

## **ROLE OF AUDIO VISUAL AIDS IN DEVELOPING MATHEMATICAL SKILLS AT SECONDARY LEVEL IN DISTRICT KOHAT**

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### **ABSTRACT**

In the devolving countries like Pakistan the significance of education cannot be over emphasized because development of a country lies in the hands of educated persons. Education is the knowledge of utilizing one's potential and abilities towards the betterment and the safety of the country. Without education man is like a animal in a closed room and with education he find himself in a room with all its windows open towards outside world. The objective of the study was to investigate the role of AV Aids in developing mathematical skills at sendary level in district kohat. All students of secondary schools in district Kohat constituted population of the study. The study was delimited to the students of government high secondary school No 3, kohat. The study was further delimited to the students of 10<sup>th</sup> class. Forty students were taken as sample of the study. Pre-test and post test in the subject of mathematics were used as an instrument to collect data for the present study. Pre-test was used to divide the class into experimental and control group. Post-test was used after giving suitable treatment using different teaching technologies to the experimental group. Result of the study showed that the performance of the students who have been taught by using teaching technologies were better than the students who were taught through the traditional methods. It was also concluded that the students were more enthusiastic in learning through modern teaching technologies i.e., multimedia, movies etc.

### **INTRODUCTION**

The word "Education" came from Latin word *educare* means to "bring up", which is related to *educere* "bring out", "bring forth what is within", "bring out potentials" and *ducere*, "to lead".

Generally speaking, the education is any act or experience that has the formative effect on mind, character or physical ability of an individual. In its technical sense, education is the process by which society deliberately transmits its accumulated knowledge, skills and values from one generation to another.

The students can take the advantage from the number of available opportunities of education which mathematics and calculation have been associated from earliest times. In modern times, the need to perform rapid mathematical calculations in war time, particularly in ballistics, and in decoding, was a strong stimulus to the development of the electronic computer. The existence of high speed computers has now helped mathematicians to calculate and to make situations visual as never before. Also this calculation has developed from numerical calculation, to symbolic calculation, and currently to calculation with the mathematical structures themselves. This last is very recent, and is likely to lead to a major transformation. These capacities change, not the nature of mathematics, but the power of the mathematician, which increases perhaps a million fold the possibility to comprehend, to argue, to explore.

The notion of computing would not have made sense without Mathematics, and it was the analysis of the methods of Mathematics by mathematicians, philosophers, logicians and engineers which led to the concept of a programmable computer. Indeed, two mathematicians, von Neumann in the USA and Turing in the UK, are known as the fathers of the modern computers. Analysis of computing, and attempts to make it as reliable as possible, needs deep Mathematics, and this need is likely to grow. A computer, unless it is programmed, is just a box made of metal, glass, silicon, etc. Programming expresses algorithms in a form suitable for the computer. Mathematics is needed as a language for specification, for determining what is to be done, how and when, and for the verification that the programs and algorithms work correctly. Mathematics is essential for the correct use of computers in most of their applications and the mathematical needs of computing have sparked off many new and exciting questions. Thus computers, while they have, fortunately, done away with the need for humans to carry out routine calculations, have also required from mathematicians a deeper analysis of the process and logic of computation, and its representation in a machine.

In the subject of mathematics, the mere repetition of works or phrases will not hide the ignorance of pupil. There can be no difference of mathematical work that is either right or wrong, and it is usually a very simple matter to find out whether or not it is right. Mathematical reasoning done by students is entirely original thinking and not the reproduction of ideas previously heard or read. It is an undoubted truth that the mental qualities cultivated by mathematical study alone are not sufficient to insure ability for solving practical problems but on the other hand, it is evident that without these qualities one can hardly hope for success in the affairs of life. A German mathematician said, "God created the numbers only. The rest of the universe is created by man". A man had to count and measure in order to solve his problems at the primitive age. In the ancient times the study of mathematics was considered indispensable. Plato had written at his institution "who so ever is ignorant of geometry is not allowed to enter the institution (Beaudry & Capblle's, 1998).

