BARRIERS TO THE SUCCESSFUL INTEGRATION OF EDUCATIONAL TECHNOLOGY IN TEACHING LEARNING PROCESS AT SECONDARY SCHOOL LEVEL IN KHYBER PUKHTUNKHWA PAKISTAN

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ABSTRACT

Educational technology plays a vital and crucial role in facilitating teaching learning process and makes it more effective and successful. But due to some problems, the teachers do not use educational technology in their teaching. Therefore, the study was conducted to investigate the barriers to the successful integration of educational technology at secondary school level in Khyber Pukhtunkhwa (Pakistan). The main objectives of the study were; to find out the main barriers to the successful integration of educational technology in teaching learning process and to find out the proper ways and means for the successful integration of educational technology at secondary school level in Khyber Pukhtunkhwa. All the principals and secondary school teachers at secondary level in Khyber Pukhtunkhwa constituted the population of the study. Only 170 principals and 550 secondary school teachers (@ 25% both principals and secondary school teachers) at secondary school level were selected randomly as a sample in 12 districts out of 24 districts of Khyber Pukhtunkhwa province (Pakistan) i.e. Mardan, Nowshera, Peshawar, Kohat, Bannu, Swat, Sawabi, Karak, Abbottabad, Malakand, D.I.Khan and Lakki Marwat. The study was descriptive in nature. A questionnaire was developed as a research instrument for the collection of data. The study was delimited to the male secondary school teachers and principals. After analysis of data, the researcher arrived at the results that the teachers do not use technologies into teaching learning process due some barriers. The researcher noted that poor availability of technologies is the main barrier to the technology integration. In addition, lack of technical support, lack of administrative support, lack of funding, lack of necessary skills and knowledge, Loadshedding, lack of internet facilities, lack of training opportunities, lack of time preparation and lack of incentives were also recorded.
Key Words: *Educational Technology, Integration of Educational Technology, Barriers to the successful integration educational technology.*

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INTRODUCTION

Education means to bring about positive and desirable changes in the behaviour of an individual according to the requirements of its concerned society. If a teacher succeeds in framing a sound base and making the entire concept clear to a student then it is justified to say that in future the student will be able to handle difficult thing easily. Therefore, it depends on quality education and effective teaching learning process. Educational technologies play a crucial and remarkable role in effective teaching learning process. Educational Technologies are considered those materials, procedures, organizations, ideas, devices, instruments or machines which facilitate the teaching learning process and make it more effective, successful, and unforgettable (Suleman, 2011).

Unfortunately, our educational institutions face so many problems regarding the utilization of educational technologies. In these problems, poor availability of technologies, loadshedding, lack of training and skills, lack of expert teachers, lack of technical support, poor accessibility of technologies and lack of time preparation are the main barriers to the successful integration of educational technologies. Educational technology has proved a fundamental and crucial factor in explaining complex and complicated concepts of the students during teaching learning process. Researches reveal that by the application of educational technologies, the teacher has been succeeded in effective and successful teaching and feels no difficulties and complexities in clarifying the individual's concepts. But I say with the great regret that our teachers still use the old methods of teaching. They do not use the modern method of teaching. In addition, they are not able to use technology in their teaching. Most of the advance countries have developed because they have provided their schools with all types of necessary educational technologies and therefore, they are now able to rule on the world.

Being a school teacher it is my own experience that when technologies like, computers, multimedia, charts, overhead projectors, models, video etc are utilized in teaching, the students learn more successfully and efficiently. That is why I am interesting to investigate the main barriers to the successful and effective integration of educational technology into classroom. I am sure that the paper in hand will be beneficial for the teachers and higher authorities of education to provide educational technologies and other necessary tools at secondary level. In addition, other deficiencies like, poor availability of technologies, lack of technical support, lack of administrative support, Loadshedding, lack of fund, lack of teacher competencies, lack of training opportunities, lack of incentives etc will also be rectified.

