



## Effect of Using Information Communication Technologies in Teacher Education on Prospective Teachers Learning

Shamaila Bukhari<sup>1</sup>, Muhammad Aqeel Raza<sup>2</sup>, Naeem Ullah<sup>3</sup>

<sup>1</sup> M. Phil. Scholar, Department of Education, Institute of Southern Punjab, Multan, Pakistan.

<sup>2</sup> Associate Professor, Department of Education, NCBA&E, Lahore Sub Campus Multan, Pakistan.

Email: [razaaqeel06@gmail.com](mailto:razaaqeel06@gmail.com)

<sup>3</sup> Assistant Professor, Department of Education, Khwaja Fareed University of Engineering and Information Technology (KFUEIT), Rahim Yar Khan, Pakistan.

### ARTICLE INFO

### ABSTRACT

#### Article History:

Received: May 01, 2024

Revised: June 07, 2024

Accepted: June 08, 2024

Available Online: June 09, 2024

#### Keywords:

ICTs

Teacher Education

Cohesive Perception

Teacher Educators

Prospective Teachers

#### Funding:

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

The study entitled, "Effect of Using Information Communication Technologies in Teacher Education on Prospective Teachers Learning". Major research objective was to analyze the effect of ICTs on prospective teachers learning. Sample of the study consisted of 300 prospective Teachers and 20 teacher educators of south Punjab universities. Five public sector universities including the IUB Bahawalpur, GSCWU Bahawalpur, UE Multan, NUML Multan Campus, and BZU Multan. The researcher collected data from students of M.Ed. last semester. The study was survey and descriptive in nature. The quantitative as well as qualitative (QUAN-qual) approach was adopted. The questionnaire was used for data collection from prospective teachers and interview from teacher educators. The descriptive and inferential statistics were applied. The study concluded that prospective teachers understand better when teacher integration ICTs in their class lecture and they understand better when identify and retrieve information from a range of sources of ICTs, fell pleasure and accelerate learning through ICTs. They acquire communication skills for workplace preparedness. There was insignificance difference between opinion of male and female teacher. Likewise, majority of teacher educators agreed that prospective teachers gain technological knowledge, through ICTs. They may improve keen interest and research habits as ICTs promote motivation, practice, affective learning.

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Corresponding Author's Email: [razaaqeel06@gmail.com](mailto:razaaqeel06@gmail.com)

## 1. Introduction

Communication technologies and information are composed of a variety of applications and implements that are related to information. It is capable of preparing, sending, receiving, and saving instructions with the help of applications present on the computer. Tape recorders, radio, and television are examples of older analogue methods of information and communication. New information and communication technology devices include laptops, cell phones, the Internet, and satellites (Iqbal, Raza, Nasim, & Naheed, 2023). Now everyone in the world is connected with others without any barriers, and it took many changes to do this. Every corner of the world is a single click away (Oliver, 2002; Xu, 2021). We were living in the age of media at this time called electronic creation, as stated (Rafalow, 2018). ICTs have permeated almost every aspect of life, from information to enjoyment. The age of technology has resulted in significant changes in all aspects of life, such as conversation, studying, and realizing. Pupils brought books to lecture rooms, but now they bring electronic devices to virtual classrooms. Additionally, it had a profound effect on educational organizations. Over the past two decades, educational institutions have invested heavily in information and communication technology. A significant advantage has also been noticed in students' performance (Siam & Basri, 2019).

Information and communication technologies benefit both tutors and students in their related fields. Online courses provide knowledge in a useful and significant way (Kalolo, 2019). It covers information processing, counterfeit and academic videos. Applications of databases, brainstorming, directed analysis, brain forming, and rhythm on the World Wide Web (Raja & Priya, 2021). A tutor's approach is based on evaluating a student's method in order to strengthen and develop them. They offer a variety of skills that can improve their abilities and education. In the last fifty years, universities have experienced many changes to meet the challenges of the modern period. To move forward, students worldwide have access to the latest digital technologies (Ng'ambi, Brown, Bozalek, Gachago, & Wood, 2016). Online courses have been initiated for students who reside in remote areas. Distance learning classes also decrease the expenses of needy students. According to (Nedungadi, Menon, Gutjahr, Erickson, & Raman, 2018). Because of digital media, universities need to become more visible. Digital media isn't only the key for universities but is also important for educational organizations which provide a good time for studying every now and then (Harrigan, Daly, Coussement, Lee, Soutar, & Evers, 2021). Having access to information and communication technologies enabled people to develop their skills and capabilities, enabling them to fulfill their living opportunities (Vilppola, Lämsä, Vähäsantanen, & Hämäläinen, 2022). Brown and Duguid (2017) stated that using information technology in teacher training programs could bring changes in social life, stabilize financially, and enhance the learning process by using ICTs. We can enhance pupils' learning and comprehension, improve educational quality, create knowledge and share knowledge, and transform the education system from stereotypical teaching methods to more effective methods of information and communication integration (Akhter & Munir, 2020; Aldosemani, 2019). Educated people believe that introducing ICTs into the teaching process will help to change teaching methods and make it easier for teachers to answer questions. On the other hand, others think that by introducing ICTs into the teaching process, new things can be added to the education system that will benefit the students.

