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A COMPARATIVE STUDY OF EFFECTIVENESS OF C.A.I. PROGRAMME AND TRADITIONAL CLASSROOM TEACHING IN MATHEMATICS AT D.T.ED.LEVEL

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Introduction

This is an age of computers. In the field of Education, computers can find tremendous use as tool, tutor and tutee. Computer technology has advanced to an extent where teachers can easily use computers for classroom teaching. An attempt has been made in the present research to explore where the computer Assisted instruction can be more effective as compared to traditional classroom teaching.

Computer Technology and Education:

Though most of us may not realize it, Computers have become an integral part of life today. It is difficult to find a single aspect of life, which is not touched by this technology.

We Indians have proved ourselves for our excellence in software Industry. Yet, the teachers who shape the young minds have shield away from computer technology. There are various reasons some of these are as follows.

- Lack of Easy access to computers.
- Lack of adequate training
- Cyber phobia in some.
- Unavailability of adequate number of Computers for teaching.
- Lock of software, carefully tailored to the teachers need.

Computer technology can be a powerful tool in the teaching learning process. Technology can help teachers in different aspects of their job such as obtaining latest information

through Internet, Keeping records etc. Technology can redefine the role of teachers in teaching if they learn to integrate technology in teaching.

Computers as an Educational tool can be used to improve the learners skill in academic subjects at all level of Education. A book may give one answer to a problem but computer has the potential to a take problem from many different angles thus generating number of results. It can act as a powerful teaching tool due to the following capabilities.

1. It helps as a motivation factor for student.
2 The content can be presented in suitable steps and proper sequence.
3. Lessons presented on computers can be planned in conjunction with the use of positive aspects of various methods like discussions, Lectures, Project etc.
4. Education can be more students centred. Every student can be provided material to suit his level of understanding. Thus extra and enriched information can be provided to gifted Children While those who are lagging behind can be provided the lacking pre-requisite information, which can lead to better understanding of the new material.
5. Students can use computers to develop portfolios. On various units or to complete various assignments.
6. CAI can make use of multimedia i.e. Play voice integrate graphics. Use Corel – Draw, Photoshop for making diagram which can completely change the mood of the classroom.
7. The lessons that normally seems boring to the students can be presented in lively and interesting manner.

Taking into Consideration the various, strengths of CAI in the teaching learning process, Educators have begun to look at Computer Assisted Instruction as an alternative or support to traditional classroom teaching.

Computer Assisted Instruction (CAI) :

The use of computers in education in its infancy. However, the computer is building same exciting innovation to Education. The most exciting innovation in education technology is computer Assisted instruction (CAI). Though it is still in experimental stage the day is not far off when it will revolutionize the whole process of instruction. (Sampath. K. & Others, 1990 P. 306-307)

Computer Assisted Instruction (CAI) History:

In the mid 1950s and early 1960s collaboration between educators at – Stanford University in California and International Business Machines Corporation (IBM) introduced CAI into selected elementary schools.

Initially, CAI programs were a linear presentation of information with drill and practice sessions. These early CAI systems were limited by the expense and the difficulty of obtaining, maintaining and using the computers that were available at that time.

Review of Retailed Researches

Title: Effects of Computer Assisted Mathematics instructions on disadvantage Elementary School Pupils.

Author: Mavarec Z. Yisard.

Objectives: To determine whether CAI is supplement to traditional mathematics instruction fasters gain for disadvantaged elementary school peoples in the affective as well as academic domain.

Sample: 376 elementary disadvantage school children were chosen from 3rd, 4th and 5th grade.

Year : 1985

Findings:

1) Results found supported those computer Assisted Mathematics instructions positively affects the cognitive and the affective development of disadvantaged elementary school pupils.
2) They scored higher than and their pears that received traditional instructional class.
3) Thus the results lead consideration support to a certain that CAI provides significant Mathematics achievements gain you disadvantaged pupil.

Title: Research of +2 students towards CAI

Author: Sansanwal DN, Prabhakar S.

Objectives: To compare the reaction of students towards computer.

Sample: 58 students from standard XI and Std. XII.

Year: 1992

Findings:

Students were attracted by computer and had a novel experience. They could also manipulate any parameter and see it on other parameters. Thus the students could learn as per their study habits.

Title: Intrinsic Orientation profile and learning Mathematics in CAI settings.

Author: Mevarec H.Z.