REVIEW OF RELATED LITERATURE

Educational technology is complicated, comprehensive and integrated process which involves various things like, ideas, people, procedures, devices and organization design to assess problems and it also consists of other various processes like, devising, implementing, evaluating and managing solutions to those problems which involve in all aspects of human learning (AECT, 1977). On the other hand, Tomei (2002), stated, "Educational technologies are the combination of those instructional, development, managerial and other technologies which are used particularly to find out the solution of educational problems". "It is a system in education which is the combination of diverse things like, machines, materials, media, men and methods working together to attain specific educational objectives" (Sharma & Sharma, 2006. p.28)

Accroding Wikipedia Educational Technology, "Educational technology refers to make use of technology to develop and improve education system. It is a systematic process used to design instruction or training in order to enhance the performance. Educational technology is sometimes also known as instructional technology or learning technology". Similarly, Encyclopedia of Educational Technology defines Educational Technology as "It is a systematic process used to design instruction or training in order to Venkataiah (1996), writes that "Educational technology means the utilization of different techniques and procedures to design a learning experience systematically".

In the light of the above discussion, it comes to surface that educatioal technolgies consist of all those things which involve in teaching learning process and to make it more effective, successful, interested and everlasting.

TECHNOLOGY INTEGRATION

Integration refers to the proper usability of specific technologies as highly effective tools in facilitating learning across all levels of cognitive inquiry and development. (Educational Technology Plan for Virginia 2003-2009). Technology Integration is the utilization of technology tools in general content areas in education in order to allow students to apply computer and technology skills to learning and problem-solving (Wikipedia Encyclopedia).

Integration of technology incorporates technology tools to teach content using effective and successful instructional practices. Technology can give power to students to think critically, solve problems, and evaluate more successfully and efficiently. Effective and successful integration is characterized by how and why technology is used, not by the amount or type of technology.

Grabe and Grabe (2004) defined technolgoy integration as the use of technogloy as a pwerful tool in helping students to acquire the knowledge and skill of the content area or areas they are learning. They empahaised what they refer to as meaningful students learning in which technology facilitated classroom activities are in an active learning environment that engages the thinking, descision making, problem solving and reasoning behavours of studetns. They say technolgoy should be used to explore course content and whatever the studens learn about how to operate the technology is secodnary to that main focus. Furthermore, Grabe and Grabe point out, many of the skill associated with the manipulation of hardware and softeware could be easily applied or transferred to new content areas.

Morrsion and Lowther (2002) stated that technoolgy integration involves having studetns use the computer as a tool rather than a delivery system for drill and practices of basic skills. They pointed out that when the computer is integrated as a tool, stduents apply the same skills used to analzye and manipulate information in the workplace. They further maintain that this type of integration supports teaching practices that emphasize a students centered openended learning envirmoment in which realistic contexts for learning are used.

BARRIERS TO THE SUCCESSFUL INTEGRATION OF TECHNOLOGIES IN TEACHING LEARNING PROCESS

There are many barriers in technology integration in teaching learning process but here some of them are described as under:

1.   Poor Availability of Technology

Successful integration of technology mostly depends upon its availability. It is clear from research studies that non-availability of technologies is the major barrier in technology integration in classroom. Mumtaz (2000) concluded that non-availability of technology was a key important factor reducing the use of technology by the teachers in their instruction. Research findings suggest that technologies are extensively under-used by students and teachers due to non-availability and inaccessibility of resources in schools (Veen, 1993; Byard, 1995, Wild, 1996).

From the above discussion, it is clear that for technology integration, its availability should be ensured first.

2.   Lack of Training and Skills

Teachers play a fundamental and crucial role in integrating technology in teaching learning process and therefore, it is very important for teachers to have experiences and skills to use technology effectively. Smarkola (2008) stated that those teachers are very important who are

skillful and competent in utilizing and managing educational technology. The student teachers should be trained in using educational technology in the initial teacher education.

Researches indicate that if teachers are not sufficiently and properly trained, technology will no positive effects on the students learning (Office of Technology Assessment, 1995; Sandholtz, 2001, Silverstein et al., 2000). It is concluded from research studies that teachers who receive formal training for the proper use of technology for instructional purpose, they have succeeded to bring considerable improvements in the students achievement (Ringstaff & Kelley, 2002, p.13).

Schacter (1999) noted that the utilization of technology was associated 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 productive and useful ways. It was also concluded that improvement in student's achievements was linked with the teacher's training in the use of technology.