Until now, the problem of the use of audio-visual aids has been examined from an intellectual angle. It also includes important practical and technical aspects. To tell the truth, techniques cannot and should not be separated from pedagogy. We have seen that audio-visual aids cannot be separated from educational materials as a whole, this conclusion being thrust upon us by the attitude of the user when confronted by these materials. Now this same user – whether a teacher, a professor or an adult educator – does not act any differently when pedagogy and techniques are involved. He can never be purely a pedagogue or purely a technician. It is clear, therefore, that the pedagogy of audio-visual aids cannot be separated arbitrarily from audio-visual techniques. No one can hope to achieve good results unless he is a sensitive pedagogue and a skilled technician. The problem must be solved globally.

Unfortunately, this initiation into techniques is not always carried out in the institutions where future educators are trained. In underdeveloped countries, the lack of qualified personnel (and equipment) is the most frequent obstacle to such an initiation. But it is not the only one because similar shortcomings are often found in more favored countries. Routine, lack of initiative and administrative delays are the main factors responsible for educational sluggishness. There is no doubt that audio-visual aids produce their best results when they are used in connection with active teaching methods. Here, the task of educators is to draw the attention of their governments to these methods and to the

recommendations of previous seminars concerned with the introduction of an initiation into film and radio techniques into normal schools and similar institutions.

## **REVIEW OF RELATED LITERATURE**

Audio-visual aids mean the most modern or the most recently used of these methods (films, filmstrips, radio and television). This is a summary identification of very old methods and very modern instruments, and one should react against it. Visual aids are far older. They correspond to a profound tendency among the immense majority of men: to materialize their thoughts in the form of graphic or sonorous images or to give their thoughts a concrete frame of reference. Plato himself took care to set the scenery of his dialogues, and he used concrete words and concrete comparisons (for example, the cave) as foundations for his most abstract ideas.

Effective communication emphasizes the teachers' role in terms of selecting the course content and also of integrating the course content with appropriate materials like pictures, graphs, models, charts, maps, radio, television, record player, and video. All these materials are complementary and supplementary to the course content. These materials are called audio-visual aids. In other words, aids that are used by a teacher for effective communication are called audio-visual aids.

Audio-visual aids are of various forms. Some say they are broadly of two types, some say of three types, still others say of four or five types. But the materials or audio-visual aids that are used at the primary level may be classified into three major categories. This classification is based on the learners' sense organs that are influenced by the aids. An aid that influences the learners' auditory sense (sense related to listening or hearing) is called an audio aid. Such aids are the record player or the gramophone, the radio (programmes) etc.

In visual aids the learners' sight sense is involved. Such aids are the black-board, the bulletin board, pictures, charts, photographs, posters, maps, the globe, models, specimens, textbooks, silent motion pictures, etc.

The third category of aids is audio-visual. In these aids it seems that both the listening (ears) and viewing (eyes) senses are involved. Such aids are television (programmes). Video (films), motion pictures, computers (computer-assisted instruction) etc.

Keeping the media (or medium) in mind, audio-visual aids could be divided into two categories, print and non-print. Aids or materials highly dominated by printing are called the print medium. The most appropriate example of the print medium is the textbook or supplementary readers. The message of the writer reaches the reader through the medium of print. All materials other than textbooks or supplementary readers come under non-print media. T. V., video films, charts, pictures, graphs, etc., are the non-print material. Although this classification may not appear to be very appropriate, this has been done to bring in the concept of the print medium.

If learners' auditory senses are involved and then stimulated by materials which are called audio aids. In primary grades, particularly in language learning, it is very essential to strengthen or enrich communication skills among the learners through various listening activities. Further, for accurate pronunciation of alphabets and words it is necessary to give children enough opportunity to listen to their correct pronunciation.

In the classroom situation, the tape recorder, the record player or the gramophone plus radio programmes can mainly be used for this purpose, as audio aids help in better learning among learners. However, radio programmes are available for a limited time. As such it is not always possible for the teacher to use them. The best possible way is to record the relevant radio programme on a tape recorder and use it whenever needed by the teacher or the learner.



