

Role of Educational Technology at Primary School Level In District Karak (Khyber Pukhtunkhwa) Pakistan)

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Abstract

The study was conducted to explore the role of educational technology at primary school level in District Karak (Khyber Pukhtunkhwa). The main objectives of the study were; to investigate the availability, usability and importance of educational technology; and to investigate whether primary school teachers are for the effective use of technologies for teaching learning process. The study was descriptive in nature. All the teachers and students at primary level in District Karak constituted the population of the study. Only three hundred and sixty six (366) primary school teachers; and two thousand and two students (2002) of primary schools (@ of 25% and 5% respectively) were selected randomly as sample of the study. The study was descriptive in nature. Two different questionnaires were prepared for teachers and students for the collection of data. After analysis of data, the researcher arrived at results that educational technology is very useful for the effective teaching learning process at primary level. It was found that educational televisions, radios, film strips, flip charts, VCRs, overhead projectors, multimedia projectors, educational softwares, computers, and internet facilities were not available in schools. Majority of the teachers were not using the available technology in their teaching learning process. It was also found that teachers were not trained for the effective utilization of educational technology.

Keywords: educational technology, availability, usability and usefulness of educational technology

Introduction

Education means to bring about desirable changes in the behaviour of individual according to the demands and requirements of its concerned society. Primary level is an important stage in the child's educational life. If a teacher succeeds in framing a sound base and making the entire concept clear to a child then in future the student will be able to grasp

difficult thing easily (Suleman, 2008). It depends upon effective teaching learning process. Educational technology plays an important and crucial role in making teaching learning process more effective and successful. Educational Technologies are those materials, procedures, organizations, ideas, devices, instruments or machines which make the teaching learning process more effective, successful, and unforgettable.

The word technology is derived from the Greek work '*Technic*' which means art or skills and logia means science or study. Therefore, technology means the science or study of an art or skill (Sharma & Sharma, 2006. p.28). However, according to a prominent historian Paul Sattler, the term technology is derived from the Latin word "*Texere*" which means to weave or to construct. So it does not mean to use machines, as we think but it means any practical art applying scientific knowledge (Venkataiah 1996. p.2).

There are two aspects of technology, i.e., technology as things and technology as social process. Technology as things means the application of scientific knowledge to do practical works through organization which consist of machinery and men. On the other hand, technology as social process is the application of scientific and systematic knowledge to do practical works through hierarchically systematic ordered mechanism which consist of men machines (Aggarwal. J.C. 1995)

Educational technology is complicated, comprehensive and integrated process which involves many things like, people, ideas, procedures, devices and organization design to evaluate problems and it also includes other various processes like, devising, implementing, evaluating and managing solutions to those problems which involve in all aspects of human learning (AECT, 1977)

Venkataiah (1996) writes that "Educational technology means to make use of different techniques and procedures to design a learning experience systematically". Galbraith (1967) stated that educational Technology is the systematic usability of scientific or other organized knowledge to practical tasks. Sharma & Sharma (2006) defined educational technology as "the fields of study which facilitates human learning through systematic identification, organization, development and utilization of learning resources and through the management of processes, but it is not restricted to these processes but it also contain the people who execute these processes (p.31).It is becoming increasingly clear that it is not sufficient only to introduce technology to the educational process to ensure the integration of technology because technology alone has no effect and does not lead to change. But it is the way in which teachers utilize technology which has the potential to brought changes in education (Carr, Jonassen, Litzinger, & Marra, 1998).

Review Of Related Literature

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 "the term educational technology is broader than instructional technology because educational refers to 'all aspects of education' while the term instructional is limited to 'teaching and learning problems'. Although the term instructional technology is often used identical with

educational technology, it presents certain refinements that are not found in meanings of educational technology (Venkataiah, 1996. p. 3).

Educational technology is broad subject and it is impossible to cover it as single subject. Therefore, it is further divided into four classes i.e. instructional technology, teaching technology, behavioural technology, and instruction design or management technology (Sharma & Sharma, 2006).

