



# Role of Technology in the Professional Development of Prospective Teachers at Secondary Level in Punjab

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The main purpose of the research study was to identify the role of technology in the professional development of prospective teachers at secondary level in Punjab. The population of the study comprised 16 teachers training institutions situated in Rawalpindi. 16 head teachers of teacher training institutions 75 teacher educators of teaching training institutions and 322 prospective teachers from teachers training institutions were population of the study. The sample of the study was 12 head teachers 57 teacher educators and 242 prospective teachers of teacher training institutions in Rawalpindi. Three questionnaires were developed to get the response of head teachers, teacher educators and prospective teachers separately. The data collected from respondents of different categories were analyzes by taking percentage and mean score was used to analyze the data through SPSS-21. It has been found after conducting the research that all the class rooms are equipped with educational technology for the use of teacher educators and prospective teachers, educational technology enhance professional competence of prospective teachers in teacher training institution and prospective teachers usually able to



use all type of technology, Educational technology is the new dynamic in the traditional learning, The research was conducted on the topic entitled “role of technology in the professional development of prospective teachers at secondary level in Punjab ”. The objective of the study was impact of the technology on the prospective teachers. This study would be helpful to the policy makers, administrators, and the teacher educators to improve the programme. The entire teacher training institutions situated in Rawalpindi was the sample of the study. The sample was selected by using stratified random sample technique. Main focus of the study to identify the role of technology in the professional development of prospective teachers at secondary level in Punjab. The professional development institutions using technology slowly but gradually it really needs enthusiastic and willing teaching staff, well organized educational system, and responsive environment for students and teachers.

**Key words:** *Educational Technology, Professional Development of Teachers, Curriculum Development*

## **Introduction**

Professional development of teachers is now becoming a slogan in modern educational scenarios. This is a critical way of increasing the complex skills and abilities of teachers and making them aware of the demands and standards of the modern educational system. Professional development is a leading process of improving teachers’ skills and the school environment. Kennedy (2016) describe professional development as a source of enhancing knowledge and understandings, skills and abilities, and unfolding individuals’ hidden potentials that contribute to the development of their own personalities and the growth and development of their institutions. Similarly, Wasserman and Migdal (2007) also describe professional development as a growth-promoting process for all the stakeholders of an educational organization. The concept of professional development is multi-facet and caters to both edges of an individual’s life, individual personality, and professional life. Gudmundsdottir and Mork (2018) describes Professional development improves all those personality attributes that contribute to the professional lives of individuals. It enhances their personal and soft skills and also their professional capabilities. The blend of which makes a person “a professional” that is ready to compete in this challenging task. Haug and Mork (2020) stated that Professional



development focuses not only on the teaching strategies that are necessary for a specific curriculum but also on the continuous active learning process on the part of teachers. Ivanova, Gubanova, Shakirova and Masitoh (2020) says Whatever society wants to inculcate in the younger generation should be found in the personalities of their teachers and they should also know all the effective ways of transferring knowledge and skills. This is the core concept of professional development.

### **Literature Review**

Professional development is a continuous process of learning and practicing new skills in an educational environment. As Meesuk, Sarmoon and Wongrugsu (2020) state that the process of professional development should be ongoing and on-site that is derived from the current practices and focuses on students' performance. Jenst and Klette (2018) stated that the process of professional development is also directional and based on teachers' needs and works with their collaboration. The ultimate objective of which is not only to enrich teachers with the latest required content and multi-dimensional strategies but also to empower students with knowledge and life skills. As Fraillon, Ainley, schulz, Duckworth and Friedman (2019) says that teachers need high-quality continuous professional development that leads to a triangular development of teaching, learning, and student outcomes. It shows that the ultimate end of professional development is an improvement in students' overall achievements. The same concept is also found earlier in Misra (2018) who describe the ultimate objective of teachers' education and staff development as students' achievements. Using technology in the teaching training institution setting requires training (to develop the knowledge and skills to apply the tools) and professional development (to understand and apply the technology in instruction and institutional management). According to Clandinin (2019) "Technology is not restricted to machines and hardware, but includes techniques and procedures derived from scientific research about ways to promote change in human performance". Educational technology has practical value for the development, application and assessment of instructive programme. It means the organized application of technical or other systematized information to the applied task. It helps students to achieve their goals and technology in education also increase the attention of the student towards the standardized test score in the examination. Gelgado, Wardlow, Malley and McKnight (2015) stated that technological tools should be a seamless part of the institutional environment, requiring no more prior learning to apply than, say, electricity. Teachers and students would use technological tools-or not-in learning situations, depending on whether they helped one to learn in that context. Instefjord and Munthe (2017) stated that the research were required, students would conduct it at the school digital library or at a remote resource as needed.

