

A Survey on

*Status of Hardware Aspects of
Educational Technologies in Government
Upper Primary Schools and Attitude,
Cognitive Abilities and Operational Skills
among Teachers*

Submitted by

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The basis of entire teaching learning process is to impart enjoyable learning experience to children .The innovations and progressions in the field of ICT has made this far-fetched dream a reality. The more sophisticated and advanced technologies in the form of electronic mass media like T.V., radio, Projector, Computers etc has brought revolution in the field of teaching and learning. But we must never forget that no technology in itself can be a success, until and unless it is utilized properly by our teachers. So the prime concern should be on the Status, acquisition and proper application of these hardware technologies by our teachers. The present study is an effort in this direction, which has significant social relevance and national importance.

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PREFACE

The utilization of ICT in education has recently started to appeal the potential and significant progress in learning. It has become major issue in education world and has been used from pre-school to university level that could facilitate students and teachers in teaching learning process. ICT has been publicized as potentially powerful enabling tools for educational change and reform. The computers play significant role in the teaching learning process especially at elementary level.

The technology in this era has increased not only the quality but also the efficiency in teaching learning process. The need of technological innovation has brought the communication revolution and rapid development of technological application in teaching and learning. This technology has made contribution in all aspects of communication in India. Many schools have used the ICT to facilitate the teacher to teach the students in the classrooms. Many kind of application that they use has improved and enhanced better teaching learning environment in class.

Audio-visual aids are those instructional materials which are used in the classroom to encourage learning and make it easier and interesting. The material like charts, maps, models; projectors, computer, radio, t.v etc are called instructional material. The great educationist Comenius has well said that the foundation of all learning consists in representing clearly to the senses and sensible objects so they can be appreciated easily. There is a famous Chinese proverb, “One seeing is worth, a hundred words”. It is fact that we receive knowledge greatly through our senses. If more than one sense is involved in learning, it becomes long-lasting and interesting. Another Chinese proverb reinforces this fact by saying, “If we hear we forget, if we see we remember and if we do something we know it.”

Looking at the above mentioned importance of A/V aids in the field of teaching and learning the present study is an effort to see the status of hardware educational technologies in government upper primary school of district Nainital of Uttarakhand and also to measure the attitude, cognitive and functional ability of teachers teaching out there. The vitality of the study lies in taking required measures to fulfil the lacunas in the above mentioned areas so that the desired goals are met.

INTRODUCTION

In most of developing countries, the system of higher education was elitist in concept and covered only a relatively small proportion of the population. This was more so, prior to their independence. As these countries became free, there were unprecedented demands for higher education. In a democratic and socialist set up, everyone has the right to learn, which needs to be recognised. Learning is essential not only for the survival of man, but also for individual and social maturity. It is necessary for individual development and adaptation to the rapid social changes being brought about by the explosion in knowledge and technology that our age is witnessing. These changes ushered in by the explosion of knowledge and technologies have put heavy demands on the developed countries as well, which now regard education as a continuing life long process.

The developing countries tried to cope with the ever increasing demands for higher education by opening new colleges and universities. Since the limited resources of these countries do not permit reckless opening of more colleges and universities, the growing demands for higher education could not be fully satisfied. At the same time, with their commitment to socialistic pattern of society and social welfare, the governments in these countries cannot deny equality of opportunities for higher education to the deserving students of various sections of society. We must therefore find alternative channels to meet the ever increasing demands for higher education without diluting the standard.

Efforts are made in every country for a sound system of education which can cater to the educational needs of all citizens. When the problem of quantity of education is being tackled, there is an urge for raising the quality of life, which is possible only when there is raise in the quantity of education. The quality of life and the quality of education go together. Educationists are of the opinion that educational problems relating to quantity and quality could be tackled by the development of an educational technology. Therefore there has been a rapid development all over the world in recent years in the development of educational technology in education at all levels with a purpose of extending educational facilities and upgrading instruction.

JUSTIFICATION AND ORIGIN OF THE STUDY

If we analyse the impact of educational technology on education, we shall find that things are moving very fast. There have been tremendous developments in this field, the use of varied A/V aids had not only improved the process of teaching but also have made teaching interesting, long-lasting and widely spread. The effect of various innovative teaching aids can be seen in the manner that today we are capable of getting all the information and teaching materials so easily available at our homes. At the same there have also been a lot of improvements in the classroom teaching aids, now the teachers are getting acquainted with various new teaching aids during their training programmes, which could help them in improving their teaching efficiency. It is time that they should try to catch up with these developments.