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). Instructional technology is “the application of sociological, psychological and scientific rules, principles and knowledge in the instructional process in order to attain learning objectives. It is the system and net work devices, instruments, methods and techniques used to achieve certain defined set of learning objectives”(Sharma & Sharma,2006, p.47). Teaching technology is a unification of academic systems which is designed to enhance the effective design of teaching-learning process, to solve the problems which are faced during teaching and learning process and to improve the quality and retention of the information which are presented (Isman, 2002). Educational activities are those activities which are designed to bring about desirable changes in the behaviour of the students. The psychology deals in with all type of human behaviour. Therefore, behavioural technology is broader than educational technology. It covers many fields i.e., commerce, industry, defense, administration, communication, motivation, health, training education, teaching and instruction. These fields need specific type of behaviours. B.F. Skinner called the term behavioural technology as “Technology and Teaching” (Sharma & Sharma, 2006, pp.49). According to Smith and Regan (2005) instructional design as “the systemic and reflective process of translating principles of learning and instruction into plans for instructional materials, activities, information resources and assessments” (p.4).

Characteristics of Educational Technology

According to Sharma & Sharma (2006, p.41), characteristics of the educational technology are described as below;

1. Educational technology applies scientific principles to the problems of education.
2. Educational technology puts emphasis on the development of the methods, procedures and techniques for the successful, useful and effective teaching learning process.
3. Educational technology lays stress on the designing and measuring instruments and tools for the assessment and evaluation of teaching learning outcomes.
4. Educational technology makes the teaching learning process more facilitated and effective by media, methods, and techniques and by controlling classroom environment.
5. Educational technology is involved in three aspects in education e.g. input, teaching learning process and output.
6. Educational technology includes the applications of electronic media in education as well as systems approach.
7. Educational technology plays a crucial role as medium of communication.
8. Educational technology is a broad and comprehensive term. It includes different terms e.g., teaching technology, instructional technology, micro teaching, programmed learning and system analysis etc.

9. Educational technology is not the synonyms of the audio visual aids in education but it is more broad and comprehensive.

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 aids in improving instructional process and makes it more effective and purposive.
2. The standard of education has been declined due to mass education. The application of educational technology can improve and preserve the standard of education by the utilization of teaching aids and other instructional materials.
3. Educational technology plays an effective role in improving the distance education or correspondence education by the application of television, radio, tape record and other programmed instructions.
4. Teacher training institutions have failed in producing effective and valuable teachers. Effective teachers can be produced by the application of educational technologies in these training institutions.
5. Administrative problems in education can be solved logically and scientifically through System Analysis.
6. Educational researches have no impacts on the existing educational problems because these researches have theoretical nature. Educational technology has played a crucial role in solving classroom teaching and training problems practically and experimentally.
7. Educational technology assists in understanding the nature and structure of teaching process. To achieve various educational objectives, teaching models can be developed.
8. The main problem in teaching learning process is to handle individual differences in effective way. The educational technology has developed new innovative practices and strategies to ensure the solution of the same problem.
9. Educational technology builds up educational theories for teaching and instruction and makes scientific foundation to education. (Sharma & Sharma, 2006, pp.57-58).

Functions of Educational Technologies

According to Sharma. & Sharma (2006, p.40), the important functions of the educational technology are described as below;

1. It identifies educational goals and objectives of the community.
2. It develops and designs proper and accurate curriculum for the attainment of specific goals.
3. It analyzes and evaluates the teaching learning process.
4. It develops and organizes suitable instructional materials for teaching learning process.
5. It helps in selecting and developing appropriate instructional strategies in order to achieve fruitful results.
6. It also helps in utilizing hardware and software media effectively and successfully.
7. It also provides essential feedback and controls through evaluation.
8. It prepares teachers in the use of new teaching technology.

Educational technology has added much to the effectiveness of the teaching learning process. The important contributions of educational technology to teaching learning process are described as under:

1. Individualized Instruction

Educational technology assists in individualizing instruction by enabling individuals to use self-instructional programmes.

2. Improvement in the Quality of Teaching

Educational technology plays a crucial role in the betterment of the teaching learning process. It enables us to utilize various enriched and motivating programmes through various media.

4. Solution to the Problem of Mass Education

Educational technology aids in using various useful programmes designed and developed for a large number of students. These programmes are utilized through television, computers etc.

5. Ensuring equal Education Opportunities

Educational technology have played a vital role in equalizing educational opportunities without taking into consideration the social, economic and geographical position of the learners.

5. Providing Continuing Education

The learners in service personnel and vocational works are kept in touch with the latest material through television lessons and self-instructional programmed material, which is sent to them (Aggarwal, 1995, pp. 33-34).

Objectives Of The Study

Objectives of the study were:

1. to investigate the availability, usability and usefulness of educational technology at primary level.
2. to explore whether teachers are trained for the effective use of educational technology at primary level.