**In a classroom a song is played on the record player and nursery children are doing some actions according to the song.**

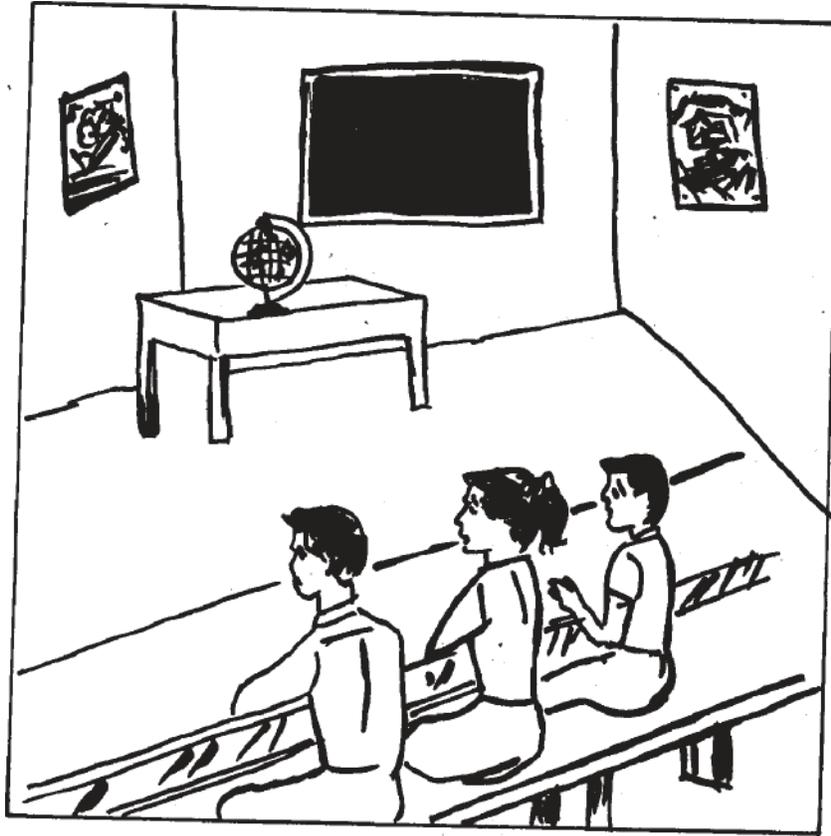
Record players or gramophones are used when some songs or poems, chorus, prayer, etc., are to be presented. Other programmes can be recorded from radio and if possible from television programmes also. Audio aids help in developing the listening skill. Nowadays audio cassettes are being produced on a large scale. They contain beautiful recitations of nursery rhymes, poems, stories, etc. Apart from serving as a model of good recitation, they also create interest among learners through the various sound effects.

Generally, visual aids are classified in the following two major categories:

**Category 1 :** In this category we have aids where an electronic equipment or machine is not used.

The chalkboard, pictures, posters, flannel boards, charts, photographs, maps, the globe, graphs, objects, specimens, models, puppets, materials made from clay and textbook illustrations etc. are visual aids.

**Category 2 :** In this category we include those aids which are well-integrated with machines or electronic equipment. The overhead projector and the silent motion picture fall in this category.



**A classroom situation—a black board, a globe on the table and charts on the wall**

## **RESEARCH METHODOLOGY**

### **POPULATION**

All students of government secondary schools in district kohat were constituted population of the study.

### **DELIMITATION**

A study was delimited to the students of 10<sup>th</sup> class of Government Higher Secondary No 3, Kohat.

### **SAMPLE**

Forty students of 10<sup>th</sup> class (Boys) of government Higher Secondary school No 3, Kohat were taken as sample of the study.