We cannot deny the fact that there have been very significant developments in the field of instruction technology but it is worthless, unless and until our teachers and teacher educators are made competent to use them or apply them during their classroom teaching.

The fullest value of the teaching aid could be relaxed only when the teachers was thoroughly trained to use it to the best possible advantage “(Golani).

So we can say that the widespread use of technology in the class room had made it necessary that teachers be trained both in its use and in the production of good curriculum materials.

Therefore the present study in an effort to know about the existing status of hardware educational technologies in various Government Upper Primary schools of district Nainital and at the same it also pays emphasis to know the perception of teachers about their applicability in the actual classroom situation.

SIGNIFICANCE OF THE STUDY:

There is a great need for fresh thinking with regard to emerging approaches in higher education. Technological discoveries of 1980's like T.V., Radio, Computer, Programmed learning and wide range of audio-visual aids have already brought out considerable changes and made profound impact on the education world. The 1990's have seen the growth of the commonly called

modern educational and communication technology as telecommunications, computers and micro electronics have emerged, producing the phenomena of telematics, electronic networking and interactive multimedia. Educational Technology in general, deals with information systems, data storage, access, retrieval, analysis and intelligent decision making and works through high speed networks, also referred as information super highways to convey the material. These developments have created immense scope to take advantage of hardware educational technology in the teaching learning process of higher education.

Whatever technology we use we must involve teachers and learners because they are essential components of any scheme of education. Therefore it is understandable, that the ultimate and main beneficiary from use of hardware education technology in education will be teachers and learners. Keeping it as focal issue, this study deals with how hardware educational technology will help to enhance and broaden the education, research and extension activities of teachers and learners. Beside this, the availability, accessibility, acceptability, Usability, economics and validity of hardware education technology to education world of India is also discussed in this research study.

STATEMENT OF THE PROBLEM

“Status of hardware Aspects Educational Technologies in Government Upper Primary schools and attitude, cognitive abilities and operational skills among teachers”

OPERATIONAL DEFINITION OF THE TECHNICAL TERMS

The operational definitions of the variables undertaken in the study are given below:-

HARDWARE EDUCATIONAL TECHNOLOGY:

The hardware educational technology is based on the systematic application of the principles of engineering and physics for developing electro mechanical equipment for teaching and educational purposes. In the proposed investigation all equipments which are useful in face to face teaching and instruction i.e. Computer, D.V.D & C.D player, Over head projectors, Tape recorder, Television, Radio, Camera, Globe will be taken as hardware educational technology.

COGNITIVE ABILITIES:

Mental or intellectual abilities involved in perception knowing and abstract thinking. In the proposed study cognitive abilities refers to the knowledge of teachers belonging to Government Upper primary schools regarding use of various hardware educational technologies. Cognitive abilities also include mental setup of teachers regarding the use of a particular instrument.

OPERATIONAL SKILLS:

The knowledge of practically operating or functional display of a particular technical instrument is regarded as operational skills. In the proposed study operational skills denotes the ability of teachers belonging to government upper primary schools to practically use and apply the concerned instrument for their teaching purpose. It not only covers the skills of operation but also of using the instrument in the desired way by the teacher.

ATTITUDE:

A general predisposition or mental set with regard to any persons, beliefs or other entities; educational systems typically seek to encourage the development of certain attitudes in their students in addition to inculcating knowledge. Attitude involves three aspects i.e. verbal commitment, actual commitments and affects commitment. Verbal commitment refers to what a person is willing to do on the basis of his knowledge. The actual commitment involves the act that a person commits to a situation while affect refers to person sentiments, his pleasant and unpleasant feeling associated with the attitude towards the situation. A harmony between all these aspects is required for the better functioning. In proposed study attitude covers the verbal, actual, affect commitment of teachers belonging to government upper primary schools regarding use of various hardware educational technologies.

OBJECTIVES OF STUDY

The proposed study aims at the following objectives:

- (i) To investigate the status of hardware aspects of educational technologies in Government upper primary schools of district Nainital of Uttarakhand.

(ii) To identify the attitude of teachers belonging to Government upper primary schools of district Nainital regarding Hardware Educational Technologies.

(iii) To verify the cognitive abilities of teachers belonging to Government upper primary schools of district Nainital regarding various Hardware Educational Technologies.

(iv) To know the operational skills among teachers belonging to Government upper primary schools of district Nainital regarding use of various Hardware Educational Technologies.

