



RESEARCH ARTICLE

A STUDY ON EFFECTIVENESS OF AUDIO-VISUAL PROGRAMME ON ACHIEVEMENT IN SCIENCE OF STUDENTS OF UPPER PRIMARY GRADE OF GOVERNMENT SCHOOLS OF SAMBALPUR CITY, ODISHA

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Abstract

The teaching-learning process cannot be imagined without the use of teaching-learning materials. Audio visual aids are one of the important teaching-learning materials in the education system. Audio visual aids are those devices which are used in classrooms to encourage teaching learning process and make it easier and interesting. Audio -visual aids are the best tool for making teaching effective and the best dissemination of knowledge .So there is no doubt that technical devices have greater impact and dynamic informative system. This study designed to analyze the effectiveness of audio visual aids in teaching learning process at university level. To achieve the purpose of study two questionnaires was design as research tool separately for teachers and students. The data was analyzed by using simple mathematical calculation and percentage. The findings for each statement were made. On the basis of findings, the conclusion was drawn. It was found that (i) the respondents viewed that A.V aids play important role in teaching learning process (ii) A.V aids make teaching learning process effective (iii) The respondents viewed that A.V aids provide knowledge in depth and detail (iv)It brings change in class room environment.(v)It motivates to teachers and students. On the basis of findings of study, following recommendation were made (1) Teachers may be trained for using A.V aids (2) Teachers may planning before using A.V aids (3) Schools may provided proper facilities of A.V aids (4) A.V aids may be according to level and interest of students.(5) Training may be provided to student for proper use of A.V aids.

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Introduction:-

The concept of audio-visual aids is not new.It can be traced back to the seventeenth century when John Amos Comenius (1592-1670), a Bohemian educator, introduced pictures as teaching aids in his book OrbisSensualiumPictus. The book contained illustrations of 150 drawings related to everyday life. Similarly, Jean Rousseau (1712-1778) and JH Pestalozzi (1746-1827) advocated the use of visual and play materials in teaching-learning process. In the recent days audio-visual aids were also widely used during and after World War II by the armed service by U.S. The successful use of picture and other visual aids in U.S armed forces during World War II proved the Effectiveness of instructional tools. There are various types of audio-visual materials ranging from

filmstrips, microforms, slides, projected opaque materials, tape recording and flashcards. In the current digital world, audio-visual aids have grown exponentially with multimedia such as educational DVDs, Power-Point, television educational series, YouTube and other online materials. The goal of audio-visual aids is to enhance teacher's ability to present the lesson in simple, effective and in easy manner to facilitate understanding of the students. Audio-visual material makes learning more permanent since students use more than one sense at times. The outcome is to promote the audio-visual material in secondary schools because they lack the resource to produce them.

Life in 21st Century is controlled by science and technology. Getting up from bed at early morning to sleeping down at night, every moment in our daily life mostly completely depends on use of science and technology in one or other way. As we all know that today's age is the age of science and technology, we can easily find its presence in the teaching learning process. The process of teaching-learning depends upon the different types of equipment available in the classroom. Teaching-Learning Aids are important for the teachers in teaching his/her lesson effectively as it help his/her to a better interpretation and appreciation of the concepts, contents as well as the subject matter. Teaching learning aids also enables the students to proceed towards concrete learning. It makes lessons interesting and makes the learning easy. It helps learning to remain in the minds of the learners for a longer time. It helps the facilitator to deliver his / her lesson successfully and easily. It enables the facilitator to express intended concepts of learning effectively. Teaching learning aids are things and ideas which are usually familiar to the learners.

Teaching aids are creative additions to the very exercise of pedagogy. These are mediums through which knowledge is disseminated to the curious brains of pupils. Aids enable a teacher's easy communication with her/ his students. From the guru-shishya tradition of ancient India to present day modern education, along with oratory skills and scripted texts, teachers have been using varieties of teaching aids to make teaching interesting and comprehensive for the young minds. Our history and mythology depict how in ancient time temple architecture, stone carvings as well as imitative presentations and so on were used to communicate tender minds of subsequent generations. Those efforts are repository of knowledge even for current times. With development of science and technology, and many other faculties of knowledge, pedagogical practice has become innovative. Many afore-mentioned audio-visual aids are part of such innovation.