Educational technology is the study of ethical practice of facilitating leaning and improving performance by creating, using, and managing appropriate technical process and resources.



Educational technology is both use hardware and learning theories. Educational technology is the new dynamic in the traditional student-teacher relationship, however no one can argue that the most important influence in student learning and achievements is still teacher quality so it stands to reason that the true challenges of effectively integrating technology in education is human rather than technology while technology advance hold the promise of improve learning instruction. Technology focused professional development for teachers are the critical if technology is truly to be used to promote learning for all students.

A comprehensive well thought out professional development plan that moves educators along the continuum from no voice to integrate our time, regardless of their starting position, demonstrate investment, commitment and thoroughness on the part of area. As teachers develop their core technology skills, they need ongoing support through a professional development environment that is constantly interwoven with hands on use of technology to reinforce their effort and learning.

The increasing trend of using new technologies and making this world more digitalized is rapidly replacing the traditional lifestyle. According to Lazar (2015) every sphere of life is adopting new trends by replacing the traditional methods with technology-related skills. The same change is also occurring in the field of teaching. Teaching as the directional force of every field requires more skilled and technology-based faculty to adapt and enhance the modern culture of the latest technology. Voogt, erstad, Dede, and Mishra (2013) says that the educational institutions are assumed to fulfill the responsibility of imparting the latest trends and technological skills to their students successfully. As Bozkurt (2020) says that the accomplishment of this challenging job, teachers play a key role as they are 'imparting agents' at all levels. They are supposed to have all the prerequisites for the successful implementation of such technological trends and skills.

Technology is a broader concept having all the skills and procedures of adopting modern trends of the digitalized world. As Osman and Warner (2020) says technology is not a restricted concept of using some gadgets or machines. Rather it is a vast field of having knowledge and skills of the required techniques and procedures. It is scientific and promotes human abilities and performance. Similarly, Sleeter (2017) says that people who learn the use of technology make a digital Generation and they work better than others. They are more socialized and have connected to the world. They prefer to work collectively to get more chances and opportunities for betterment. Fraillon, Ainley, Schulz, Duckworth and Friedman (2019) also endorses the same concept by saying that this is the latest technology that connects individuals to society by providing them access to the latest information and knowledge and creating sense of a digital age in them. From the perspective of the educational system, technology is required to be used successfully at all levels. Educational technology has all technical concepts and skills that are relevant to educational processes and can be successfully implemented. Valverde, Garrido,



Burgos, and Morales, (2017) says that educational technology is not a simple concept rather it is a complex phenomenon that works in an organization by integrating different trends, ideas, skills, procedures, and devices. It is directed to analyze the situations, find out the problems and skillfully solve them. According to Bragg, Walsh, and Heyeres, (2020) that the implementation of educational technology is a scientific procedure for handling sensitive and critical issues in the field of education.

According to Anderson and Rivera (2020) the use of educational technology has become a prerequisite for those who want to join the profession of teaching and it is equally important for those who are already serving the nation as teachers. Fernandez, Montenegro, Fernandez and Garcia (2020) says that teachers are supposed to introduce new technology or technological gadgets during their teaching and make their lessons attractive and effective by them. For this, they are required to have a sufficient knowledge base of their discipline with the excellent use of technology. But they need specialized courses and programs during their training about the effective use of technology instead of using some common gadgets of no use. Bates and Morgan, (2018) says that teachers should be competent on both edges, about the nature and methodology of their discipline and about the inclusion of the latest technological trends in their teaching strategies. The lack of knowledge about the content and the latest trends affects the professional competencies and should be tackled immediately and sensitively on a priority basis. As Dron (2020) says that lack of knowledge about the nature and methodology of the content also disturbs the proper use of technology during the teaching.