(v) To give suggestions regarding the appropriate use of Hardware Educational Technologies in Government Upper primary schools of district Nainital in Uttarakhand.

HYPOTHESIS

1. There exists no significant difference in the Status of Hardware Educational Technologies in the Government Upper Primary Schools of district Nainital of Uttarakhand with respect to their type of Organisation i.e. Urban or Rural.
2. There is no significant difference between male & female teachers of Government upper primary schools of district Nainital in respect to their attitude towards Hardware Educational Technologies.
3. No significant difference exists in the attitude of teachers belonging to Arts, science and language stream regarding Hardware Educational Technologies.
4. With respect to sex, & type of organisation no significant difference exists in the cognitive abilities of teachers towards Hardware Educational Technologies.
5. There exists no significant difference in the Operational skills of teachers belonging to Government upper primary schools of district Nainital regarding Hardware Educational Technologies in respect to their sex & type of organisation.

DELIMITATION OF THE STUDY:

The proposed study will be delimited only to the Government Upper primary schools of district Nainital of Uttarakhand.

REVIEW OF RELATED LITERATURE:

Taking into consideration the importance of various audio-visual materials and their use by teachers and to know the existing situation regarding availability of these A/V aids at various teaching institutions, the following research findings may serve as the related literature.

Golani (1982) in his study entitled “The use of Audio-Visual Aids in the secondary schools of District Thane” found that the teaching aids were essential and useful in developing clear concepts and in stimulating learning, but being expensive, the schools could not afford to purchase them. Sophisticated aids, like tape-recorder, radio, T.V. set and projectors were out of the question in many of the schools as they were exorbitantly costly. However, the use of A/V materials could be increased if teachers were allowed some free time for the location and preparation of requisite materials, because they had to perform many other duties in addition to teaching they did not usually find time. Some schools had projectors but few films and due to non-availability of technicians, the projectors were lying unused.

Jois (1982) in his study of the educational radio users in Karnataka laid emphases to find out the strengths and weaknesses of the educational media and to study the attitude of teachers towards school broadcast. The major findings were that. In all, 65.6 percent of the institutions possessed radio sets and were using them for educational purposes about 3 percent institutions were having radio-sets not in working condition. Reasons for non-utilization were:

- a) The head master was not allowing them to use.
- b) There was no separate time-table for this and
- c) There was lack of accommodation. The use of this medium was helpful to a classroom teacher. Teachers using the educational radio programmes agreed that the knowledge of the pupils had improved as a result of their listening to the radio broadcast.

Kaur (1981) aimed to develop educational materials for the skills of probing, questioning, explaining, and illustrating with examples and to examine the effect of self-educational audio-cassettes on the general teaching competence of teachers. The findings concluded that the self educational audio cassettes were effective for developing

different teaching skills and the immediate, pin-pointed and self feed back through audio cassettes was an effective way of improving the performance of teachers in the use of different teaching skills.

Phutela (1980) investigated to determine the extent of utilization of school television (STV) programmes by the school and also to study the factors responsible for under utilization of the programmes. At the same emphasis was also laid to study teacher's attitude towards the school telecasts. The findings concluded that many teachers did not find STV programmes useful as they were not different from classroom teaching or were not presented in such a manner as to sustain student's motivation. About 38 percent schools in the sample possessing T.V. sets were utilizing STV programmes. The reasons for not viewing were: T.V. sets being out of order, functions in the schools, exams etc. Most of the teachers from these schools accepted T.V. as a welcome help and agreed to the positive statements like teachers too learn about better methods of teaching.

Jagdish Singh and Shukla (1980) aimed to examine the extent of radio utilization in Delhi schools and to study teachers' attitude towards school broadcasts. The findings revealed that, of the schools having radio sets 14 percent did not utilize the radio programmes. 40 percent of the radio programmes were not related to the syllabus. Non availability of programme chart and lack of awareness of radio programmes were some of the difficulties in the utilization of school programmes.

Jeyachandram (1980) in his experimental study of the efficacy of programmed film strips as a method of teaching found that, programmed learning material (PLM) could be integrated with audio-visual materials and the teacher had an important role when self-learning techniques were employed. Higher cognitive abilities could be developed through PLM. It was also found that retention of learning was more in the case of programmed film strips with teacher and programmed film strip without teacher in comparison with the conventional method.