Given the importance of teaching aids across times and generations, one must investigate its effectiveness in making teaching and learning easier. In a class of many students who belong to different socio-economic background, and accordingly differential ability of understanding, teaching becomes a herculean task. A teacher must reach out to everyone. She/ he must draw everyone's attention in the classroom. Hence, there is a responsibility on the teacher's shoulder to make the pedagogy democratic by being less esoteric and more lucrative so that everyone pays attention. In this context, importance of teaching aids is immense. One must examine whether such aids sufficiently prompt the students to focus and learn the subject. One of the rationales of this study is the diversity of students who constitute a classroom today that demands creative engagement from the teacher. Apart from the necessity of making teaching and learning interesting and effective for the diverse constituents of a classroom, teaching science itself specifically necessitates innovative curricular engagement. Science as a domain of study is quite advanced and complex today. Be it physical science or biological science, school education is elementary for the subject. A classroom education for science, in schools, mostly introduces the vast areas of science to the tender minds of future citizens. But the domain by itself is coarse with its alien terminologies. One might love the beauty of a flower or a tree or forest, but an engagement into photosynthesis or pollination may sound strange to the students. Here comes the responsibility of the instructor to make an unfamiliar jargon ridden topic exciting for the instructed. Therefore, it's pertinent to find out how far they succeed in their effort so far as science as subject is concerned. In a way, the reason behind picking usage of teaching aids in science classes for this study, is to see their efficacy when science as a subject is dominating our everyday life and so also its learning.

Lastly, learning science as a part of early schooling opens up scope for the students to reflect on their everyday life.

Being able to relate classroom teaching to everyday activities in life makes education worth. That's a major purpose of education. Being able to understand the environment around them, changing climate, the food they eat, the clothes they wear, many simple technologies they use in life and so on makes students aware and concerned too. The get to know about healthy and responsible practices, become selective in choosing right things, become careful about environment and so on. This makes the job of teaching science with care essential. So, an assessment of efficiency of different teaching aids, in generating curiosity or inquisitiveness that enable better learning, is

important. The need of elementary science to develop awareness about daily life constitutes another rationale for assessing contribution of teaching aids as a part of this study.

Review:-

Literature review is the systematic identification and analysis of documents containing information related to the study. This chapter presents literature review relating to the influence of teaching and learning materials on the students' academic performance in different schools in Odisha, as different scholars and researchers have portrayed in different perspectives.

Deepak(2013) argued that the term teaching and learning material(TLM) is used often and usually refers to some very specific, sophisticated equipment. There is a tendency to believe that it is quite important that a teacher uses teaching and learning materials in the classroom. If it is not so, it may be understood that one is not using a child-centred and interactive pedagogy. Deepak added that when we say teachers should use TLM, it's understood by default that it should also be prepared by teachers and presented during the lesson.

Gilakjani(2012) also resonated with the use of effective learning materials including audio-visual aids in enhancing teaching and learning, and visual presentation helped differentiating primary and secondary information sources in approaching questions requiring higher thinking skills.

Shan and Khan (2015) highlighted that animation and information presented onscreen provided a different learning experience from printed text which was beneficial to development of critical thinking.

HimmelWeit(2012) has studied the impact of ordinary televised programs on children. It was 10-11 years age group, where reading and access to other knowledge sources were limited, who had gained most from television with regard to general knowledge. She added that the value of school television to be considered in terms of factual knowledge alone. She felt that the greater a child's interest in a theme, the more respective he would be.

Various empirical studies have found that teaching aids of different kind have led to positive consequences on both the teachers and students. These studies have been conducted at different levels- national and international. Except a very few of them, most of them noticed improvements in their findings. However, the studies which haven't found any significant difference within the target group after they went through audio-visual teaching tools need further analysis in terms of specific context. Hardly there is any substantial study on efficacy of teaching and learning material, specifically audio-visual ones, on early education in Odisha. The State is still to mark its footprints in the field of ICT education. To make the dream a reality there is a necessity of manifold development. Such development is possible only if, among other developments, we enhance our focus on education, and more specifically at elementary stage. A childhood built strong can be a foundation for an edifice of development where effective use of ICT could find a place in use.

Studies have rarely focused on efficiency of teaching tools locating the debate in a larger context of development and under-development. The agriculturist population, the tribal population and even the aspirational population of small towns require special attention when development is the issue. Education of their children, their scientific imagination, their overall shaping depends on the education they get. The special attention they need, the innovative methods they need and the creative engagement they require are of paramount necessity. Therefore, teaching as a future building exercise needs careful assessment. So also, their methods and creative audio-visual aids.

Different stakeholders including education expertise and researchers focused on how teaching learning materials influence the students' academic performance in different schools. Though they portrayed the contribution of the teaching and learning materials (TLM) in schools, the programme was still faced with a number of challenges, therefore there was a need of conducting a research on how availability of Teaching and Learning Materials (TLM) positively affects students' academic performance in different schools.

Methodology of the Study:-

This chapter highlights details of the research procedure followed in conducting the study. It is an important part of the research study and needs to be planned and carried out systematically to arrive at accurate conclusions. It includes information regarding the procedures used, sources and methods employed, the sampling, tools used for

collection of data, the nature and form of data gathered, statistical techniques used for analysis of data and area under study of various schools in Sambalpur city.

