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Role of Instructional Technology in Private Teachers Training Colleges in Khyber Pakhtunkhwa, Pakistan

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Abstract

The purpose of the study was to investigate the availability, usability and usefulness of instructional technology and also the barriers to the successful integration of instructional technology in teaching learning process. All the teachers and student teachers working and studying in all private teachers training colleges in Khyber Pakhtunkhwa (Pakistan) constituted the population of the study. The study was delimited to only 24 private teachers

training colleges. The sample comprises 120 teachers and 360 student teachers which were selected through simple random sampling technique. The study was descriptive in nature and a self-developed questionnaire was used as research instrument. Data was collected through personal visits. Percentage and Chi square were applied for the statistical analysis of the data. After analysis of data, it was concluded that instructional technologies were not available in these colleges. Teachers do not use instructional technologies for instructional process. Poor availability; lack of technical and administrative support; laodshedding; lack of skills and knowledge; and lack of training opportunities were the barriers to the successful integration of technology in teaching learning process. Based on findings, it was recommended that instructional technology should be provided to each college on priority basis. A special training programme should be launched for the effective use of instructional technology.

Keywords: Role, Instructional Technology, Teacher Education, Private Teachers Training Colleges

Introduction

Teacher education is playing a vital and crucial role in reforming and strengthening the society and is directly responsible to the development of a nation. It is an instrument which is used to change the social, economic, cultural and political system of the country. As teacher education is a system which prepares competent, talented and professionally skilful teachers which in turn produce talented individual for the development of nation. Therefore, teacher education has the most crucial position in the entire system of education. So it is imperative to pay full attention to make teacher education more effective and successful. The quality of teachers is directly related to the quality of training they receive in teacher training institutions. Instructional technologies play a fundamental and remarkable role in this connection. Teacher training institutions have failed in producing effective and valuable teachers. If instructional technologies are used in the training of student teachers, then it will be sure to produce competent and professionally skillful teachers according to the emerging needs and demands of the society. Instructional technologies are those materials, instruments devices, or machines which make the teaching learning process more effective, interesting, and successful. According to Armsey and Dahl (1973), instructional technology is comprised of those things, materials and devices which are utilized in the teaching learning process. According to Sharma and Sharma (2006), instructional technology is the application of sociological, psychological and scientific rules, principles and knowledge in the teaching learning process to achieve learning objectives. It is the system of devices, instruments, methods and techniques used to attain certain specific learning objectives. Kadzera (2006) stated that through instructional technology, the teacher can easily clarify those complicated concepts which are not easy to explain in words or orally. When students observe the instructional materials, its mechanism and its functions, teachers do not require to explain the topic and students simply understand the things taught by teachers.

The current paper was specially designed to know the role of instructional technology in private teachers training colleges in Khyber Pakhtunkhwa. The researchers expect that the

findings of this research study will bring a constructive revolution in instructional process in private teachers training colleges. The quality of teaching will be improved in these institutes.

Review of Related Literature

Government of Pakistan (1959) explained that "No education system is better than its teachers". Keeping in the view the above statement it is right to say that a teacher plays a very important and crucial role in the nation building. Therefore it is very important that the teacher should be competent and professionally skilful. Good (1973) stated that teacher is an individual working on an official capacity in order to direct the learning experiences of the learners in an educational institution whether private or public. Unger (1996), termed teacher as "any anyone who imparts or communicates information or knowledge to another person is known as a teacher". Hussain (2004) stated that in order to meet the confronted requirements of their career, teachers are expected to use the best practice and strategy to attain the said requirements. The improvement of leaning process depends upon the teachers training and motivation; therefore, if they are well trained and motivated, learning will be enhanced and become more effective and successful. Teaching profession needs clear planned goals, love for profession and attitude towards the profession. Pakistan needs well equipped, well trained and professionally skillful teachers and for this purpose, teaching training institutions are responsible to meet the same needs of the country. He further added that the quality of education depends upon many factors. These factors include curriculum, environment and especially on the quality of instruction. Teacher is most important instrument for effective and successful instruction. Therefore, the quality of instruction is directly related with the effectiveness of inputs, process and products of teacher training. In teacher training institutions, teachers are given training and prepared professionally skilful. Therefore this training should be given to prospective teachers so effectively through the application of new methods and techniques that they may show goods results in the practical situation. Afshari, Bakar, Luan, Samah and Fooi (2009) explained that in fact, teachers training programmes play a crucial and remarkable role in providing the necessary leadership to pre-service and in-service teachers during training to handle the current needs and demands of the society and economy. They should introduce the new pedagogies and tools for leaning to enhance the teaching learning process. Besides, teaching training institutions and programmes should provide the teachers to know how the new technologies can best be applied in the context of the culture, needs and economic conditions of their country.