Computers have many benefits for future teachers, and can help them learn many new things, as well as offer job opportunities, benefits of ICTs in case of learning, teaching, and industries, in case of collective or individual benefits at local and national levels). These instruments were extremely helpful in polishing potential and prospective teachers. ICT integration provides prospective teachers with lots of information according to their own will. The methodology of teaching and the type of instruction is greatly affected due to these sources. ICT provides tons of data about every topic, which is its main advantage and its effects, can be seen in the methods of teaching, by teachers who use ICTs regularly (Kuru Gönen, 2019; Munir, Lakhvi, & Akhter, 2023). The Impact of Religious Texts for Values Education in Higher Education Institutions of Pakistan. *Al-Azhār*, 9(02), 13-22.). If students are instructed to use ICTs to solve their own problems, they can gain knowledge by using ICTs according to their own interests. Extraordinary impacts of ICTs have been noted on the academic fulfillment of pupils (Romero & Ventura, 2020). One of the key aspects of ICT, according to Shaheen, Naeemullah, and Zaman (2022). Is that it allows students to gain knowledge about power by studying through online sources and living in environments that support online learning. They can gain knowledge at a broader level, and were not limited to just what their teachers knew. The use of ICT is also very important in the teaching process since it provides new methods for better understanding the students and can help them gain quality education and learn better communication skills (Song & Bonk, 2016). The involvement of ICT in education has played important role in the thinking of the students, getting maximum knowledge and concepts, and learning. New things using various ICT applications. They cannot only read and learn through online sources but they can also save the data for the coming days (Retnawati, Djidu, Apino, & Anazifa, 2018). There were different types of channels that provided different knowledge in different ways for better understanding and tutors and students could both benefit from it (Shah, Nisar, Rehan, Naeem, & Ul-islam, 2022). The other benefit of information and communication technology is that prospective teachers can learn new things and apply them to their classrooms. Now many tools were available regarding ICTs. ICTs tools in the classroom must be enhanced by teachers, (Ohlin, 2019). In education, information and communication technologies were becoming increasingly popular as they provided knowledge, not only to students but also to prospective teachers, who could learn effective teaching methods (Joshi, Vinay, & Bhaskar, 2021). There were three points for a more technologically advanced learning program that included technology, being in touch with social activities, and the method of teaching. Researchers also provided new techniques at ICTs that

can improve the teaching methodology and help to increase student achievement (Cifuentes, 2022).

### 1.1. Research objectives

Research objectives of the study were

- To determine the effect of using information communication technologies on prospective teachers knowledge
- To explore the effect of using information communication technologies on prospective teachers skills
- To analyze the effect of using information communication technologies on prospective teachers attitude

### 1.2. Research questions

Research questions of the study were

1. What is the effect of using information communication technologies on prospective teachers' knowledge?
2. What is the effect of using information communication technologies on prospective teachers' skills?
3. What is the effect of using information communication technologies on prospective teachers' attitude?

## 2. Research Methodology

This study was survey and descriptive in nature. The quantitative research approach was adopted. Population of the study comprised of 40 teachers teaching prospective teachers and 325 prospective teachers. Sample of the study consisted of 20 teacher educators teaching prospective teaches and 300 prospective teachers were included in sample of the study through convenient sample techniques. After consulting the experts and pilot study, the final format of questionnaire was delimited 08 items and interview for teacher educators was limited to 04 questions. To assure validity of the tool, different experts were consulted and consequently necessary amendments were made. The data were collected using questionnaire and after that Cronbach's alpha was utilized in order to check the reliability of tool. Cronbach's Alpha is used to measure the internal consistency of items in groups and is often used to measure the scale reliability. By using SPSS, the value of Cronbach's alpha was found 0.95, which determines that the high internal consistency of items. This research was executed at universities level that includes public universities of south Punjab. Population of the study included B.Ed. (Hons.) and M.Ed. students of the public a degree awarding universities.