Objectives of the Study:-

Following are the objectives of the study:

1. To analyze the effectiveness of Audio-visual aids on learning achievement of children at upper primary grade of Elementary level.
2. To understand different problems faced by teachers while using Audio-visual aids by the teachers at upper primary grade of Elementary level.

Hypothesis of the Study

H01. There is no significant difference in the learning achievement of students by use of Audio-visual aids at upper primary grade of Elementary level.

H02. There is no significant effectiveness of Audio-visual aids at upper primary grade of Elementary level.

Population of the Study

In the present study the population could be defined as all class VI students of elementary schools, located in Sambalpur city. Sambalpur is a big city. About 8-10 government schools are located here. It was impossible to researcher to include all elementary schools of Sambalpur city. However, he used the random sampling for the selection of schools. In the random sampling every representative unit of population has an equal chance of being selected. In this present study the three elementary schools were selected randomly, namely Budharaja Govt. U.P. School(School-1), Mudipada Upper Primery School(School-2), Ashapali School(School-3).

Sample and sampling procedure of the study

The first step in sampling for educational research is to define the population from which the sample is to be drawn. If the population is vaguely defined, it is impossible to decide about its various units that are to be included in the sample. Hence in the very beginning it was decided to define the term population.

In the present study the population could be defined as all elementary schools, located in Sambalpur city. It was impossible to researcher to include all elementary schools of Sambalpur city. However, he used the random sampling for the selection of schools. In the random sampling every representative unit of population has an equal chance of being selected. In this present study the three elementary schools were selected randomly, namely. School-1, School -2, School -3. The headmasters of these schools were asked to provide the information of their respective schools. They introduced with their science subject teachers of class VI.

Table 1:- (Data Representation).

Name of the School	School-1	School-2	School-3	Total attendance
Total Strength of class VI	33	31	29	93
Total No. of Students attend class VI where audio-visual aids used	33	31	29	93
Pre Test	33	31	29	93
Post Test	33	31	29	93

The total class VI students in these schools were 93. All students able to appeared the examination provided by the researcher before taking the "Components of food" chapter of science topic using audio-video aids.

After taking the same chapter as a class in google meet app by using the audio-video aids also all students attend the class.

And finally all students attend the examination after that class.

In the first evaluation the average result was 79%. Where as in the second examination the result was 87%.

Research Tools and Procedure:-

Tools for the Students

The researcher first prepared some standard questions followed knowledge, understanding and skill based for pre-test examination.

After took the online class using audio-video aids the researcher also prepared some standard questions followed knowledge, understanding and skill based for post-test examination.

Tools for the Teachers

The researcher made some standardized questionnaires for the teachers to understand the teaching method using audio-video aids.

Procedure of Data Collection:-

The data mainly collected by two activities. Firstly questionnaire made for teachers to know their aspects towards teaching-learning method using audio-video aids and secondly made standardized questions for the students to took pre-test and post-test respectively.

Procedure of Data Analysis and Statistics used:

To analysis the qualitative and quantitative data the researcher simply followed the mathematical analysis using average and percentage.

Data Analysis and Interpretation:-

Data analysis and interpretation is the process of assigning meaning to the collected information and drawing the conclusions, significance, and implications of the findings. The steps involved in data analysis are a function of the type of information collected. However, returning to the purpose of the assessment and the assessment questions will provide a structure for the organization of the data and a focus for the analysis. The collected data are represented in tabular form and graphically to give a meaning to the same.

Table 1:- (Data Analysis).

Test	Total No of Students	Average Score	Highest Score	Lowest Score
Pre-Test	93	75%	36/40	26/40
Post Test	93	85%	48/50	40/50

Table 2:- (Domain wise Analysis).

Result of correct responses given by students (In Number)		
Knowledge Based Questions		
Item No	Pre-Test	Post- Test
1	76	82
2	70	84
3	68	77
4	72	80
5	70	81

Question numbers	Pre test result of students (In Percentage)	Post test result of students (In Percentage)
1	81.72	88.17
2	75.26	90.32
3	73.11	82.79
4	77.41	86.02
5	75.26	87.09
Total calculation	76.55	86.88

The data obtained from the above table reveals that there is an improvement of almost by 9 percentage point in the average achievement score of students as far as the different knowledge level question is concerned.

Table 3:- (Domain wise Analysis).

Result of correct responses given by students (In Number) Understanding Based Questions		
Question numbers	Pretest result of students	Posttest result of students
1	73	80
2	80	83
3	76	80
4	75	81
5	77	85

Question numbers	Pretest result of students	Posttest result of students
1	78.49	86.02
2	86.02	89.24
3	81.72	86.02
4	80.64	87.09
5	82.79	91.39
Total calculation	81.95	87.95

The above analysis represents that the result obtain by all questions attempted by the students in post-test is increased compare to pre-test in the class.