The quality of teachers is directly related to the quality of the teacher training. The effectiveness of the teachers in the classroom depends upon the effectiveness of teacher training. In order to evaluate the effectiveness of the instruction, it is necessary to investigate the situation of the classroom and particularly the attitude of the teacher in the teaching learning situation. The teacher's performance in this process depends upon its knowledge and its abilities (Glaser 1989). Teacher training programmes prepare the prospective teachers with diversity of skills, abilities, knowledge, attitudes and other behaviours in order to become a good teacher (Diamond, 1991).

Private Teacher Training Colleges in Khyber Pakhtunkhwa Province

There are forty eight private teacher training colleges in Khyber Pakhtunkhwa. They offer different teacher training programmes. These training programmes include C.T, J.D.P.E, S.D.P.E, B.Ed, M.Ed, P.C.T, D.Ed, .M.D etc. The detail of these private teacher training colleges is given below:

Detail of Private Teacher Training Institutions in Khyber Pakhtunkhwa Province

S.#	Name of Institute	Programme Offered
1.	Abbott Group of Colleges, Kohat	J.D.P.E, S.D.P.E, D.M, D.Ed
2.	Abbott College of Education, Abbottabad	B.Ed
3.	Abbott Group of Colleges, Abbottabad	JDPE,M.Sc(HPE), DM, B.Ed, M.Ed
4.	Abbott Group of Colleges, Mansehra	
5.	Abbott Group of Colleges, Lakki Marwat	P.T.C, D.M, C.T, J.D.P.E, S.D.P.E
6.	Abbott Group of Colleges, Mingora Swat	B.Ed, M.Ed, SDPE, PTC, M.Sc (HPE)
7.	Al. Hafiz Fazal College of Education, Kohat	B.Ed
8.	Alpha college of Education, Mardan	B.Ed
9.	Avicenna College of Education, Malakand	B.Ed
10.	Aziz College of Education, Swabi	B.Ed
11.	Brains Postgraduate College, Peshawar	B.Ed
12.	Capital Institute of Education & Research Peshawar	B.Ed
13.	Centre of Academics Bannu	B.Ed, M.Ed, M.Sc(HPE),JDPE, SDPE
14.	Chitral College of Education, Chitral	B.Ed, M.Ed
15.	College of Global Technologies, Swat	B.Ed, M.Ed
16.	College of Business Administration, Abbottabad	B.Ed, M.Ed, B.P.Ed, M.P.Ed, M.A (Edu)
17.	College of Business & IT Batkela, Malakand	B.Ed,M.Ed,JDPE, PTC, CT, DM, SDPE
18.	Comwave Institutes of Science & IT	B.Ed, M.Ed, JDPE, SDPE, M.Sc HPE
19.	Country Model College	B.Ed, M.Ed, J.D.P.E, S.D.P.E
20.	Dot Com College of Science, Technology & Education	B.Ed
21.	Frontier Institute of Education & Management Science	B.Ed, M.Ed, JDPE, PTC, CT, D.M
22.	Global Girls Degree College	M.Ed
23.	Hessian Model Degree College	B.Ed, M.Ed, JDPE, PTC, CT, DM, SDPE, M.Sc (HPE)
24.	HIRA College of Education	B.Ed
25.	HIRA College of Education	B.Ed
26.	I.E.R Peshawar	B.Ed, M.Ed
27.	I.E.R. Swabi	B.Ed, M.Ed
28.	Institute of Education & Research	B.Ed
29.	Islamia College of Education	B.Ed
30.	Jinnah College of Education	B.Ed
31.	Jinnah Institute of IT & Management Sciences	B.Ed, M.Ed
32.	Khyber College of Physical Education Baghdada	J.D.P.E , S.D.P.E, M.Sc (HPE)