Schaffer and Richardson (2004) stated that when technology is introduced into teacher's education programmes, concentration is often on teaching about technology intended of teaching with technology. Therefore, insufficient preparation for the utilization of technology is one of the reasons that teachers are not able to use computers systematically in their teaching. It is necessary to provide opportunities for teachers to practice using technology during their teacher training programmes so that they learn the ways in which technology can be used to improve their teaching learning process in classroom (Rosenthal, 1999).

Keeping in view the above discussion, it is concluded that training and skills are the essential and crucial elements for the successful integration of technology in teaching learning process. Therefore, it is the need of time to launch technology in pre-service teacher training programmes for the successful training to produce competent and trained teachers. In this way, our educational standard will be raised and improved.

3.   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 discourage them from using technologies in their teaching. Although 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 and significance of technical support to help teachers to use technology in the classroom (Korte and Husing, 2007).

4.   Loadshedding

Now-a-days, in Pakistan, we face ladshedding 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 during presentation in class. Majority of the teachers do not use available technologies due to the frequent breakdown and Loadshedding. The utilization of technologies depends upon the favourable environment of the classroom. Successful integration of technologies in teaching needs 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 main problem and impediment in the way of technologies integration in Pakistan. Therefore, it is imperative to manage alternative source of energy to ensure and maximize the utilization of available technologies in teaching learning process in order to ensure effective teaching learning process.

5.   Lack of Time Preparation

The Integrated Studies of Educational Technology asked teachers to indicate a variety of major barriers that hinder their use of educational technology. The teachers pointed out three areas i.e., time to develop new activities that incorporate technology, inadequate time in the school schedule to carry out activities and limited time to practice technology skills.

Sammons (1994) concluded that those teachers who are already have a lot of class work and school responsibilities have lack of time to integrate technology into classroom. They require extra time to learn and to prepare for using technologies in the classroom. They showed that they have no extra and spare time to make easy their utilization of technology in teaching learning process.

Vannatta and Fordham (2004) noted that training of technology is important, however, teachers should be provided time to practice and new technology skills. They also noted that those teachers who contribute time for acquiring skills, they have many possibilities of applying technology in the classroom as compared to those who are not provided the time to utilize 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 use technology with greater ease.

6.   Lack of Incentives

Research reveals that lack of incentives for teachers who use their time to integrate technology in their classes have badly affected the willingness of teachers to utilize technology in their classroom. A research study was conducted in Hollins University in 2000 on "Obstacles to Technology Integration". The results indicated that 70% of the respondents reported that they are not provided outside incentives to initiate these changes (Spodark, 2003, p.20).

Hope (1997) found that those teachers would improve integration of technology in teaching learning process that are recognized and rewarded (p.5). He further suggested several ways of how this can be done;

- Teachers should be provided and paid stipends to discover educational computing and relevant technologies.
- Technology role models should be provided for teachers.
- The teachers should be provided various configurations of technology for their utilization.
- Teachers should be encouraged and appreciated for using technology.
- Convenient technology staff development sessions should be scheduled and arranged.
- Set aside time during the workday for teachers to explore computers and related technology (Hope, 1997, p.6)

FORMS OF EDUCATIONAL TECHNOLOGY

Educational technology is broad and compressive subject; therefore, it is further divided into the following forms.

1.   Instructional Technology

The term educational technology is often used interchangeable with the instructional technology. However, there is significant difference between these two terms. Educational technology is broad subject than instructional technology. Instructional technology is the subsection of educational technology. Seels & Richey, (1994, p.4) describes that the term educational technology is broader than instructional technology because educational refers to 'all aspects of education' while the term instructional is restricted to 'teaching and learning problems'. Though the term instructional technology is often used the same with educational technology, it presents certain refinements that are not found in meanings of educational technology (Venkataiah, 1996. p. 3)

Different scholars have defined instructional technology into different ways. Heinich et al. (1993, p.16) defines instructional technology as "the application of our scientific knowledge concerning human learning to the practical tasks of teaching- learning process". Cassidy (1982. p.1) describes that instructional technology deals with the process of improving the efficiency and effectiveness of learning without considering the nature or substance of that learning. …..solutions to instructional problems might require social as well as machine technologies". Instructional technology is "the theory and practice of design, development, utilization, management and evaluation of processes and resources for learning" (Seels & Richey, 1994, p.1).