## RESEARCH INSTRUMENT

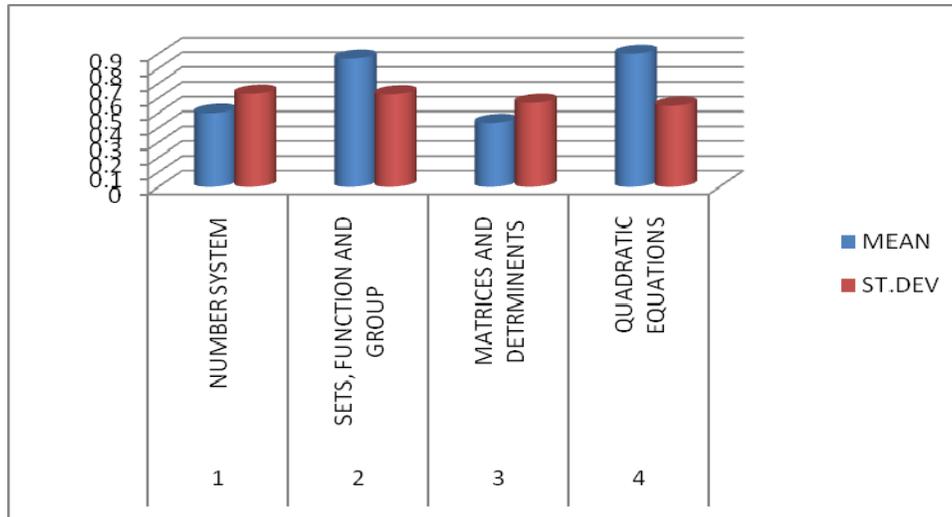
In order to investigate the role of AV Aids in developing mathematical skills at secondary level in district kohat, a pre- test and post test was used for the collection of the data.

## RESULTS AND DISCUSSION

The study was conducted to investigate the role of Audio Visual Aids in developing mathematical skills at secondary level in district kohat. The division of the classroom was made on the basis of teacher made pre-test. The control group was taught by the teacher of that school without using audio visual aids and experimental group was taught by the researcher himself by using AV Aids in the subject of mathematics for four weeks. Both groups were taught four units of mathematics. After treatment a teacher made post test was administered to check whether they gained the concept of said subject or not. After twenty days same post test with minor readjustment of changing sequences as retention test was given to the student of the same class and then compared their output. The detail of results about availability and usage of Audio Visual aids are given below.

**Table: Performance of Students of Secondary Schools of District Kohat**

S.NO	CHAPTERS	MEAN	ST.DEV
01	NUMBER SYSTEM	0.5	0.6297
02	SETS, FUNCTION AND GROUP	0.8666	0.626
03	MATRICES AND DETRMINENTS	0.4333	0.568
04	QUADRATIC EQUATIONS	0.9	0.5477



## CONCLUSIONS

The research arrives at the following and recommendation based on the analysis of the data recorded.

1. The main problem is the lack of basic physical facilities and in the absence of basics facilities like drinking water, building without roof etc. good teaching learning situation cannot be expected.
2. Wrong approach and techniques of teaching do not satisfy student who lose interest in their studies with consequent failure in the Examination.
3. Lack of cooperation of higher authorities in providing the required number of teaching staff. Science equipment, furniture also leads to a variety of Problems. The prevalence of such unfavorable circumstances weakens the school administration which in turn affects the teaching learning process adversely affecting the pass percentage of students.
4. It is also observed that our school lack A.V. Aids, which are very essential for effective teaching. In some schools A.V. Aids are available but they are not used properly. Even urban schools at district Kohat lack very common A.V. Aids like maps, charts, models, gleses & flash cards. The absences of these facilities decline the understanding of students and increase the chances of failure.
5. There is no use of A.V Aids for strengthening the conceptual thinking in the subject of mathematics.

## **RECOMMENDATIONS**

Recommendations for the said study are;

1. It is strongly recommended that the elementary education should be made free and compulsory awareness in the masses about the importance of education can be produced through T.V, RADIO, NEWS PAPERS, and MAGAZINES.
2. There should be more explanation of the concepts, opportunities for discussion, and encouragement for the advance learning through audio visual aids.
3. There should be the good use of A.V aids for giving better knowledge of concept formation in mathematics.
4. Lessons should be planned according to the needs of the students (Male & Female) keeping in mind the maximum use of Audio Visual aids.

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