33.	Kohsar Public School & College Latamber	B.Ed, M.Ed, J.D.P.E , P.T.C, C.T, D.M, S.D.P.E, M.Sc(HPE)
34.	Lucky College of Education & Research	B.Ed,JDPE,SD.P.E,B.LC.S,M.Sc(HPE)
35.	Mardan College of Health & Physical Education	B.Ed, M.Ed, S.D.P.E
36.	National College of Health & Physical Education	B.Ed, M.Ed, J.D.P.E, S.D.P.E
37.	Northern University	B.Ed, M.Ed
38.	Oxford Education Academy	B.Ed, M.Ed
39.	Sarhad Institute of Education & Research	B.Ed, M.Ed, M.Sc (HPE)
40.	Sahibzada Abdul Qayyum College of Education	B.Ed, M.Ed
41.	Sir Syed College of Education	B.Ed
42.	Sir Syed College of Education	B.Ed
43.	Suffa Hi Tech Girls College	B.Ed
44.	Swabi College of Physical Education	B.Ed, J.D.P.E , S.D.P.E, M.Sc (HPE)
45.	Swat College of Education	B.Ed
46.	The Regional College of Education Takhtbhai	B.Ed, M.Ed, J.D.P.E, S.D.P.E
47.	Tracks Institutes of Management, Education & IT	B.Ed, JDPE (D.P.Ed), SDPE (B.P.Ed)
48.	I.E.R Bannu	B.Ed, M.Ed, M.Phil (Education)

Source: (DCTE, Khyber Pakhtunkhwa, Abbottabad, 2009)

According to the UNESCO (2006b) and Saleem (2009) cited by Ali (2011), private sector is becoming a key player in teacher education; but this tendency is commercialization in nature in this educational field. There are only few teacher training institutions in private sector which design and deliver quality pre-service and in-service training programmes based on modern knowledge teaching practice and profession. These teacher training institutes are trying to make teaching and learning practices more advance and effective in the classroom that are participatory, more interactive, which focuses on promoting conceptual understanding, critical thinking, and problem solving skills.

Instructional Technology

Instructional technology has been defined by different scholar in different ways. Heinich et al. (1993) defines instructional technology as "the application of our scientific knowledge relating to human learning to the practical tasks of teaching- learning process". Cassidy (1982. p.1) describes that "instructional technology deals with the process of the enhancement of the efficiency and effectiveness of learning without considering the nature or substance of that learning.…..solutions to instructional problems might need social as well as machine technologies". According to Seels and Richey (1994), instructional technology is "the theory and practice of design, development, utilization, management and evaluation of processes and resources for learning". Tickton (1971) describes that the aim of instructional technology is to make education more productive, effective and more individual, to give instruction a more scientific base and to make instruction more powerful, learning more instant, mediate and access more equal. According to Venkataiah (1996), instructional technology can make an normal person capable of better performance and a means, either printed or electronic, to distribute that instruction". On the other hand "Educational

technology means to make use of different techniques and procedures to design a learning experience systematically". According to Schaffer and Richardson (2004), when the application of technology is introduced into teacher's education programmes, the emphasis are often given on teaching about technology intended of teaching with technology. Therefore, inadequate preparation to use instructional technology is one of the reasons that teachers are not able to use computers systematically in their classes. Therefore, it is necessary to provide opportunities to teachers for practice to use technology during their training so that they learn the ways and methods in which technology can be utilized to improve their teaching learning process in classroom (Rosenthal, 1999).

The term educational technology is often used interchangeable with the instructional technology. However, there is considerable difference between these two terms. Educational technology is broad subject than instructional technology. Instructional technology is the subdivision of educational technology. Seels and Richey (1994) describes, "the term educational technology is broader than instructional technology as educational refers to 'all aspects of education' whereas the term instructional is restricted to 'teaching and learning problems'. Venkataiah (1996) stated that although the term instructional technology is frequently used identical with educational technology, it presents certain refinements that are not exist in the meanings of educational technology.

Characteristics of Instructional Technology

According to Sharma and Sharma (2006), the main characteristics of the instructional technology are:

- Instructional technology assists in achieving cognitive objectives successfully and effectively.
- By the application of instructional technology, the precise and accurate responses of the students are confirmed for providing the reinforcement continuously.
- Instructional technology ensures the provision of opportunities to students to learn according to his own pace.
- Instructional technology helps in incorporating psychological learning theories and principles.
- The instructional technology assists in creating the learning of external conditions, contiguity practice and reinforcement.
- Instructional technology helps in developing instruction theories in learning process.
- Instructional technology can be used in storage of effective and competent teachers.
- Instructional technology helps in providing deep insight into the context structure and sequence of its elements.

Singh (2005) explained the characteristics of the instructional technology, which are given as under:

- Instructional technology is valuable in achieving cognitive objectives.
- Instructional technology can meet the deficiency of effective teachers.