Methodology

The researcher personally visited the sampled teachers and students and administrated the questionnaires among the teachers and students. Some questionnaires were sent to teachers through post. In this way, data was collected.

1. Population

All the teachers and students at primary level in District Karak constituted the population of the study

2. Sample

Only three hundred and sixty six (366) primary school teachers; and two thousand and two students (2002) of primary schools (@ of 25% and 5% respectively) were selected randomly as sample of the study.

3. Research Instrument

The study was descriptive in nature. Two questionnaires were developed as research instruments for the collection of data.

Results

Table No.1 Responses of the Teachers about the Availability of Educational Technologies

S.No.	Technologies	Available	%age	Not available	%age	Total
1.	Computer	03	00.81	363	99.18	366
2.	Radio	13	03.55	353	96.45	366
3.	Educational television	00	00.00	366	100.00	366
4.	Pictures	213	58.20	147	41.80	366
5.	Flash cards	187	51.09	179	48.91	366
6.	Blackboards	347	94.81	19	05.19	366
7.	Models	203	55.46	163	44.54	366
8.	Overhead projectors	00	00.00	360	100.00	366
9.	Maps	196	53.55	170	46.45	366
10.	Flip Charts	17	04.64	349	95.36	366
11.	Film strips	00	00.00	366	100.00	366
12.	Charts	263	71.86	103	28.14	366
13.	Internet facility	00	00.00	366	100.00	366
14.	Educational software	00	00.00	366	100.00	366
15.	Multimedia projectors	00	00.00	366	100.00	366
16.	VCR	00	00.00	366	100.00	366

The table No.1 shows that computer, radio, educational television, overhead projector, educational softwares, film strips, V.C.R, multimedia projector, internet facility and flip charts were not available in schools. It was also found that only blackboards and charts were available in most of the schools.

Table No.2 Responses of the Teachers about the Usability of Educational Technology in teaching learning process

S.#	Technologies	Regularly	%age	Some time	%age	Never used	%age	Total
1.	Computer	00	00.00	01	00.27	365	99.72	366
2.	Radio	02	00.55	05	01.37	359	98.09	366
3.	Educational television	00	00.00	00	00.00	366	100.00	366
4.	Pictures	63	17.21	182	49.73	121	33.06	366
5.	Flash cards	57	15.58	64	17.49	245	66.94	366
6.	Blackboards	278	75.96	61	16.67	27	07.38	366
7.	Models	53	14.48	106	28.96	207	56.56	366
8.	Overhead projectors	00	00.00	00	00.00	366	100.00	366
9.	Maps	67	18.31	176	48.09	123	33.61	366
10.	Flip Charts	06	01.64	09	02.46	351	95.90	366
11.	Film strips	00	00.00	00	00.00	366	100.00	366

12.	Charts	198	54.10	93	25.41	75	20.49	366
13.	Internet facility	00	00.00	00	00.00	366	100.00	366
14.	Educational software	00	00.00	00	00.00	366	100.00	366
15.	Multimedia projectors	00	00.00	00	00.00	366	100.00	366
16.	VCR	00	00.00	00	00.00	366	100.00	366

The table No.2 clearly shows that the teachers are not using the available educational technology. Some technologies are available to some extent but teachers are not interested to use them. It was also found that majority of the teachers use only blackboards regularly in teaching. Charts were also used regularly to some extent.

Table No.3 Responses of the students about the usability of educational technologies by their teachers in teaching learning process

S.#	Technologies	Regularly	%age	Some time	%age	Never used	%age	Total
1.	Computer	00	00.00	03	00.15	1999	99.85	2002
2.	Radio	12	00.60	19	00.95	1971	98.45	2002
3.	Educational television	00	00.00	00	00.00	2002	100.00	2002
4.	Pictures	337	16.83	1203	60.09	462	23.08	2002
5.	Flash cards	302	15.08	321	16.03	1379	68.89	2002
6.	Blackboards	1613	80.57	362	18.08	27	01.35	2002
7.	Models	263	13.14	557	27.82	1182	59.04	2002
8.	Overhead projectors	00	00.00	00	00.00	2002	100.00	2002
9.	Maps	343	17.13	976	48.75	683	34.12	2002
10.	Flip Charts	38	01.90	43	02.15	1921	95.95	2002
11.	Film strips	00	00.00	00	00.00	2002	100.00	2002
12.	Charts	1113	55.60	487	24.33	402	20.08	2002
13.	Internet facility	00	00.00	00	00.00	2002	100.00	2002
14.	Educational software	00	00.00	00	00.00	2002	100.00	2002
15.	Multimedia projectors	00	00.00	00	00.00	2002	100.00	2002
16.	VCR	00	00.00	00	00.00	2002	100.00	2002

The results of table No.2 and 3 are similar. The opinions of the students and teachers are same about the usability of educational technology. The opinion of the students regarding usability certified the opinion of the teachers.

