

COMPARATIVE EFFECTIVENESS OF THE PROJECTED AND NON-PROJECTED TEACHING AIDS AT THE SECONDARY LEVEL

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ABSTRACT

The Problem under investigation was “comparative effectiveness of the projected and non-projected teaching aids at the secondary level”. The study is important because it tells us clearly about the academic achievement of the students taught through projected teaching aids and through non-projected teaching aids, and if the projected aids proved useful then these can be implemented in the D.I.Khan district. The null hypothesis that “There is no significant difference in the mean post-test score of the students who were taught through projected and through non-projected teaching aids” was tested. All the secondary school students of the high & higher secondary schools were included in the study. One school i.e. University wensam College was randomly selected. A sample of 100 students was selected from this School. Two tests i.e. A teacher made pre-test to divide the students into two equal groups on the achievement and a teacher made post-test to check and compare the achievement of control and experimental group after the experiment were used as instrument of the study. The standard deviation of group A on pre-test and post-test were 0.922 and 0.682 respectively while the t-value at 0.05 level of significance is 5.741. The standard deviation of group B on pre-test and post test were 1.165 and 1.066 respectively while the t-value at 0.05 level of significance was 0.520. The results show that projected teaching aids are more effective than the non-project teaching aids in the subject of physics at secondary school level.

INTRODUCTION

Teaching method is one of the important elements of teaching learning process. A good teaching sometime fails due to non-suitable method of teaching. In this era not only the new methods of teaching have been developed but also the methods of teaching are greatly affected by the development of new technologies i.e., computers, computer assisted instructions, projector slides and multimedia.

Today we are enjoying the benefits of science. Science makes our life very comfortable. Science benefited us in agriculture, transportation, exploration and all other fields of life. Most of the benefits of science are due to physics, which is the most beneficent and ever developing field of science. Physics make our life very easy and comfortable. Physics brought such wonderful changes in the social life of human being that could not be thought in past. Man of today sitting in home watches the changes taking place in different continents of the world through satellite

communication. It is due to physics that we are living in the word of electricity, air conditioners, refrigerators, radio, wireless, telephone, telegraph and computers. Which made our life most comfortable. It is due to physics that developments in the field of energy are being made and new weapons are being developed which put the word in a new era, which is truly called the era of computer and technology.

Keeping in view the importance of physics, the achievement of the students in the subject is not up to the mark. This situation calls for a change in the teaching styles of physics. The method of teaching in the science curriculum should be such that it compels the students on thinking, and through their efforts, interests and practical work they may be able to reach the conclusion.

In our country science is also taught with lecture and book method, which is a dilemma of our country. Although science demands for the problem solving, discovery approach and practical work in

the classroom, but this is either totally rejected or not done with such zeal and devotion (Waheed and Rasheed , 1993)

Teaching has become a science, there are many aspects and areas which has to be considered to make it more effective e.g. age and ability of the children, methodology of teaching, resource material used etc. similarly to run a good school thorough planning has to be done, one has to devise a sound school policy, a balanced curriculum, an effective way of teaching and a good evaluation method (Mansoor, 2000).

Yet we all do use various methods and strategies to help us and remember new information or skill. Some of these methods are more effective than the others for learning and remembering new information (Siddiqui, 2005).

According to (Tishna, 1997) every activity takes place through proper method and technique, therefore a teacher should also teach his lesson through proper method. Teacher should adopt the method of teaching which is according to the mental age and psychology of the students and the students take interest in it. The A.V aids motivate the students and arouse interest of students in the teaching learning process. Therefore A.V aids should be used effectively.

A great deal of research has been conducted into the nature of effective teaching, and much has been learned. Educational researchers have concluded, for example, that a systematic approach to providing instruction greatly improves student's achievement. These researchers also state that teachers can learn the specific components of an effective, systematic approach to providing instruction and can modify and thereby enhance their teaching behavior (Siddiqui, 2005).