**Table 1: Description of Likert Scale**

Option	Value
Strongly Agree	5
Agree	4
Undecided	3
Disagree	2
Strongly Disagree	1

## 3. Findings

Findings of the study were

**Table 2: Prospective teacher thinking about ICTs**

Sr.	Statements	Responses					Total	S.D	Mean
		SA	A	UD	DA	SDA			
1	I understand better when teacher integrate ICTs in his/her class lecture	60 21.9%	103 37.6%	55 20.1%	19 6.9%	37 13.5%	274 100%	1.281	3.47
2	I identify and retrieve information from a range of sources of ICTs	64 23.4%	139 50.7%	27 9.9%	28 10.2%	16 5.8%	274 100%	1.100	3.76
3	I accelerate my learning through ICTs	71 25.9%	132 48.2%	29 10.6%	20 7.3%	22 8.0%	274 100%	1.153	3.77
4	I feel pleasure when use	76	122	48	16	12	274	1.031	3.85

ICTs 27.7% 44.5% 17.5% 5.8% 4.4% 100%

Note: SA: Strongly agree, A: Agree, UD: Undecided, DA: Disagree, SDA: Strongly disagree

Table.2 presented data about disposition and information through ICTs and showed that 21.9% respondents were strongly agreed with the statement that they understand better, when teacher integration ICTs in their class lecture while 37.6% were agree, 20.1% were undecided, 6.9% were disagreed, and 13.5% were strongly disagreed with the above statement. Standard deviation and mean for the statement were 1.281 and 3.47 respectively. Similarly, 23.4% respondents were strongly agreed with the statement that they understand better, when identify and retrieve information from a range of sources of ICTs while 50.7% were agree, 9.9 % were undecided, 10.2% were disagreed, and 5.8 % were strongly disagreed with this statement. Standard deviation and mean for the statement were 1.100 and 3.76 respectively. Similarly, 25.9% respondents were strongly agreed with the statement that they understand better, when accelerate learning through ICTs while 48.2 % were agree, 10.6 % were undecided, 7.3% were disagreed, and 8.0% were strongly disagreed with this statement. Standard deviation and mean for the statement were 1.153 and 3.77respectively. Similarly 27.7% respondents were strongly agreed with the statement that they understand better and feel pleasure when use ICTs while 44.5 % were agree, 17.5 % were undecided, 5.8% were disagreed, and 4.4 % were strongly disagreed with this statement. Standard deviation and mean for the statement were 1.031 and 3.85 respectively.

**Table 3: Development of Skills through ICTs**

No.	Statements	Responses					Total	S.D	Mean
		SA	A	UD	DA	SDA			
1	I acquire communication skills for workplace preparedness	78 28.5%	114 41.6%	35 12.8%	27 9.9%	20 7.3%	274 100%	1.184	3.74
2	I convey my ideas efficiently and logically in specific content using ICTs	67 24.5%	104 38.0%	58 21.2%	25 9.1%	20 7.3%	274 100%	1.161	3.63
3	I use ICTs to get command on technical and technological skills	72 26.3%	121 44.2%	38 13.9%	25 9.1%	18 6.6%	274 100%	1.139	3.74
4	I learn on my own with profound interest	78 28.5%	120 43.8%	40 14.6%	23 8.5%	13 4.7%	274 100%	1.081	3.83

Note: SA: Strongly agree, A: Agree, UD: Undecided, DA: Disagree, and SDA: Strongly disagree