Table No.4 Responses of the teachers about the usefulness and training for the effective use of technologies in teaching learning process

S.#	Items	A	%age	DA	%age	Total
1.	You have gotten training for the effective use of educational technology	07	1.91	359	98.09	366
2.	The use of Educational Technology is the cause of student's attention.	337	92.08	29	07.92	366

3.	The use of Educational Technology improves communication between teachers and students.	324	88.52	42	11.48	366
4.	The use of Educational Technology makes complicated things easy and understandable.	358	97.81	08	02.19	366
5.	The use of Educational Technology makes sure the participation of the students in classroom.	247	67.49	119	32.51	366
6.	The use of Educational Technology makes the process of learning effective, interesting and real.	361	98.63	05	01.37	366
7.	The use of Educational Technology gives concrete concept of the thing to be taught.	309	84.43	57	15.57	366
8.	The use of Educational Technology develops continuity of thoughts.	235	64.21	131	35.79	366
9.	The use of Educational Technology makes abstract things concrete.	312	85.25	54	14.75	366
10.	The use of Educational Technology gives reality to the experiences of students and hence stimulates self-activity.	326	89.07	40	10.93	366
11.	The use of Educational Technology develops the creative and imaginative power of students and motivate them.	234	63.93	132	36.07	366
12.	Using educational technology increases your teacher's productivity as an instructor.	332	90.71	34	09.29	366
13.	The use of educational technology enriches the teaching learning environment.	359	98.09	07	01.91	366
14.	The use of educational technology is a clear tract towards success.	303	82.79	63	17.21	366
15.	The application of technology leads to easier student's assessment.	264	72.13	102	27.87	366
16.	Application of technology makes teaching more systematic.	325	88.80	41	11.92	366
17.	Using technology saves teacher's time.	346	94.54	20	05.46	366
20.	Using technology like overhead projector etc helps in controlling the individual differences of the students.	287	78.42	79	21.58	366

A= Agree, DA= Disagree

The table shows that the teachers are not trained for the effective use of technology in teaching learning process. It was also found that majority of the teachers were in the opinion that education technology ensures students participation, students motivation, effective teaching, to attract student's attention, and enrichment of atmosphere for teaching learning process.

Conclusions

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

1. It was found that educational technology plays a fundamental and crucial role in teaching learning process at primary level. It makes teaching learning process more effective and successful. Majority of the teachers were in the opinion that education technology ensures students participation, student's motivation, effective teaching, to attract student's attention, and enrichment of atmosphere for teaching learning process.
2. It was found that teachers were not trained for the effective use of educational technology.
3. The analysis of data reveals that majority of the teachers are not using the available educational technology.
4. It was also found that computers, radios, educational televisions, overhead projectors, educational softwares, film strips, V.C.Rs, multimedia projectors, internet facilities and flip charts were not available in schools.
5. In majority schools, pictures, maps, flash cards, blackboards and charts were found to some extent.
6. It was found that majority of the teachers use only blackboard regularly in their teaching learning process.

Recommendations

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

1. A special training programme should be introduced for the effective use of technology. The teachers should also be provided opportunities for refresher courses.
2. Availability of educational technology should be ensured. Computer, educational television, radio, film strips, V.C.R, overhead projector, flip charts etc should be provided immediately.
3. Internet facilities should be ensured in each school.
4. Teachers should be provided sound and facilitated atmosphere for the effective utilization of education technology.
5. A compulsory subject regarding the preparation or utilization or educational technology should be included in teacher training programmes at all level.
6. All the primary schools should be provided special budget by the Government for purchasing educational technologies.
7. Educational technologies should be used in an effective way. A special staff should be appointed to examine the utilization of educational technologies by the teachers in classroom teaching.
8. 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

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

3. It is also recommended that this type of study should be conducted in FATA to evaluate the availability and usability of educational technologies in order to strengthen and improve the standard of education there.

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