According to Armsey and Dahl (1973, p. VIII), instructional technology is made up of those things, devices and materials that are used in the teaching learning process. According to Sharma & Sharma (2006, p.47), instructional technology is the application of sociological, psychological and scientific rules, principles and knowledge in the instructional process so as to attain learning objectives. It is the system and net work of devices, instruments, methods and techniques used to attain certain defined set of learning objectives.

Instructional technology helps in understanding difficult and complicated things concerning teaching learning process and it saves the teacher time. Kadzera (2006, p.11) writes that "with the help of instructional technology, the teacher can easily clarify those difficult concepts easily, which are difficult to clarify in words or orally. When students see the instructional materials, its mechanism and its functions, teachers do not need to explain and students easily understand the things taught by teachers".

2. Teaching Technology

According to the Isman (2002), teaching technology is an amalgamation of academic systems that is designed to improve the effective design of teaching-learning process, to solve the problems that are faced during teaching and learning process and to enhance the quality and retention of the information which are presented.

According to the Sharma & Sharma (2006, p.45), teaching is the social and professional activity. It is a developmental process and is a system of actions and procedures that induce learning through interpersonal link. Teaching technology is the application of philosophical, sociological and scientific knowledge to teaching for the achievement of learning objectives. Teaching is a purposeful activity. The basic and primary goal of teaching is to make sure the development of a child. The content matter of teaching technology assists in attaining the goals of teaching.

3.   Behavioural Technologies

Psychology is the science of behaviour. It deals with the study of the nature and structure of the organisms. The change and modification in the behaviour through experiences and activities is called learning. So, educational activities are those activities that are designed to bring about positive and desirable changes in the behaviour of the students. The psychology deals in with all kind of human behaviour. Hence, behavioural technology is broader than educational technology. It covers various fields i.e., industry, commence, defense, administration, motivation, communication, health, training education, teaching and instruction. These fields require specific type of behaviours. B.F. Skinner called the term behavioural technology as "Technology and Teaching".

In order to create desirable changes in the students, teaching and instructional activities are organized and systematized to achieve these learning objectives. Therefore, teaching and instructional technology are the two types of behavioural technology. However, in the field of education, it is chiefly concerned to the behaviour of the teacher. Briefly, behavioural technology is the application of scientific knowledge designed to change the behaviour of teacher. It is also known as training technology (Sharma & Sharma, 2006, pp.49).

4.   Instructional Designs or Management Technology

Instructional Design is also called management technology or system approach. It is the developmental process and is the systematic development of instructional condition using learning and instructional theories to ensure the quality of instruction. It is the process used to investigate the learning requirements and goals and the development of a delivery system to meet the requirements.

Instructional technology or System analysis is also known as Management Technology. It has been developed after World War II and it has provided a scientific basis to decision making about the problems connected with management, administration, industry, commerce and army. Instructional technology plays a vital role in the development of educational administration and designing of instructional outlines. Educational administration and management can be more effective, successful and less costly by using educational system. Hence, these days instructional technology occupies most important position in the field of technology (Singh, 2005).

Instructional design affects the teaching learning process. Teaching learning process will be more successful and effective when instructional design is designed according to the needs, pattern, and model of instruction. Camie (1997) suggested that the learning characteristics are not according to the design of instructional materials and teaching practices and that is why it

results in students low achievement level. Hence, it is very important to keep in mind the learners needs and requirements while designing and organizing the content in ways so that it may increase the possibilities of attaining students learning objectives (Zheng and Smaldino, 2003).

According to the Stein, Stuen, Carmine & Long (2001), an effective and better design of instructional materials enhances and improves the performance of the students with low achievements level. Keeping in mind the design principles, the quality of instructional designs may be enhanced. Hence, we can say that designing of the instructional methods and materials is one of the most important steps in teaching.

OBJECTIVES OF EDUCATIONAL TECHNOLOGY

Educational technology has played a crucial and revolutionary role in the education system. It has influenced and enhanced the teaching learning process. However, the major objectives of the educational technology in education are listed below:

1. Educational technology helps in improving teaching learning process and makes it more effective, successful and purposive.