- Through Instructional technology, students become able to learn according to their own needs and speeds.
- Instructional technology assists in controlling individual differences.
- Analysis of content in depth is carried out in this technology, which encourages optimism regarding the presentation of contents.

Barriers to the Successful Integration of Instructional Technology

Poor Availability of Instructional Technology

Successful and effective integration of technology generally depends upon its availability. Research studies shows that non-availability of technologies is the main barrier in the successful integration of technology into classroom. Mumtaz (2000) found that non-availability of technology was a key important factor reducing the utilization of technology by the teachers in their instruction. Research findings recommend that technologies are extensively under-used by students and teachers due to inaccessibility and non-availability of resources in institutions (Veen, 1993; Byard, 1995, Wild, 1996). Therefore, it is concluded that availability of instructional technology is the first priority to the successful integration of instructional technology.

Lack of Training and Skills

Teachers play a vital and crucial role in the integration of technology into teaching learning process and therefore, it is imperative for teachers to possess experiences and skills to use technology successfully. Smarkola (2008) stated that those teachers are very important who are skillful and expert in using and managing technology. The prospective teachers should be trained in using technology in the initial teacher education. Researches show that if teachers are not adequately and properly trained, technology will bring no positive effects on the students learning (Office of Technology Assessment, 1995; Sandholtz, 2001, Silverstein et al., 2000). Research studies indicate that teachers who get formal training for the proper use of technology for instructional purpose, they have succeeded to bring significant improvements in the students achievement (Ringstaff and Kelley, 2002). The utilization of technology was linked to higher scores made by eight graders in critical-thinking and problem solving provided the technology be used through trained and skillful teachers in most fruitful and useful ways. It was also found that improvement in student's achievements was linked with the training of teacher in the use of technology (Schacter, 1999).

Lack of Technical Support

The Becta (2004) reported that schools having lack of technical support and they face technical maintenance problems. It is possible that technical maintenance will not be done regularly. As a result, there will be higher risk of technical breakdowns. In this research study, many respondents responded that technical fault may dishearten them from utilizing technologies in their teaching. Though teachers do not integrate technology into education due to lack of technical support, current research shows that in some countries (like United Kingdom, Netherlands, Latvia, Malta and Czech Republic) schools have recognized the significance of technical support to help teachers to use technology in the classroom (Korte

and Husing, 2007).

Loadshedding

Now-a-days, in Pakistan, we face laodshedding problem which have been proved as destructive element in all lifestyles which have affected the development of nation. Due to this problem, it is not possible to use technologies in teaching leaning process. Majority of the teachers do not use available technologies due to the frequent breakdown and Loadshedding. The utilization of technologies depends upon the favorable environment of the classroom. Successful integration of technologies in teaching learning process requires proper training; electricity; technical and administrative support; availability of technologies and other things. In these things, electricity is most essential and necessary thing for the integration of technology. But unfortunately, it is the key problem and barrier to the successful integration of technologies in Pakistan. Hence, it is very important to ensure the provision of alternative source of power energy to ensure and maximize the utilization of available technologies in teaching learning process to make it more effective and successful.

Lack of Time Preparation

The Integrated Studies of Educational Technology asked teachers to point out a variety of main barriers to the successful integration of technology. The teachers indicated three areas i.e., time to develop new activities that incorporate technology, insufficient time in the school timetable to perform activities and insufficient time to practice technology skills. Sammons (1994) arrived at the result that those teachers who are already have much class work and school responsibilities have lack of time for the integration of technology into classroom. They need extra time to learn and to prepare for utilizing technologies in the classroom. They showed that they have no spare time to facilitate their utilization of technology in teaching learning process. Vannatta and Fordham (2004) noted that training of technology is very important, however, teachers should be provided enough time to practice and new technology skills. They also found that those teachers who contribute time for acquiring skills, they have many possibilities of using technology in the classroom as compared to those who are not provided the time to use their newfound technology. Therefore, Wetzel, Zambo and Buss (2000) supported this theory because they found that teachers who are provided time to learn, practice and reflect on their technology training were able to utilize technology with greater ease.

Statement of the Problem

The study was specially designed to know the availability, usability and significance of the instructional technology and also the barriers to the successful integration of instructional technology. Therefore the statement of the problem was entitled as ***"Role of Instructional Technology in Private Teachers Training Colleges in Khyber Pakhtunkhwa, Pakistan".***

Objectives of the Study

The objectives of the study were:

1. to investigate the availability and usability of instructional technology in private teachers training colleges in Khyber Pakhtunkhwa
2. to identify the barriers to the successful integration of instructional technology in private teachers training colleges in Khyber Pakhtunkhwa
3. to find out the significance of instructional technology in teachers training programmes and
4. to suggest workable recommendations for the successful integration of instructional technology in teachers training colleges

Research Methodology

Participants

All the teachers and student teachers working and studying in all private teachers training colleges in Khyber Pakhtunkhwa, Pakistan constituted the population of the study. Only 120 teachers and 360 student teachers were selected through simple random sampling technique.