Table.3 presented data about the development of skills through ICTs and showed that 28.5% respondents were strongly agreed with the statement that they acquire communication skills for workplace preparedness while 41.6% were agree, 12.8% were undecided, 9.9% were disagreed, and 7.3% were strongly disagreed with the above statement. Standard deviation and mean for the statement were 1.184 and 3.74 respectively. Similarly 24.5% respondents were strongly agreed with the statement that they understand better, when they convey ideas efficiently and logically in specific content using ICTs while 38.0% were agree, 21.2 % were undecided, 9.1% were disagreed, and 7.3 % were strongly disagreed with this statement. Standard deviation and mean for the statement were 1.161and 3.63 respectively. Similarly, 26.3% respondents were strongly agreed with the statement that they understand better, when use ICTs to get command on technical and technological skills while 44.2 % were agree, 13.9 % were undecided, 9.1% were disagreed, and 6.6% were strongly disagreed with this statement. Standard deviation and mean for the statement were 1.139 and 3.74 respectively. Similarly, 28.5% respondents were strongly agreed with the statement that they understand better and learn on their own with profound interest while 43.8 % were agree, 14.6 % were undecided, 8.5% were disagreed, and 4.7 % were strongly disagreed with this statement. Standard deviation and mean for the statement were 1.081 and 3.83 respectively.

**3.1. Inferential Statistics**

**Table 4: Comparison between opinion of Male and Female prospective teachers**

Gender	NO. respondent	Mean	SD	CV (Z)
Female	197	3.25	1.19	0.86
Male	77	3.01	1.50	

The above table shows that calculated value 0.86 is less than table value 1.96 at 0.05 (significance level). There is insignificance difference between opinion of male and female teacher.

**Table 5: Knowledge gain by prospective teachers through ICTs**

No	Statement	Frequency	Percentage
1	Pedagogical knowledge	5	25%
2	Content knowledge	4	20%
3	Technological knowledge	10	50%
4	Technical knowledge	1	5%
	Total	20	100%

### 3.2. Opinion of teachers

The above table shows that 50% teachers gain technological knowledge, 25% gain pedagogical knowledge, 20% gain content knowledge and 5% gain technical knowledge through ICTs.

**Table 6: Factors improve ICTs skills among prospective teachers**

No	Statement	Frequency	Percentage
1	Study habits	4	20%
2	Keen interest	6	30%
3	Regular practice	4	20%
4	Research habits	6	30%
	Total	20	100%

The above table shows that 30% of teachers improve keen interest, 30% improve research habits, 20% improve study habits, and 20% improve regular practice through ICTs skills.

**Table 7: The uses of ICTs for prospective teachers**

No	Statement	Frequency	Percentage
1	Searching material	3	15%
2	Developing presentation	10	50%
3	Drafting reports	3	15%
4	Communication	4	20%
	Total	20	100%

The above table shows that 50% teachers use developing presentation, 20% use communication, 15% use searching material, 15% use drafting reports through ICTs.

**Table 8: Factors of ICTs promoting affective learning of prospective teachers**

No	Statement	Frequency	Percentage
1	Motivation	6	30%
2	Aptitude	1	5%
3	Repetition	4	20%
4	Practice	9	45%
	Total	20	100%

The above table shows that 45% teachers promote practice, 30% promote motivation, 20% promote repetition and 5% promote aptitude affective learning of ICTs.

## 4. Discussion

The study illustrated that most of prospective teachers understand better, when teacher integration ICTs in their class lecture (Shaheen, Naeemullah, & Zaman, 2022). It is depicted that mostly respondents were agreed that they understand better when identify and retrieve information from a range of sources of ICTs, fell pleasure and accelerate learning through ICTs (Vilppola et al., 2022). The study affirmed that most of the respondents were agreed that they acquire communication skills for workplace preparedness (Choi, Glassman, & Cristol, 2017), they understand better, when they convey ideas efficiently and logically in specific content using ICTs, they understand better, when using ICTs to get command on technical and

technological and they understand better and learn on their own with profound interest (Siam & Basri, 2019). There was insignificance difference between opinion of male and female teacher. Likewise, the study depicted that majority of teacher educators agreed that prospective teachers gain technological knowledge, through ICTs. They improve keen interest and improve research habits as ICTs promote motivation, practice, affective learning. The study showed that majority of students use developing presentation through ICTs. Prospective teachers gain knowledge and skill through doing research, effective teaching practices, problem solving and teaching concepts clearance while using ICTs (Brown & Duguid, 2017).

#### 4.1. Recommendations

Following recommendations were made based on findings and conclusions

- The ICTs may be used for effective learning, concept clearance, assignment preparations and presentations.
- The ICTs may be used for increasing knowledge of prospective teacher during teaching and learning prospective teachers
- The ICTs may be used for developing skills among prospective teachers during teaching of prospective teachers

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