According to (Waheed and Rasheed , 1993) generally we take Physics, Chemistry, and Biology as science but

according to the new division of science all those subjects which lead towards the truth are science. Also (Waheed and Rasheed , 1993) says Science ascertains truth, therefore its teaching according to the traditional method is injustice with the science.

PSYCHOLOGICAL BASIS OF COMPUTER ASSISTED INSTRUCTION

CAI refers to the use of computers to deliver instruction and lectures. CAI according to (Sanders, 1983) has roots in the field of educational psychology and instructional technology. It was 1950, when educational psychologists begin to experiment with programmed instruction. This divided course contents into "frames" which enabled the students to master the content in a specific sequence. Psychologist B.F. Skinner is known as an early champion of programs instruction.

In early days of CAI, basic and Pascal were used but these general purpose languages do not suit. Now new languages have been developed, such as extended version of Pascal called UCSD Pascal. These languages have made it "easier to process words, clauses, sentences, lines, curves, and also student answers, the overall effect has been to improve CAI software". (Hussain and Hussain, 1989). It is necessary to have a huge device which can store a gigantic amount of organized information which can serve to a great variety of educational needs with variety of educational levels, along with different styles of instruction and level of learning. (Chauhan, 1979) As such CAI covers whole educational spectrum.

CAI is "defined as the use of computer to provide course content instruction in the form of drill and practice, tutorials and simulations (Chambers and Sprecher, 1983) Drill and practice is common form of CAI in which repetitive type or flash card approach emphasizes rote memory and is used in all educational levels. Although "drill have unpleasant

connotations, there is little doubt that accommodation of facts and elementary behavioral capabilities are prerequisite to advances at conceptual and integrative levels". (Ellis, 1974)

The second category of CAI is gaming and simulation. Simulation may be defined as "Controlled representation of real world phenomena". (Digital, 1984) No doubt, Simulation has been used since the man on the earth but its systematic use started after First World War.

. "Games are exercises which involve competition and have set rules." (Ellington et-al. 1993) or it may be defined as goal oriented activity which can be successfully be completed by skilful application of set of rules. (Digital, 1984)

In discovery-learning, students are required to find their own concepts, principles and solutions, they do not adopt from teacher or text book. (Gage and Berliner, 1988)

In the early days of CAI, tutorials were nearly synonymous with programmed instruction. In these, a frame was presented; question was asked and selected subsequent information based on students Responses. But, this was not designed on the knowledge of good teaching practice. Research developed language as COURSE WRITER, PLANIT AND PILOT to help the educators so to provide better instructional content. Such systems provide methods for entering test frames, right answer options, and mechanisms for the selection of subsequent material based student responses. (Digital, 1984)

These new methods of teaching not only affected the teaching learning process but also totally changed the teaching styles and classroom situation. These methods have made the work of the teacher very easy. They can go through simply slides and explain the contents to the students. On one side these new technologies made the work of the teacher easier, on the other side the motivation of the students increased and they remain hooked in the teaching learning process till the completion of the lecture.

This study aims to highlight the differences between the old used non-projected teaching aids i.e., chalk, black-board, book, charts, pictures, drawings and the newly used projected aids such as computers , computer assisted instructions, computer slides, internet, multimedia and computer programs.

Some Weaknesses of Audiovisual Learning Programmed:

The main weakness of the approach is that suitable ready made courseware is seldom available, so instructors may have to produce their own. This is invariably time consuming often expensive, and (in many cases) requires specialist skills that the average teacher or lecturer simply does not possess. In some cases, it may be possible to learn the required skills by undergoing suitable staff development (e.g., learning basic video production skills) but in other cases it may be necessary to rely on specialist support staff. Readers interested in developing such skills should find useful advice in producing teaching Materials by (Ellington and Race , 1993).

STATEMENT OF THE PROBLEM

The problem under study was to find the "Comparative effectiveness of the projected and non projected teaching aids at the secondary level".

OBJECTIVES OF THE STUDY

Following were the objectives of the study.