Delimitations of the Study

The study was delimited to only 24 teachers training colleges. The study was further delimited to B.Ed programme only. The study was also delimited to the teachers and student teachers concerning to B.Ed programme.

Research Instrumentation

The study was descriptive in nature and a self-developed questionnaire was used as research instrument for data collection. The questionnaire was composed of closed and open ended questions.

Pilot Testing

Validation and authentication of the research instrument is important to achieve exact and precise results. For this purpose, pilot testing was conducted to eliminate the weaknesses, misconceptions and ambiguities of the questions in the questionnaire. So after pilot testing, it was revised and then its final version was developed in the light of suggestions given by the experts.

Validity and Reliability

It is essential to ensure the trustworthiness of the research and its findings by addressing the issues of validity and reliability. Validity is the degree to which study assess the same concept that the researcher is trying to measure. Validity of the questionnaire was checked by three experts. Reliability is the degree of consistency that an instrument or data collection procedure demonstrates, while validity is the quality of the collection procedure of the data that enables it to measure what it intends to measure (Best and Kahn, 1998; Gay, 2005; Masrur, 2003). Cronbach's alpha reliability test was used to calculate the reliability of

questionnaire through S.P.S.S (Statistical Package for Social Sciences) version 16. The reliability coefficient was found to be 0.83 for the questionnaire.

Collection of Data

The researchers personally visited the respective sample private teachers training colleges and distributed the questionnaires among the teachers and students. Firstly, difficult items were explained and then they were asked to give appropriate responses without any hesitation and free of bias. In this way data was collected.

Data Analysis

After the collection of data, it was organized, tabulated, analyzed and interpreted. Simple percentage and chi square were used for the statistical analysis of the data.

Analysis and Interpretation of Data

The study was specially designed to know the role of instructional technology in private teachers training colleges in Khyber Pakhtunkhwa. The study was descriptive in nature. A self developed questionnaire was used as research instrument for data collection. Data was collected through personal visits. Statistical tools i.e., percentage and chi-square were used for the analysis of the data. In addition, some items were explained though bar graph. The whole process is discussed as under:

Analysis of the Availability and Usability of Instructional Technology

Table 01: Cumulative Responses of the Teachers and Student Teachers regarding Availability of Instructional Technology

S. No	Instructional Technology	Available		Not Available		N
		Freq:	% age	Freq:	% age	
1.	Classroom Computers	096	20.0	384	80.0	480
2.	Radio	023	04.8	457	95.2	480
3.	Educational television	026	05.4	454	94.6	480
4.	Overhead projectors	089	18.5	391	81.5	480
5.	Multimedia projectors	019	04.0	461	96.0	480
6.	Blackboards/whiteboards	468	97.5	012	02.5	480
7.	Models	076	15.8	404	84.2	480
8.	Pictures	082	17.1	398	82.9	480
9.	Maps	079	16.5	401	83.5	480
10.	Flip Charts	021	04.4	459	95.6	480
11.	Charts	091	19.0	389	81.0	480
12.	Film strips	016	03.3	464	96.7	480
13.	Educational software	056	11.7	424	88.3	480
14.	Flash cards	018	03.8	462	96.3	480
15.	VCRs	009	01.9	471	98.1	480

The table 1 clearly indicates that instructional technologies are not available in private teachers training colleges in Khyber Pakhtunkhwa. The table clearly shows that classroom computers, radios, educational television, overhead projectors, multimedia projectors, models, pictures, maps, charts, film strips, educational software, flash cards and VCRs are not available in private teachers training colleges. Only blackboards and whiteboards were found available in these colleges.