The major objectives of the study ,on use of visual aids by teachers of university of agricultural sciences conducted by Ramachandra

(1982)were (i) Evaluating the current use of visual aids by the teacher of a Agricultural University (ii) Identifying the factors governing the use of Visual aids. The major findings of the study revealed that the visual aids use level index values were low in basic science and humanities and were high in other agricultural colleges, veterinary colleges and fisheries colleges. The association between the visual aids use indices and teacher's qualification, experience, training status was significant. Other factors like the number of students per class, training on visual aids, attitude towards visual aids, budget allotment on visual aids, did not have significant association with the visual aids use level.

However, knowledge of visual aids, availability of material resources to develop and use them inside the classroom, administrative encouragement and follow up evaluation were highly significant in their association with visual aid use.

A question that constantly plagues teacher educators and others who work with teachers in service training programmes is whether the training actually produces changes in the classroom behaviour. In a survey questionnaire study conducted by C. Edward streeter (1968) was concerned with the question whether specific media competencies (and which other) can be demonstrated to have a significant positive correlation to actual use of media in the classroom. The sample used for the study consisted of 436 teachers working in two schools in which equipment, materials and supporting personnel were available to facilitate the teacher's use of a variety of educational media. Questionnaire data provided the basis for media competency scores; a total media frequency of use- score was derived for each teacher. Correlation coefficients were then computed in an attempt to test whether or not a positive relationship existed between this media competency scores and a teacher's quantitative use of media in the classroom. A positive correlation of 0.41 was found between the teachers total media competency and their frequency of use scores.

Ramsey(1961) concluded that the population attitudes towards audio-visual instruction were not influenced by the amounts of audio-visual equipment which their schools owned, as long as that

equipment was accessible when it was needed. On the other hand, the population attached great significance to the amount of audio-visual materials their schools owned as well as to the accessibility of those materials.

Grant and White (1970) studied a population of secondary school teachers who had experienced a specific audio-visual education demonstration unit and related various personality characteristics to changes in attitude toward newer media.

Teacher perceptions of environment conditions within schools which influence utilization of educational media were investigated by Miller (1970) who concluded that organized audio-visual programs supervised by audio-visual coordinators were related to significantly superior audio-visual educational climates.

Lewis (1970) tested 15 questions in an effort to determine teacher perceptions relative to educational media. Among his findings were conclusions that teachers perceive educational media as being readily available and that they perceive formal training in the area of audio-visual instruction as being necessary.

Tobias (1966, 1968) investigated educational media factors and terminology which threaten teachers and concluded that threats of automation influence teacher attitudes towards educational media.

Finch, Gustilo and Wiersteiner (1970) reported findings indicating that availability of educational resources leads to increased utilization of such media, but that teacher attitudes have little influence upon availability use relationship.

Guba and Snyder (1964) found users of media within their population to possess more favourable attitudes towards newer media than did not users of those media.

Increased utilization of audio-visual material was identified by Eboch (1966) as being related to increased availability of such material.

Godfrey (1965) reporting upon availability of educational media in schools, identified teacher requests as being among the more

influential channels for having school authorities provide greater amounts of A/V equipment and materials.

Knowlton and Hawes(1962,1963) concluded that negative teacher attitudes toward educational media are related to utilization barriers, and that increased utilization of educational media by teachers following their participation in an A/V education course is the result of improved information rather than improved attitudes.

Thus from the corpus of aforesaid studies it can be deduced that though much work have been done at the primary and secondary level teaching institutes, but still there are very less studies done regarding status of hardware educational technologies in government upper primary schools and perception of teachers about their use.

Therefore the present investigation is an effort to fulfil the gap of knowledge in this significant area of Education Technology.

RESEARCH DESIGN:

- (a) Population:** All the teachers of Government Upper Primary Schools of district Nainital of Uttarakhand will constitute as the population of the present study.
- (b) Sample and Sampling technique:** In the present study keeping in view the adequacy and representative qualities of the sample, 30 teachers i.e. (one from each of the selected school) will be selected for the study from the different government upper primary schools of district Nainital of Uttarakhand.
- (c) Tools:** To achieve the objectives of the study, the following measurements will be used:-
 - (i)** Hardware educational technology status inquiry schedule for government upper primary schools of district Nainital of Uttarakhand.
 - (ii)** Personal data schedule.
 - (iii)** Hardware educational technology attitude scale for teachers.
 - (iv)** Hardware educational technology cognitive ability and operational skill scale for teachers.
- (d) Statistical treatment:** Analysis of data will be carried out with the help of percentile and other appropriate statistical devices.

ANALYSIS AND INTERPRETATION OF DATA

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