2. The standard of education has been collapsed due to mass education. The utilization of educational technology can enhance and maintain the standard of education by the utilization of teaching aids and other instructional materials.

3. Educational technology plays a vital role in improving the distance education or correspondence education through television, radio, tape record and other programmed instructions.

4. Teacher training institutions have failed in producing competent and successful teachers. Effective and competent teachers can be produced by the application of educational technologies in these teacher training institutes.

5. Educational researches have no effects on the current educational problems because these researches have theoretical in nature. Educational technology has played a fundamental role in solving classroom teaching and training problems practically and experimentally.

6. Through System Analysis, administrative problems in education can be solved logically and scientifically.

7. Educational technology helps in understanding the nature and structure of teaching process. To attain different educational objectives, teaching models can be developed.

8. The chief problem in instructional process is to handle individual differences effectively. The educational technology has developed new innovative practices and strategies to make sure the solution of the same problem.

9. Educational technology build ups educational theories for teaching and instruction and makes scientific foundation to education (Sharma & Sharma, 2006, pp.57-58).

The key and the most important objectives of educational technology in all teaching learning situations are as described as under:

1. to formulate the objectives and determination of the goals in behavioral term.

2. to analyze and assess the learner's characteristics.

3. to organize the content in logical or psychological order.

4. Mediation between content and resources of presentation.

5. to assess the learner's performance in terms of archiving educational objectives.

6. to provide the feedback among other components for the mediation of learners (Rashid 1998, p.39).

OBJECTIVES OF THE STUDY

The objectives of the study were:

1. To find out the barriers to the successful integration of educational technology in teaching learning process at secondary school level in Khyber Pukhtunkhwa.

2. To find out the proper ways and means for the successful integration of educational technology in teaching learning process.

METHODOLOGY

1.   Population of the Study

All the principals and secondary school teachers serving in Government High Schools in Khyber Pukhtunkhwa constituted the population of the study.

2.   Sample of the Study

Only 170 principals and 550 secondary school teachers (@ 25% both principals and secondary school teachers) at secondary school level were selected randomly as a sample in 12 districts out of 24 districts of Khyber Pukhtunkhwa province (Pakistan) i.e. Mardan, Nowshera, Peshawar, Kohat, Bannu, Swat, Sawabi, Karak, Abbottabad, Malakand, D.I.Khan and Lakki Marwat. The size of the sample is:

No. of Principals	No. of Secondary School Teachers	Total
170 @ 25%	550 @ 25%	720

3.   Research Instrument

The study was descriptive in nature. A questionnaire was developed for principal and secondary school teachers as research instrument for the collection of data. The questionnaire consisted both closed and open ended questions.

4.   Delimitation of the Study

The study was delimited to the male principals and secondary school teachers in Government High Schools of the selected districts in Khyber Pukhtunkhwa.

5.   Significance of the Study

The paper in hand will be beneficial for the teachers and higher authorities of education to provide educational technologies and other necessary tools at secondary level. In addition, other deficiencies like, poor availability of technologies, lack of technical support, lack of administrative support, Loadshedding, lack of fund, lack of teacher competencies, lack of training opportunities, lack of incentives etc will also be rectified.

RESULTS OF THE STUDY

Poor and Non-Availability of Educational Technology is the Chief Barrier to the Successful Integration of Educational Technology into Classroom:

Poor and non-availability of educational technology is the main barrier in technology integration into classroom teaching learning process. Therefore, it is imperative to investigate the availability of educational technology first. For this purpose, the following table gives some information about the availability of educational technology at secondary school level in Khyber Pukhtunkhwa.