Table 02: Cumulative Responses of the Teachers and Student Teachers about the Usability of Instructional Technology in teaching learning process

S.No	Technologies	Regularly		Some time		Never used		N
		Freq:	%age	Freq:	%age	Freq:	%age	
1.	Classroom Computers	009	01.9	006	01.3	465	96.9	480
2.	Radio	003	00.6	002	00.4	475	99.0	480
3.	Educational television	004	00.8	002	00.4	474	98.8	480
4.	Overhead projectors	003	00.6	006	01.3	471	98.1	480
5.	Multimedia projectors	002	00.4	003	00.6	475	99.0	480
6.	Blackboards/whiteboards	324	67.5	093	19.4	063	13.1	480
7.	Models	012	02.5	014	02.9	454	94.6	480
8.	Pictures	006	01.3	009	01.9	465	96.9	480
9.	Maps	003	00.6	002	00.4	475	99.0	480
10.	Flip Charts	002	00.4	002	00.4	476	99.2	480
11.	Charts	008	01.7	012	02.5	460	95.8	480
12.	Film strips	002	00.4	003	00.6	475	99.0	480
13.	Educational software	007	01.5	012	02.5	461	96.4	480
14.	Flash cards	001	00.2	002	00.4	477	99.4	480
15.	VCRs	002	00.4	002	00.4	476	99.2	480

The table 2 clearly shows that instructional technologies were not utilized for instructional process in private teachers training colleges. Some instructional technologies were available to some extent but teachers are not interested to use them. Only blackboards and whiteboards were used. On the other hand, computers, radios, educational television, overhead projectors, models, pictures, maps, flip charts, charts, film strips, educational software, flash cards and VCRs were not used in these colleges.

Analysis of the Significance of Instructional Technology in Teacher Training Programmes

Table 03: The use of Instructional Technology is the cause of student's attention.

Respondents	SA	A	UD	DA	SDA	N	χ^2	p-value
Teachers	042 35.0%	059 49.2%	006 05.0%	008 06.7%	05 04.2%	**120**		
Students	124 34.4%	189 52.5%	009 02.5%	026 07.2%	12 03.3%	**360**	**2.22**	**.70**
Total	**166**	**248**	**015**	**034**	**017**	**480**		

Key: **SA** = Strongly Agree **A**=Agree **UN**= Undecided
DA = Disagree **SDA** = Strongly Disagree χ^2= Chi-square
N=No. of Respondents

Non-Significant (p> 0.05) **df = 4** **table value of χ^2 at 0.05 level = 9.488**

Table 3 indicates that the calculated value of χ^2 was found to be 2.22 which is statistically non-significant because it is less than the table value of χ^2 at 0.05 level. It shows that both teachers and students have the same views about the statement. They both agreed to the statement "*The use of Instructional Technology is the cause of student's attention".*

Table 04: The use of instructional technology improves communication between teachers and students.

Respondents	SA	A	UD	DA	SDA	N	χ^2	p-value
Teachers	032 26.7%	069 57.5%	012 10.0%	005 04.2%	002 01.7%	**120**		
Students	113 31.4%	187 51.9%	029 08.1%	022 06.1%	009 02.5%	**360**	**2.46**	**.65**
Total	**145**	**256**	**041**	**027**	**011**	**480**		

Key: **SA** = Strongly Agree **A**=Agree **UN**= Undecided
DA = Disagree **SDA** = Strongly Disagree χ^2= Chi-square
N=No. of Respondents

Non-Significant (p> 0.05) **df = 4** **table value of χ^2 at 0.05 level = 9.488**

Table 4 depicts that the calculated value of χ^2 was found to be 2.46 which is statistically non-significant because it is less than the table value of χ^2 at 0.05 level. It shows that both teachers and students have the same views about the statement. They both agreed to the statement "*The use of instructional technology improves communication between teachers and students*".

Table 05: Instructional technology makes complicated things easy and understandable.

Respondents	SA	A	UD	DA	SDA	N	χ^2	p-value
Teachers	039 32.5%	058 48.3%	008 06.7%	009 07.5%	006 05.0%	**120**	**1.46**	**.83**
Students	116 32.2%	184 51.1%	027 07.5%	022 06.1%	011 03.1%	**360**		
Total	**155**	**242**	**035**	**031**	**017**	**480**		

Key: **SA** = Strongly Agree **A**=Agree **UN**= Undecided
DA = Disagree **SDA** = Strongly Disagree χ^2= Chi-square
N=No. of Respondents

Non-Significant (p> 0.05) **df = 4** **table value of χ^2 at 0.05 level = 9.488**

Table 5 illustrates that the calculated value of χ^2 was found to be 1.46 which is statistically non-significant because it is less than the table value of χ^2 at 0.05 level. It shows that both teachers and students have the same views about the statement. They both agreed to the statement "*Instructional technology makes complicated things easy and understandable*".

Table 06: The use of Instructional Technology ensures the participation of the students in classroom.

