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REVIEW OF LITERATURE

EFFECTIVENESS OF CAI METHOD IN TEACHING PHYSICS

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ABSTRACT:

Computers are rarely used for teaching-learning even in urban schools. The day is not far off, when every class room can support its own computer and a large screen display. Keeping this in view, a comparative study of effectiveness of Computer Assisted Instruction and Traditional method of teaching Physics for the XIth standard has been carried out. It was also intended to provide students with a first-hand learning opportunity and give them valuable insights regarding learning through CAI. CAI packages can be used in different ways, such as in self-learning mode or as an audio-visual aid by the teacher. In the present research it has been used as an audio visual aid for teaching.

KEYWORDS : *teaching-learning , large screen display , self-learning mode.*

INTRODUCTION:

Variety in teaching methods adds spice to learning. Teachers need a repertoire of teaching methods to make their teaching more interesting, and therefore more effective. Now-a-days computer has become an integral part of teaching-learning process. An effective method of teaching-learning, namely, Computer Assisted Instruction (CAI) has now begun to show its applicability due to availability of computers in Indian schools. Several computer software are available in the market that helps the learners studying the subjects like Mathematics, Science and English. Several researches done in India and abroad to test the efficiency of CAI have mostly revealed positive results in terms of achievement, attitude towards the subject, interest, retention of subject matter etc. Most urban and even some rural schools have computer labs today.

OBJECTIVES OF THE STUDY

1. To compare the effectiveness of Computer Assisted Instruction (CAI) and Traditional method of teaching Physics.
2. To study the views of Physics teachers about computer software.

HYPOTHESIS

1. There is no significant difference between the experimental group and controlled group in the post test performance.
2. There is no significant difference in learning by traditional method and CAI.

DESIGN AND PROCEDURE

The study was experimental in nature. An experiment involves the comparison of effects of a particular treatment with that of no treatment. In the simple experiment, reference is usually made to an 'experimental group and controlled group'. These groups are equated as near as possible. The experimental group is exposed to the influence of the factor under consideration, the controlled group is not. The observations are then made to determine what change or modification occurs in the experimental group as compared with the controlled group.

In the present work forty students were divided into two groups namely 'experimental group' and 'controlled group'. Selection for these groups is done randomly. The students from experimental group were taught by using the graphic based software and the students from the controlled group were taught by traditional method. For both the groups pre-test and post-test was administered. The results of the tests were analyzed by considering statistical measure. An opinionnaire was given to 12 teachers of Physics belonging to 6 junior colleges in Kolhapur city. For their responses, 5-point scale was used. All the teachers were responded well and returned it in time.

SAMPLE

In the present study randomly selected forty students of XIth class formed the sample. All the students belong to R.B.N.B. College, Shrirampur. There are four divisions of XIth standard. The forty students were further randomly divided into two groups. The sample was drawn from semi urban area.

TOOLS

1. **Pre-test:** In order to assess students' pre-knowledge pre-test was used. It was also intended to divide the students into two groups based on their marks. This test was of paper-pencil type and of 20 marks. Objective type questions were asked.
2. **Post-test:** After the experiment post-test was organized. The post-test was of 20 marks. The test was paper-pencil type and only objective type questions were asked.
3. **Opinionnaire:** Opinionnaire was used in order to understand the opinion of the teachers of Physics regarding computer software used in this research. Five point scale was used for the responses.

ANALYSIS AND INTERPRETATION OF DATA

The data obtained from the post-tests was analyzed by using t-test. It involved the computation or acceptance of null hypothesis was decided on 0.05 and 0.01 level of significance. In case of teachers' opinionnaire, the number of responses given to the statements and their weightings were multiplied and cumulative addition as well as cumulative percentage was measured. Based on this cumulative percentage the analysis has been done.

Table-1
Testing of null hypothesis

Sr. No.	Group	Mean scores	Standard t-value (df=39) Level of Significance		calculated t-value
			0.05	0.01	
1	Experimental group (Pre-Test)	16.90	2.02	2.71	0.40
2	Controlled group (Pre-Test)	16.65			
3	Experimental group (Post-Test)	18.25	2.02	2.71	4.63
4	Controlled group (Post-Test)	16.15			

In case of pre-test the standard t-values are large as compare to the calculated t-value which shows that the performance of both the groups is same for the pre-test. Whereas in case of post-test calculated t-value is significantly larger than standard t-value showing the better performance of experimental group.

FINDINGS

Testing of null hypothesis

1. The pre-test was administered for both the groups and it was found that the performance of both the groups was same. The t-test analysis supports this statement.
2. After comparing post-test scores it was found that experimental group students scored more than that of the controlled group. The t-test analysis shows that the experimental group performed better than the controlled group. Hence, the null hypothesis stands rejected.

By considering above points, overall data analysis shows that the CAI method is more effective than traditional method of teaching.

Teachers' opinionnaire

1. There is appropriate coverage of the topic in the software.
2. The content of the Physics is accurate and presentation is effective in the software.
3. There is a facility of providing adequate feedback in the programme.
4. The programme is helpful to develop knowledge and application of Physics among the students.
5. The programme is helpful to develop knowledge and application of Physics among the students.
6. The programme in the software is reliable and user-friendly.

CONCLUSION

The findings revels that the CAI method was effective in bringing out learning. It was also effective in evoking positive reactions towards use of CAI in teaching-learning.

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