Table No. 01

Responses of the Principals about the availability of Educational technology (Freq:170)

S.No.	Items	Available		Not Available	
		Freq:	**%age**	**Freq:**	**%age**
1.	Classroom Computers	49	28.82 %	121	71.18 %
2.	Radios	43	25.30 %	127	74.70 %
3.	Educational televisions	26	15.29 %	144	84.71 %
4.	Pictures	112	65.88 %	58	34.12 %
5.	Flash cards	62	36.47 %	108	63.53 %
6.	Blackboards	163	95.88 %	07	04.12 %
7.	Models	134	78.82 %	36	21.18 %
8.	Overhead projectors	17	10.00 %	153	90.00 %

9.	Maps	96	56.47 %	74	43.53 %
10.	Flip Charts	63	37.06 %	107	62.94 %
11.	Film strips	05	02.94 %	165	97.06 %
12.	Charts	136	80.00 %	34	20.00 %
13.	Internet facility	06	03.53 %	164	96.47 %
14.	Educational software	05	02.94 %	165	97.06 %
15.	Multimedia projectors	00	00.00 %	170	00.00 %
16.	VCRs	11	06.47 %	159	93.53 %

Analysis: The table clearly illustrates that majority of the educational technologies are not available at secondary school level. Computers, radios, educational televisions, flip charts, film strips, educational software, overhead projectors, multimedia projectors, VCRs, and internet facilities are not available at secondary level. Only blackboards, charts and models are available in considerable amount. After analysis the data in the above table, it came to surface that availability of educational is the chief barrier to the successful integration of educational technology in teaching learning process at secondary school level in Khyber Pukhtunkhwa.

Miscellaneous Barriers to the Effective and Successful Integration of Educational Technology into Classroom Teaching:

There are many other barriers in the way of successful integration of educational technology into classroom teaching. Therefore, the following statements were designed to investigate the barriers to the effective and successful integration of Educational technology into classroom teaching at secondary level in Khyber Pukhtunkhwa. The information given by secondary school teachers are given as under.

Secondary School Teachers gave the following responses about the barriers to the successful integration in teaching learning process.

Table No. 02

Poor availability of Educational technology is the main barrier in technology integration in teaching learning process.

No. of Teachers	Agree	Disagree	Agree %	Disagree %
550	526	24	95.64	4.36

Analysis: The table illustrates that 95.64% respondents responded that poor availability of educational technology is the main barrier in technology integration in teaching learning process and only 4.36% respondents disagreed to the same statement.

Table No. 03

Physical and technical infrastructure of the classrooms is not suitable for technology use.

No. of Teachers	Agree	Disagree	Agree %	Disagree %
550	387	163	70.36	29.63

Analysis: The table illustrates that 70.36% respondents responded that physical and technical infrastructure of the classrooms is not suitable for the technology use and 29.63% respondents disagreed to the same statement.

Table No. 04

There is lack of necessary skills and knowledge to use educational technology.

No. of Teachers	Agree	Disagree	Agree %	Disagree %
550	493	57	89.64	10.36

Analysis: The table illustrates that 89.64% respondents responded that there is lack of necessary skills and knowledge to use educational technology and only 10.36% respondents disagreed to the same statement.

Table No. 05

Technologies are not fit to the course or curriculum that I teach.

No. of Teachers	Agree	Disagree	Agree %	Disagree %
550	29	521	5.27	94.73

Analysis: The table illustrates that only 5.27% respondents responded that technologies are not fit to the course or curriculum that I teach and 94.73% respondents disagreed to the same statement.

Table No. 06

There is inadequate financial support for the integration of technologies.

No. of Teachers	Agree	Disagree	Agree %	Disagree %
550	391	159	71.09	28.91

Analysis: The table illustrates that 71.09% respondents responded that there is inadequate financial support for the integration of technologies and only 28.91% respondents disagreed to the same statement.

Table No. 07

There is no reward structure that recognize teachers for using technologies in teaching learning process

No. of Teachers	Agree	Disagree	Agree %	Disagree %
550	521	29	94.73	5.27

Analysis: The table illustrates that 94.73% respondents responded that there is no reward structure that recognize teachers for using technologies in teaching learning process and only 5.27% respondents disagreed to the statement.

Table No. 08

There is lack of training opportunities for teachers to acquire new knowledge and skills for the effective use of technology.

No. of Teachers	Agree	Disagree	Agree %	Disagree %
550	485	65	88.18	11.82

Analysis: The table illustrates that 88.18% respondents responded that there is lack of training opportunities for teachers to acquire new knowledge and skills for the effective use of technology and only 11.82% respondents disagreed to the same statement.