There are many teachers' training institutions in Punjab. They are offering different training programs to the teachers to enhance their skills and capabilities in the field of teaching. They offer different courses to improve the knowledge base and provide opportunities for practical teaching. They are also introducing the concept of educational technology and their implementation in the classroom environment. But even then, it is commonly observed that the teachers are not competent enough in handling technological gadgets or using the latest technologies during their classroom teaching. As Ekinici, and Acer (2019) also notice that computer technology is not effectively implemented in classroom teaching. Teachers may also be competent enough to get knowledge about their discipline and teaching strategies through the internet themselves. As Ansyari, Groot and Witte (2020) highlights the internet is the latest and fastest means for learning instructional tactics and skills. But this demands technological aptitude or trend on the part of a teacher, Avidov and Forkosh (2018) said that the teachers' training institutions are supposed to make them able to get benefit from the technological measures in their professional lives by themselves.

From this perspective, the researcher planned to get an insight into the role of teachers' institutions regarding the use and provision of educational technologies with the title "role of



educational technology in the Professional Development of Prospective Teachers at secondary level in Punjab”.

### **Objectives of Study**

- i. To identify the availability of educational technology at teacher training institutions in Punjab
- ii. To find out the use of technology by the prospective teachers in teacher training institutions in Punjab

### **Significance of the Study**

The study would be of immense significance in the professional development of secondary school teachers. This study was an attempt to assess the overall role of the technology in the professional development of prospective teachers at secondary level in Punjab. This study would be helpful to policymakers, administrators, and teacher educators to improve the teacher training program. It would also be helpful for the prospective teachers and in-service teachers in developing their professional skills.

### **Methodology**

The study is descriptive in nature; data and related information were gathered by survey method. A self-developed questionnaire was used to get data from the head teachers, teacher educators, and prospective teachers. The population of this study was comprised of all heads (16), all the teacher educators (75) and all the prospective teachers (322), of teachers' training institutions offering professional development programs in Rawalpindi. The sample was selected randomly and 75 percent of the total population. Head teachers (12), teacher Educators (57) and 242 prospective teachers were included in sample. The response rate was 100%. The questionnaires were administered to the respective respondents in person where possible and through the mail by sending self-addressed envelopes to make sure the collection of data according to need. For data analysis, the researcher used the Percentage and means score of responses on SPSS-21. For this purpose three questionnaire one each for head teachers, teacher educators and prospective teachers on five point likert scale were developed.

### **Delimitations**

- i. Due to financial and administrative constraints the study was delimited to 16 teaching training institutions located in Rawalpindi.
- ii. All the teachers were the population of the study but the study was delimited to those teacher educators who were teaching to the prospective teachers of secondary school level.
- iii. The study is delimited to prospective teachers of secondary school level

## Results and Discussion

### Responses of Heads of Teacher Training Institutes

**Table 1:**

*Classrooms Equipped with Educational Technology*

Statement	N	Levels	Frequency	Percentage	Mean Score
All the classrooms are equipped with educational technology	12	SA	2	16.7	4.1667
		A	4	33.3	
		UNC	Nil		
		DA	6	50.0	
		SDA	Nil		

Table 1 shows that 50 percent of respondents strongly agreed 33.3 agreed and 16.7 percent disagreed that all the classrooms are equipped with educational technology. The mean score is 4.1667.

**Table 2:**

*Use of Educational Technology by Prospective Teachers*

Statement	N	Levels	Frequency	Percentage	Mean Score
This program enables prospective teachers to use educational technology	12	SA	7	58.8	4.25
		A	3	25.0	
		UNC	Nil		
		DA	2	16.7	
		SDA	Nil		

Table 2 shows that 58.3 percent of respondents strongly agreed 25 percent agreed and 16.7 percent disagreed that this program enables prospective teachers to use educational technology. The mean score is 4.2500.

**Table 3**

*The Learning Activities In Institutional Environment*

Statement	N	Levels	Frequency	Percentage	Mean Score
Institutional environments support the learning activities	12	SA	12	100.0	5.00
		A	Nil		
		UNC	Nil		
		DA	Nil		
		SDA	Nil		

Table 3 show that 100 percent of respondents strongly agreed that institutional environments support learning activities. The mean score is 5.00.