Table 4:- (Domain wise Analysis).

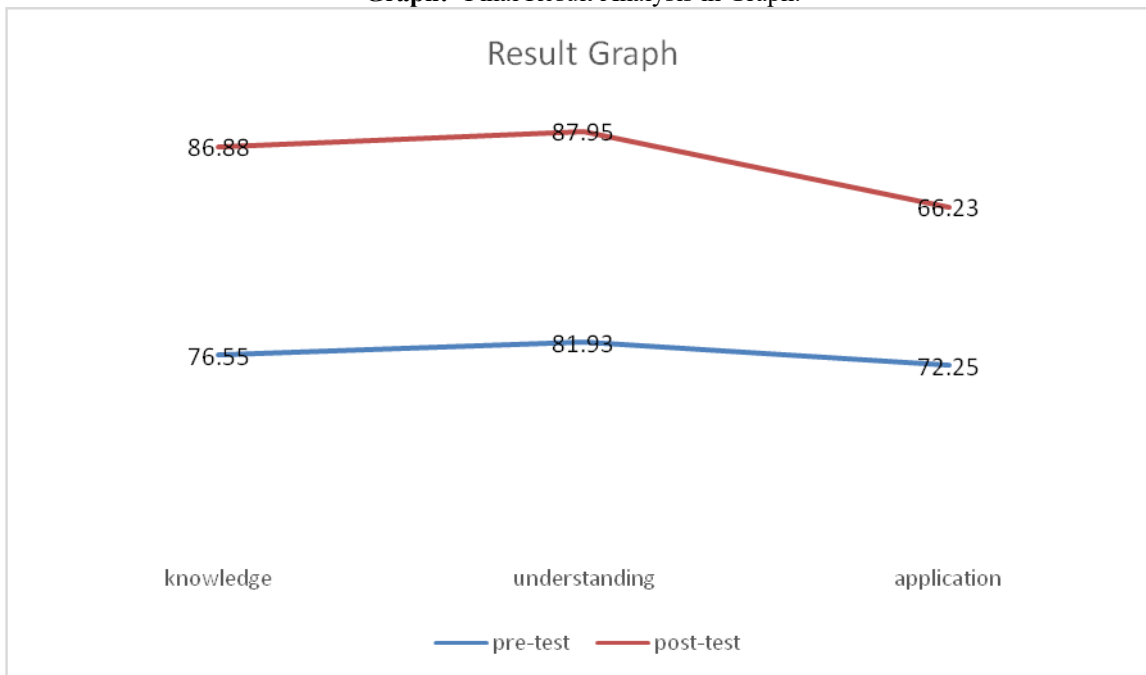
Result of correct responses given by students (In Number) Application Based Questions		
Question numbers	Pretest result of students	Posttest result of students
1	63	59
2	70	66
3	64	60
4	70	62
5	69	61

Question numbers	Pretest result of students	Posttest result of students
1	67.74	63.44
2	75.26	70.96
3	68.81	64.51
4	75.26	66.66
5	74.19	65.59
Total calculation	72.25	66.23

The above analysis represents that the result obtain by all questions attempted by the students in post-test is decreased compare to pre-test in the class.

Table 5:- (Final Result Analysis).

	Pre-test	Post-test	Significance change
Knowledge	76.55	86.88	Increased
Understanding	81.93	87.95	Increased
Application	72.25	66.23	Decreased

Graph:- Final Result Analysis in Graph.

The graph represents that the knowledge and understanding domain increased where the application domain decreased in teaching science using audio-video aids in online mode.

Findings and Discussions:-

This study has focused on efficacy of teaching aids such as audio-visual material for the class VI students. The researcher has taken the subject of science for the study. It was, more specifically, on the students understanding and knowledge about nutrition. It has attempted to see how material other than textbooks contributed to their understanding of the subject. The researcher has compared the findings of tests done before the use of aids and after the use of aids.

The finding of the study is in favor of the use of teaching aids. In all the three forms of questions, such as knowledge, understanding and application-based ones; the findings suggest that use of audio-visual tool enhanced students' attention, participation and cognitive involvement. Their performance shows better after the post-test. While conducting the study, the researcher has noticed an increased enthusiasm among the students. They were inquisitive and assertive. Teaching aids have not only added to their curiosity, but also made them proactive in participating classroom activities. A colorful display created significant mark in their sensory reception leading to active engagement in the process of teaching. A sensory perception, rather than rote learning of textbook format, elicited far better result. Apart from above benefits to the students, the teachers were also benefitted in the process. Their communication with their pupils was comprehensive. They were satisfied in their deliberation. Their involvement was very interactive and it helped a better bonding among the teacher and with their students which was an exclusive observation.

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