Respondents	SA	A	UD	DA	SDA	N	χ^2	p-value
Teachers	043 35.8%	051 42.5%	010 08.3%	010 08.3%	006 05.0%	**120**	**0.36**	**.99**
Students	132 36.7%	159 44.2%	026 07.2%	027 07.5%	016 04.4%	**360**		
Total	**175**	**210**	**036**	**037**	**022**	**480**		

Key: **SA** = Strongly Agree **A**=Agree **UN**= Undecided
DA = Disagree **SDA** = Strongly Disagree χ^2= Chi-square
N=No. of Respondents

Non-Significant (p> 0.05) **df = 4** **table value of χ^2 at 0.05 level = 9.488**

Table 6 shows that the calculated value of χ^2 was found to be 0.36 which is statistically non-significant because it is less than the table value of χ^2 at 0.05 level. It shows that both teachers and students have similar views about the statement. They both agreed to the statement "*The use of instructional technology ensures the participation of the students in classroom*".

Table 07: The use of Instructional technology makes teaching learning process more effective, interesting and real.

Respondents	SA	A	UD	DA	SDA	N	χ^2	p-value
Teachers	056 46.7%	046 38.3%	008 06.7%	007 05.8%	003 02.5%	**120**	**2.57**	**.63**
Students	144 40.0%	152 42.2%	022 06.1%	025 06.9%	017 04.7%	**360**		
Total	**200**	**198**	**030**	**032**	**020**	**480**		

Key: **SA** = Strongly Agree **A**=Agree **UN**= Undecided
DA = Disagree **SDA** = Strongly Disagree χ^2= Chi-square
N=No. of Respondents

Non-Significant (p> 0.05) **df = 4** **table value of χ^2 at 0.05 level = 9.488**

Table 7 depicts that the calculated value of χ^2 was found to be 2.57 which is statistically non-significant because it is less than the table value of χ^2 at 0.05 level. It shows that both teachers and students have the same views about the statement. They both agreed to the statement "*The use of instructional technology makes teaching learning process more effective, interesting and real*".

Table 08: Using Instructional technology increases teacher's productivity as an instructor.

Respondents	SA	A	UD	DA	SDA	N	χ^2	p-value
Teachers	036 30.0%	053 44.2%	012 10.0%	012 10.0%	007 05.8%	**120**	**1.46**	**.83**
Students	122 33.9%	143 39.7%	031 08.6%	037 10.3%	027 07.5%	**360**		
Total	**158**	**196**	**043**	**049**	**034**	**480**		

Key: **SA** = Strongly Agree **A**=Agree **UN**= Undecided
DA = Disagree **SDA** = Strongly Disagree χ^2= Chi-square
N=No. of Respondents

Non-Significant (p> 0.05) **df = 4** **table value of χ^2 at 0.05 level = 9.488**

Table 8 indicates that the calculated value of χ^2 was found to be 1.46 which is statistically non-significant because it is less than the table value of χ^2 at 0.05 level. It shows that both teachers and students possess similar views about the statement. They both agreed to the statement "*The use of instructional technology makes teaching learning process more effective, interesting and real*".

Table 09: The use of technology helps in controlling the individual differences of the students.

Respondents	SA	A	UD	DA	SDA	N	χ^2	p-value
Teachers	034 28.3%	059 49.2%	009 07.5%	015 12.5%	003 02.5%	**120**	**0.91**	**.92**
Students	113 31.4%	168 46.7%	032 08.9%	038 10.6%	009 02.5%	**360**		
Total	**147**	**227**	**041**	**053**	**012**	**480**		

Key: **SA** = Strongly Agree **A**=Agree **UN**= Undecided
DA = Disagree **SDA** = Strongly Disagree χ^2= Chi-square
N=No. of Respondents

Non-Significant (p> 0.05) df = 4 table value of χ^2 at 0.05 level = 9.488

Table 9 illustrates that the calculated value of χ^2 was found to be 0.91 which is statistically non-significant because it is less than the table value of χ^2 at 0.05 level. It shows that both teachers and students have the same opinions about the statement. They both agreed to the statement "*The use of technology helps in controlling the individual differences of the students*".