**Table 4:**

*The Internet Access to Prospective Teachers*

Statement	N	Levels	Frequency	Percentage	Mean Score
The institution provides internet access to the prospective teachers	12	SA	2	16.7	4.83
		A	4	33.3	
		UNC	Nil		
		DA	6	50.0	
		SDA	Nil		

Table 4 shows that 16.7 percent of respondents strongly agreed 33.3 percent agreed and 50 percent disagreed that institution provides internet access to prospective teachers. The mean score is 4.8333.



**Table 5:**

*Students are Satisfied with their Learning*

Statement	N	Levels	Frequency	Percentage	Mean Score
Students are satisfied with their learning in the institution	12	SA	12	100.0	5.00
		A	Nil		
		UNC	Nil		
		DA	Nil		
		SDA	Nil		

Table 5 show that 100 percent of respondents strongly agreed that students are satisfied with their learning in the institution. The mean score is 5.00.

### Responses of Teacher Educators

**Table 6:**

*Classrooms Equipped with Educational Technology*

Statement	N	Levels	Frequency	Percentage	Mean Score
All the classrooms are equipped with educational technology	57	SA	22	38.6	4.26
		A	31	54.4	
		UNC	2	3.5	
		DA	1	1.8	
		SDA	1	1.8	

Table 6 shows that 38.6 percent of respondents strongly agreed 54.4 percent agreed 1.8 strongly disagreed 1.8 percent disagreed and 3.5 percent remain uncertain that all the classrooms are equipped with educational technology. The mean score is 4.2632.

**Table 7:**

*Use of Educational Technology by Prospective Teachers*

Statement	N	Levels	Frequency	Percentage	Mean Score
This program enables prospective teachers to use educational technology	57	SA	18	31.6	4.26
		A	36	63.2	
		UNC	3	5.3	
		DA	Nil		
		SDA	Nil		

Table 7 shows that 31.6 percent of respondents strongly agreed 63.2 percent agreed and 5.3 percent remain uncertain that this program enables prospective teachers to use educational technology. The mean score is 4.2632.

**Table 8:**

*Educators use a Variety of Educational Technology*

Statement	N	Levels	Frequency	Percentage	Mean Score
Educators use a variety of educational technology to enhance the professional development of prospective teachers	57	SA	19	33.3	4.19
		A	33	57.9	
		UNC	3	5.3	
		DA	1	1.8	
		SDA	1	1.8	

Table 8 shows that 33.3 percent of respondents strongly agreed 57.9 percent agreed 1.8 percent strongly disagreed 1.8 percent disagreed and 5.3 percent remain uncertain that educators use a variety of educational technology to enhance the professional development of prospective teachers. The mean score is 4.1930.

**Table 9:**

*Educational technology contributes to effective learning.*

Statement	N	Levels	Frequency	Percentage	Mean Score
Educational technology contributes toward effective learning	57	SA	28	49.1	4.47
		A	28	49.1	
		UNC	1	1.8	
		DA	Nil		
		SDA	Nil		

Table 9 shows that 49.1 percent of respondents strongly agreed 49.1 percent agreed and 1.8 percent remain uncertain that educational technology contributes to effective learning. The mean score is 4.4737.

**Table 10:**

*Provision of Internet to Prospective Teachers.*

Statement	N	Levels	Frequency	Percentage	Mean Score
The institution provides internet access to the prospective teachers	57	SA	26	45.6	4.33
		A	27	47.4	
		UNC	1	1.8	
		DA	3	5.3	
		SDA	Nil		

Table 10 shows that 45.6 percent of respondents strongly agreed 47.4 percent agreed 5.3 percent disagreed and 1.8 percent remain uncertain that the institution provides internet access to prospective teachers. The mean score is 4.3333.

## Responses of Prospective Teachers

**Table 11:**

*Educational technology contributes to effective learning.*

Statement	N	Levels	Frequency	Percentage	Mean Score
Educational technology contributes toward the effective learning	242	SA	109	45.0	4.3471
		A	113	46.7	
		UNC	15	6.2	
		DA	5	2.1	
		SDA	Nil		

Table 11 shows that 45.0 percent of respondents strongly agreed 46.7 percent agreed 2.1 percent disagreed and 6.2 percent remain uncertain that educational technology contributes to effective learning. The mean score is 4.3471.