Table No. 09

Teachers' lack of enough time to develop technology based instructional materials.

No. of Teachers	Agree	Disagree	Agree %	Disagree %
550	324	226	58.91	41.09

Analysis: The table illustrates that 58.91% respondents responded that teachers' lack of enough time to develop technology based instructional materials and 41.09% respondents disagreed to the same statement.

Table No. 10

Loadshedding and electricity breakdown is the obstruction in using technology like, computers, projectors, videos, radios and educational TV etc.

No. of Teachers	Agree	Disagree	Agree %	Disagree %
550	533	17	96.91	03.09

Analysis: The table illustrates that 96.91% respondents responded that loadshedding and electricity breakdown is the obstruction in using technology and only 03.09% respondents disagreed to the same statement.

Table No. 11

There is inadequate administrative support for the integration of technology into classroom teaching.

No. of Teachers	Agree	Disagree	Agree %	Disagree %
550	352	198	63.82	36.18

Analysis: The table illustrates that 63.82% respondents responded that there is inadequate administrative support for the integration of technology into classroom teaching and 36.18% disagreed to the same statement.

Table No. 12

There is lack of technical support for the integration of technologies into classroom.

No. of Teachers	Agree	Disagree	Agree %	Disagree %
550	436	114	79.27	20.73

Analysis: The table illustrates that 79.27% respondents responded that there is lack of technical support for the integration of technology into classroom and only 20.73% respondents disagreed to the same statement.

Table No. 13

There is poor internet access and connectivity, therefore, the use of technology is unusable.

No. of Teachers	Agree	Disagree	Agree %	Disagree %
550	422	128	76.73	23.27

Analysis: The table illustrates that 76.73% respondents responded that there is poor internet access and connectivity, therefore, the use of technology is unusable and only 23.27% respondents disagreed to the same statement.

Table No. 14

There is lack of funding to make sure the availability of necessary hardware and software relating to teaching training programmes.

No. of Teachers	Agree	Disagree	Agree %	Disagree %
550	476	74	86.55	13.45

Analysis: The table illustrates that 86.55% respondents responded that there is lack of funding to make sure the availability of necessary hardware and software relating to teaching training programmes and only 13.45% respondents disagreed to the same statement.

Table No. 15

There is lack of training facilities to train teachers for the effective use of technology.

No. of Teachers	Agree	Disagree	Agree %	Disagree %
550	493	57	95.09	4.91

Analysis: The table illustrates that 95.09% respondents responded that there is lack of training facilities to train teachers for the effective use of technology and only 4.91% disagreed to the same statement.

Table No. 16

You have received formal training for the effective integration of technologies.

No. of Teachers	Agree	Disagree	Agree %	Disagree %
550	08	542	01.45	98.55

Analysis: The table illustrates that only 01.45% respondents responded that they have received formal training for the effective integration of technologies and 98.55% disagreed to the same statement.

Table No. 17

There is poor and inconsistent availability of hardwares and softwares.

No. of Teachers	Agree	Disagree	Agree %	Disagree %
550	514	36	93.45	06.55

Analysis: The table illustrates that 93.45% respondents responded that there is poor and inconsistent availability of hardwares and softwares and only 6.55% respondents disagreed to the same statement.

Table No. 16

Suggestions of the Secondary School Teachers and Principals for the Removal of Barriers for the Successful integration of Educational Technology in Teaching Learning Process: (Freq: 550 Teachers + 170 Principals =720)

S.No.	Suggestions of the Teachers	Freq:	%age
1.	Physical and Technical infrastructure should be ensured.	221	30.69 %
2.	Special budget should be allocated for the purchasing of new and modern educational technology	491	68.19 %
3.	Principals and Headmaster of the school should be authorized for purchasing of required educational technology.	216	30.00 %
4.	Internet facilities should be provided to each school so that technology can be used effectively.	345	47.92 %
5.	Technical staff should be appointed in education department for the repairing of damaged technology.	421	58.47 %
6.	Training opportunities for teachers should be ensured on the emergency basis.	687	95.42 %
7.	Power generators should be provided as an alternative source of power supply to each school in order to maximize the utilization of technologies.	594	82.50 %
8.	Enough time should be provided to teachers for the technology integration.	156	21.67 %
9.	The Government should ensure the availability of educational technology on the emergency basis.	713	99.03 %
	Necessary hardwares and softwares should be provided continuously according to the requirement.	381	52.91%
10.	Prospective Teachers should be trained in using technology in teacher training institutions.	459	63.75 %
11.	Accessibility to technology should be ensured.	364	50.56 %
13.	Administration should be excited in providing support	233	32.36 %
14.	In-service teachers should be provided training	593	82.36 %

	opportunities in technology application.		

