Instruction

Special education teachers revealed that use of smart phone is helpful in their instruction. A teacher explained, "I use smart phone in instruction to get involved students in different activities". Another teacher said, "I play different videos through smart phone to interact with teachers".

Saving Time of Teachers for Instruction

According to the views of special education teachers ICT saves time. A teacher explained, "I can easily manage my assignments, lesson plans and prepare activities for my instruction using ICT tools in little time". Another teacher said, "I can prepare my presentations through power point in little time". Therefore, it may be concluded that ICT saves time of teachers for instruction.

Training of Teachers to use ICT for Instruction

Special education teachers are trained to use ICT in their instruction during teachers training. Five teachers expressed that they get training of the usage of ICT in instruction before the employment. Twenty five teachers explained that they get training during their service. It may be concluded that teachers get training to use ICT in instruction before or after their employment.

Enhancement in Students Learning through ICT based Instruction

Special education teachers argued that special students learn better through ICT based instruction. A teacher explained "When I use ICT for instruction students take more interest in learning". Another teacher told, "Students academic performance enhanced through ICT based instruction". Therefore it may be concluded that slow learners learn better through ICT based instruction.

V. CONCLUSION

First objective of the study was to investigate the teachers' perception about the role of information and communication technology to improve instruction in special education institutions. It may be concluded that teachers perceived the significant role ICT to improve instruction significantly. ICT improves the effectiveness of instruction and helpful for instruction. It provides different sources for instruction i.e. projector, multimedia, PPTs, smart mobile,

simulations, videos. It saves the time of teachers for instruction i.e. they can easily prepare assignments, lesson plans, activities, PPT slides, lectures in little time period through ICT.

Second objective of the study was to ascertain the present condition of the usage of information and communication technology in special educational institutions. It may be concluded on the base of findings that many teachers are using ICT for instruction in the shape of multimedia, social media, projector, tabs, laptops, computer, smart phone, and different software.

Third Objective of the study was to determine the role of ICT based instruction in the learning of students of special education Institutions. It may be concluded on the base of findings that ICT plays a vital role in the learning of students. Special students learn better through ICT based instruction.

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