1. To find out the academic achievement of the students who are taught through projected teaching aids and through Non-Projected teaching aids.
2. To find the difference between the academic achievements of the students taught through projected and those taught through non-projected teaching aids.

SIGNIFICANCE OF THE STUDY

The study was significant because.

1. This study tells us clearly about the academic achievement of the students taught through projected

teaching aids, and through non-projected teaching aids, and either of these aids can be implemented at the secondary level to make the lesson fruitful and result oriented.

2. This study helps the teacher specially the science teachers in the selection of A.V Aids in their corresponding subjects at the secondary level.

LIMITATIONS OF THE STUDY

Following were the limitations of the study.

1. Lack of man and material resources the schools.
2. Lack of programmed resources in physics at the secondary level.
3. Lack of awareness of projected aids and their use.

SCOPE OF THE STUDY

Study was delimited to only:

1. University Wensam College.
2. Study was delimited to only 9th class students.
3. Study was delimited to only 100 students.

HYPOTHESIS

Following null hypothesis was tested.

1. There is no significant difference in the mean post-test score of the students who were taught physics through projected and through non-projected teaching aids.

DEFINITION OF TERMS

CAI Computer Assisted
Instructions

AV aids Audio Visual Aids

Projected Aids Those aids that
involve projector

Non-projected Aids Those aids that
doesn't need projector

METHOD OF RESEARCH

Population

All the secondary school students of the high & higher secondary schools were included in the study. One school i.e. University Wensam College was randomly selected.

Sample

A sample of 100 students was selected from the University Wensam College.

Instrument

Following instruments were used for the research purpose.

1. A teacher made pre-test to divide the students into two equal groups on the achievement.
2. A teacher made post-test to check and compare the achievement of control and experimental group after the experiment.

Variables

1. Dependent variable was academic achievement of the student.
2. Independent variables were two method of teaching i.e. projected and non- projected aids.
3. Controlled variable.
Teacher, Content, Time, Gender, Socio economic status
4. Uncontrolled Variable.
Student age and IQ.

PROCEDURE

First of all the pre-test was administered to form two equal groups on achievement. One group that is group A (Experimental Groups) was taught by the projected method (i.e. using computer programs, slides, CD's transparencies, multimedia and other technologies) while the second group B (Control Group) was taught by the non-projected methods.

This practice of teaching the students through these two different methods was carried out for duration of one month. After it, student's academic achievement was evaluated through a post-test, the results of the students were tabulated and data was analyzed through the use mean, standard deviation and t-statistics.

The result of these tests by using t-statistics clearly indicates the difference between the two methods. 0.5 level of significance was used to reject the null hypotheses.

STATISTICAL ANALYSIS

Following statistics were applied for the analysis of data.

- Mean and standard deviation of scores obtained in pre-test of both the groups was calculated.

- Mean, standard deviation and t-value of scores obtained through post-test of both groups was calculated.
- Means, standard deviation and t-value of scores obtained through pre-test and post-test of groups (A) was calculated.
- Mean, standard deviation and t-value of scores obtained pre-test and post-test of group (B) was calculated.
- The computed t-value was compared with the tabulated value at 0.05 level of significance.

DATA ANALYSIS

Table1 Mean & Standard Deviation on Pre-Test of Group A & Group B

S.No	Group	N/O Students	Mean	S.D
1	Exp: (A)	50	7.270999	0.922266
2	Control (B)	50	7.13869	1.165106

The above table shows that the mean score of group A and B is 7.27 and 7.13 and

standard deviation of group A and B is 0.922 and 1.165.

Table2 Mean and Standard Deviation on post-test of Group A and Group B.

S.No	Group	Mean	S.D
1	Exp: (A)	8.470554	0.682288
2	Control (B)	7.288767	1.0662

The table shows that mean score of group A and B is 8.47 and 7.288 and standard

deviation of group A and B is 0.682 and 1.066 respectively

Table3 Mean, Standard deviation and t-value of Group A on pre-test and post-test.