Analysis: The table shows that majority of the respondents suggested that educational technology should be made available, training opportunities should be provided; alternate power supply should be ensured; in-service teachers should be trained; perspective teachers should be trained in teacher training programmes and special budget should be allocated for the purchasing of technology. In addition, they also suggested that physical and technical infrastructure should be ensured; heads should be made authorized to purchase technologies; internet facility should be provided; technical staff should be appointed; accessibility to technology should be ensured; and enough time should be ensured for teachers for the successful integration of technology into teaching learning process.

CONCLUSIONS

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

- Poor availability of educational technology is the main barrier in technology integration in teaching learning process. Computers, radios, educational televisions, flip charts, film strips, educational software, overhead projectors, multimedia projectors, VCRs, and internet facilities are not available at secondary level. Only blackboards, charts and models are available in considerable amount.

- Physical and technical infrastructure of the classrooms is not suitable for the technology use.

- There is lack of necessary skills and knowledge to use educational technology.

- There is inadequate financial support for the integration of technologies.

- There is no reward structure that recognizes teachers for using technologies in teaching learning process.

- There is lack of training opportunities for teachers to acquire new knowledge and skills for the effective use of technology.

- Teachers have not received formal training for the effective integration of educational technologies.

- Teachers' lack of enough time to develop technology based instructional materials. Loadshedding and electricity breakdown is the obstruction in using technology like, computers, projectors, videos, radios and educational TV.

- There is inadequate administrative support for the integration of technology into classroom teaching.

- There is lack of technical support for the integration of technologies into classroom.

- There is poor internet access and connectivity, therefore, the use of technology is unusable.

- There is lack of funding to make sure the availability of necessary hardware and software relating to teaching training programmes.

- There is poor and inconsistent availability of hardwares and softwares.

- There is lack of training facilities to train teachers for the effective use of technology.

RECOMMENDATIONS

Keeping in view the conclusions, the researcher makes some recommendations which are described as under:

- Availability of educational technology should be ensured. Computers, educational televisions, radios, film strips, V.C.Rs, overhead projectors, multimedia projectors, flip charts etc should be provided immediately.

- Alternate power supply should be provided to each secondary school for the effective integration of technologies. For this purpose, power generators should be provided to each school on the emergency basis.

- Physical and technical infrastructure should be designed in such a way that technologies may be used effectively.

- Reward structure should be introduced for teachers so that the teachers may take interest in technology integration.

- Special formal training programmes should be launched for the effective utilization of educational technology. A compulsory subject regarding the preparation or utilization of educational technology should be introduced at all level of teacher training programmes so that the prospective teachers should be trained in time.

- In-service teachers should be provided training opportunities for the effective utilization of educational technology.

- Special fund should be provided to the secondary school for the purchasing technologies. Heads of the institutions should be authorized for purchasing educational technologies.

- Internet facilities should be provided in each secondary school.

- Teachers should be provided comfortable and facilitated atmosphere for the effective utilization of education technology.

- All the secondary schools should be provided special budget by the Government for purchasing educational technologies and other necessary equipments and tools i.e. hardwares, educational softwares etc.

- Technical staff should be appointed for the repairing of damaged technologies.

- Administrative support should be ensured so that the teachers may feel comfort in using technologies.

- For the advancement of educational technologies, annual exhibitions should be arranged at district level and prizes should be given to those schools who exhibit locally produced educational technologies.

RECOMMENDATIONS FOR FUTURE RESEARCH STUDIES

- It is recommended that this type of research study should be conducted in other provinces.

- It is also recommended that this type of research study should be conducted at higher secondary and tertiary level.

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