Analysis of the Open Ended Questions

Table 10: Cumulative Responses of the Teachers and Student Teachers about the Barriers to the Successful Integration of Instructional Technology in Teaching Learning Process

Barriers	Freq:	% age	N
Poor availability of instructional technologies	452	94.2	480
Load shedding	446	92.9	480
Lack of in-service training	442	92.1	480
Lack of funding	439	91.5	480
Physical and technical infrastructure is not suitable	437	91.0	480
Lack of basic knowledge and skills	436	90.8	480
Lack of training for the effective use of technologies	432	90.0	480
Lack of appropriate software, hardware and materials	416	86.7	480
Lack of incentives	386	80.4	480
Lack of technical support	377	78.5	480
Lack of appropriate course content & instructional programs	326	67.9	480
Lack of administrative support	321	66.9	480
Lack of time preparation	312	65.0	480

Table 10 indicates the cumulative responses of the teachers and student teachers about the barriers to the successful integration of instructional technology in teaching learning process.

Table 11: Cumulative Suggestions given by Teachers and Student Teachers about the Successful Integration of Instructional Technology

Suggestions	Freq:	% age	N
Availability of instructional technology should be ensured.	432	90.0	480
Training opportunities should be provided for the effective integration of instructional technology.	429	89.4	480
Special fund should be allocated for the purchasing instructional technology.	396	82.5	480
Alternate power supply system should be provided.	386	80.4	480
Physical and technical infrastructure should be ensured.	372	77.5	480
A subject regarding instructional technology should be introduced in teacher training programmes at all level.	362	75.4	480
In-service teachers should be given training in the utilization of instructional technology.	346	72.1	480
Student teachers should be trained in the utilization of technology in the initial teachers training programmes.	339	70.6	480
Administrative support should be ensured.	326	67.9	480
Technical support should be ensured.	306	63.8	480

The table 11 shows that cumulative suggestions given by the teachers and student teachers about the successful integration of instructional technology in teaching learning process.

Conclusions

After analysis of the data, the researchers arrived at the following conclusions:

1. Only blackboards and whiteboards were available in private teachers training colleges. On the other hand, classroom computers, radios, educational televisions, overhead projectors, multimedia projectors, models, pictures, maps, charts, film strips, educational software, flash cards and VCRs were not available.
2. Instructional technology i.e., blackboards and whiteboards were used for instructional process only. On the other hand, computers, radios, educational televisions, overhead projectors, multimedia projectors, models, pictures, maps, charts, film strips, educational software, flash cards and VCRs were never used for instructional process.
3. Teachers did not use instructional technology in teaching learning process due to some barriers. These were; poor availability of instructional technology; lack of training and skills; load shedding; lack of in-service training opportunities; unsuitable physical and technical infrastructures; lack of funding; lack of technical and administrative support; and lack of time preparation.
4. Instructional technology plays a crucial role in teachers training programmes. It enhances the overall academic achievement of student teachers. It raises the

motivational level and ensures participation of the student teachers. It makes teaching learning process more effective, interesting and successful.

Recommendations

Keeping in view the above conclusions, the following recommendations have been made:

- A special training programme should be introduced for the effective use of instructional technology. The teachers serving in private teacher training colleges should also be provided opportunities for refresher courses.
- Availability of instructional technology should be ensured. The owners of the private training colleges should be bound by the government to ensure the availability of instructional technology. Special rules should be formulated by the government for the availability and usability of instructional technology in these colleges. Computers, radios, educational television, overhead projectors, models, pictures, maps, flip charts, charts, film strips, educational software, flash cards etc should be provided to the private teacher training colleges by the owners immediately.
- Teachers serving in private teachers training colleges should be provided sound and facilitated environment for the effective integration of instructional technology.
- All the in-service teachers serving in private teachers training colleges should be provided training opportunities to make them competent in using instructional technology.
- A compulsory subject regarding the preparation or utilization of instructional technology should be introduced in teachers training programmes conducted in private colleges.
- All the private teachers training colleges should be provided special budget by the Government for purchasing instructional technologies.
- Alternate power supply system should be provided to each private teachers training college for the successful integration of instructional technologies. For this purpose, power generators should be provided to each college on priority basis.
- Physical and technical infrastructure should be designed in such a way that instructional technologies may be used effectively and successfully.
- Special formal training programmes should be launched for the effective utilization of instructional technology at all level of teachers training programmes.
- Technical staff should be appointed in each private teachers training college for repairing of damaged instructional technologies.
- Instructional technologies should be utilized in an effective way. A special staff should be appointed by the government to examine the utilization of instructional technologies by the teachers serving in private teachers training colleges.

Recommendations for Future Research Studies

1. It is recommended that this type of research study should be conducted in other provinces.
2. It is also recommended that this type of research study should be conducted at higher secondary and tertiary level.

3. It is also recommended that this type of research study should be conducted in other general colleges.

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