S.No	Tests	Groups	Mean	S.D	T-value
1	Pre-Test	Exp: (A)	7.27	0.922	5.741
2	Post-Test	Exp: (A)	8.470	0.682	

The above table shows that the calculated t-value is 2.82 at 0.5 level of significance, while the tabulated value is 1.96. The tabulated value is less than the calculated value so there is a difference b/w the pre-test

and post-test scores of the group A. As the mean of the post-test score is greater than the mean of the pre-test. So in the projected aids students performed significantly better after the experiment.

Table4 Mean, Standard Deviation and t- Value of Group B on Pre-Test and Post-Test.

S.No	Tests	Groups	Mean	S.D	T-value
1	Pre-Test	Control (B)	7.138	1.165	0.520
2	Post-Test	Control B	7.288	1.066	

The above table shows that the calculated t-value is 0.520 at 0.5 level of significance ,while the tabulated value is 1.96. The tabulated value is greater than the calculated value so there is a no difference b/w the pre-test and post-test scores of the group B. So in the non projected aids there was no

difference of achievement before and after the experiment.

FINDINGS

After the Analysis of data following findings float-up.

1. The mean score of all student obtained on pre-test is 7.27, 7.13.

2. The mean score of group A on pre-test is 7.27.
3. The mean score of group B on pre-test is 7.2.
4. Standard deviation of group A is 0.92.
5. Standard deviation of group B is 1.65.
6. The mean score of group A on post-test is 7.27.
7. The mean score of group B on post-test is 7.288.
8. The mean score of group B on pre-test and post-test is 7.13 and 7.28 respectively.
9. The standard deviation of group A on pre-test and post test is 0.922 and 0.682 respectively while the t-value at 0.05 level of significance is 5.741.
10. The mean score of group B on pre-test and post test is 7.138 and 7.288 respectively.
11. The standard deviation of group B on pre-test and post test is 1.165 and 1.066 respectively while the t-value at 0.05 level of significance is 0.520.

CONCLUSIONS

On the Basis of Findings of the Study the following conclusions are hereby drawn.

1. Projected teaching aids are more effective than the non-project teaching aids in the subject of Physics at secondary school level.
2. The students using the projected aids in teaching show better result in academic achievement than the non-project teaching aids.
3. There is a significant difference in the academic achievement of projected and non-projected teaching aids in the subject of Physics at 9th class level because calculated value of t i.e. 1.96 is less than the tabulated value 5.741 at 0.05 level of significant.
4. The null hypothesis that there is no significant difference in the mean score of the students who are taught through projected and through non-

projected teaching aids is hereby rejected.

5. The mean score of the group A in post-test is 7.27 and that of group B in post-test is 7.288.
6. The SD of the group A in post-test is 0.682 and that of group B in post-test is 1.066.

RECOMMENDATIONS

Following recommendations are being made in the light of findings and conclusion.

1. As it is experimentally observed that projected aids are more effective than the non-projected aids, so it is recommended that the projected aids should be used at the secondary level for the subject of Physics.
2. As the projected aids are more effective and fruitful than the non-projected aids, but these aids are not fully available in all the schools of the district D.I.Khan, so it is recommended for the administrators and the authorities to provide the projected aids in the school to make teaching learning more effective at the secondary level.
3. Most of the teachers in our schools are not trained in using the projected aids in teaching, therefore it is recommended that the teachers should be trained for using these aids at the secondary level.
4. The teacher should be trained through seminars, workshops and refresher courses.
5. The funds should be utilized for the purchase of projected teaching aids at the secondary level.
6. The projected teaching aids i.e. computers, multimedia, Slides, TV, Radio, Projectors and others should be made available in the schools to make teaching more effective and result oriented.
7. The syllabus should be changed, so that it has the capacity of accommodating the projected teaching aids.

8. This study may be conducted at the primary level and higher secondary level.
9. This study may prove helpful for the next researchers in this field.

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