**Table 12:**

*Prospective teachers take interest in using educational technology.*

Statement	N	Levels	Frequency	Percentage	Mean Score
Prospective teachers take interest in using educational technology	242	SA	148	61.2	4.44
		A	65	26.9	
		UNC	19	7.9	
		DA	8	3.3	
		SDA	2	.8	

Table 12 shows that 61.2 percent of respondents strongly agreed 26.9 percent agreed .8 percent strongly disagreed 3.3 percent disagreed and 7.9 percent remain uncertain that prospective teachers take interest in using educational technology. The mean score is 4.44.



**Table 13:**

*The Institution Provides Internet Access to Prospective Teachers.*

Statement	N	Levels	Frequency	Percentage	Mean Score
The institution provides internet access to the prospective teachers	242	SA	76	31.4	3.83
		A	87	36.0	
		UNC	43	17.8	
		DA	34	14.0	
		SDA	2	.8	

Table 13 shows that 31.4 percent of respondents strongly agreed 36.0 percent agreed .8percent strongly disagreed 14.0 percent disagreed and 17.8 percent remain uncertain that the institution provides internet access to the prospective teachers. The mean score is 3.83.

**Table 14:**

*Students are satisfied with their learning in this institution.*

Statement	N	Levels	Frequency	Percentage	Mean Score
Students are satisfied with their learning in this institution.	242	SA	84	34.7	4.19
		A	126	52.1	
		UNC	26	10.7	
		DA	6	2.5	
		SDA	Nil		

Table 14 shows that 34.3 percent of respondents strongly agreed 52.1 percent agreed 2.5 percent disagreed .4 missed the statement and 10.7 percent remain uncertain that students are satisfied with their learning in this institution. The mean score is 4.19.



## Findings

- i. Head teachers and teacher educators agreed that all the class rooms are equipped with educational technology for the use of teacher educators and prospective teachers (Table 1,6).
- ii. Teacher educators and prospective teachers agreed that educational technology enable prospective teachers to use educational technology independently in the class room (Table 2).
- iii. Teacher educators and prospective teachers admits that educational technology enhance professional competence of prospective teachers in teacher training institution and prospective teachers usually able to use all type of technology. (Table 3, 8).
- iv. Head teachers teacher educators and majority of prospective teachers agreed the all type of educational technology provided in maximum institutions. (Table 10.13)
- v. Teachers educators and prospective teachers agreed that educational technology contribute towards effective learning of prospective teachers in professional development institutions(Tables 9,7,11)
  - i. All the respondents are agreed that teacher training institutions provide internet access to the prospective teachers for better understanding the course work (Table 4).
  - ii. Head teachers, teacher educators and prospective teachers respond that prospective teachers are satisfied with their learning in teacher training institution. (Table 12, 14).
  - iii. Prospective teachers admit that educational technology quality is high in teacher training institution. (Table 4)

## Discussion

The research was conducted on the topic entitled “Role of technology in professional development of prospective teachers at secondary level in punjab”. The objective of the study was to identify the role of teacher training institution in professional development of prospective teachers. It has been found after conducting the research that all the class rooms are equipped with educational technology for the use of teacher educators and prospective teachers, educational technology enhance professional competence of prospective teachers in teacher training institution and prospective teachers usually able to use all type of technology, Educational technology is the new dynamic in the traditional learning. The professional



development institutions using technology slowly but gradually it really needs enthusiastic and willing teaching staff, well organized educational system, and responsive environment for students and teachers.

### **Conclusions**

The following conclusions were drawn from the findings of the study.

1. Teachers' educators are professionally competent in teacher training institutions. The majority of them have sound command over their subject and they deliver their lecture prepared and organized.
2. Educational technology contributes toward effective learning in the professional development of secondary school teachers. The data shows that prospective teachers take interest in using educational technology.
3. Students are satisfied with their professional development program at the secondary school level in the teacher training institutions.

### **Recommendations**

1. Highly trained teachers in computer science may be appointed in teachers training institutions have a sound grip on their subject for better results in area.
2. Proper use of audio-video aids in the classrooms to enhance the knowledge of prospective teachers.
3. Internet access might be given to the students, there is a lot of knowledge on the internet but teacher educators should guide the prospective teachers on how to pick the right and authenticated material.
4. Teacher training institutions are situated in main cities it should be at tehsil level at least every one can approach the institutions.



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