Objectives: To find out students who performs well in an instructional method environment.

Findings : Result showed that the Children who preferred challenging task, like to gain mastery and were motivated by curiosity, achieved significantly higher scored than their counter parts at the computer.

Objectives:

1) To develop the computer assisted program.

2) To execute the program by traditional method.

3) To compare the effeteness of CAI program and traditional classroom teaching in terms of achievements.

Variables of Present Research:

1) **Independent Variables**: In present research, research methodology (traditional method and CAI) are independent variables.

2) **Dependent Variables**: Students achievement is the dependent variable in present research.

3) **Confounding Variables:** Power point presentation, Use of Internet, Video Clips may be confounding variables in the present research.

Assumption:

1) Computers provide meaningful experience to students to achieve aims.
2) Computers assist in the formation of realistic goals.
3) CAI is an effective method of teaching as students like it.

Null Hypothesis:

There will be no significant difference in the mean scores of pre test and post test.

Population and Sample:

The sample is incidental cum purposive consisting of DTED. First year students from "MeenataiThakare D.Ed. College, Pune"

Sample Size: 30 students in Experimental group and 30 students in control group.

Tools of Data Collection:

Achievements test on the selected unit in Mathematics both as pre-test and post test.

Statistical techniques:

Mean, S.D. and t- test

Scope and Limitations:

The results of this research will be applicable to the D.T.Ed. College students.

This will be helpful to the teachers of the D.T. Ed. College.

Limitations: The results are based on the D.T.Ed. Students response.

Delimitations:

1) The CAI program has been prepared only one unit of Mathematics of Std. VII text book.
2) The study is restricted to English medium students, only, as the program has been developed in English.

Research Methodology:

To check and compare the effectiveness of the presentation program, the research has selected experimental method for present study and used two equivalent pretest- post test design.

Similarities – Related Researches and Present Research

Researcher has reviewed the related researches. The significant similarity is that those researches are based on CAI (Computer Assisted Instruction), and present research is also CAI based. Method used for research is experimental method. In some researches power point presentation was developed. In present research also researcher has developed the power point presentations and used the experimental method.

In related researches the effectiveness of the CAI program is studied. These are same similarities in the present research and related researches.

Differences:

Researcher reviewed the related researches which were based on science. Present research is based on Mathematics. Power Point presentations and linear program are same programs which were used to implement the CAI program.

But the present research is different from other revived related research. In the present research, Researcher has used, Video clips, Power Point Presentation and Questionnaire test on computer. Research has selected a topic volume of cube cuboids which is differ from other researches topics.

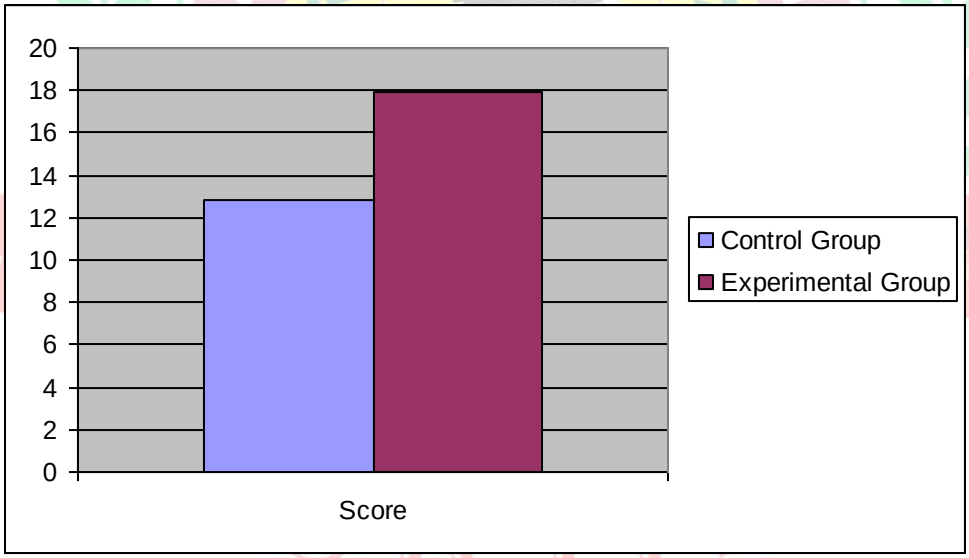
Findings:

1) Value of df is 29 on 0.05 level of significance is (t = 2.04).
2) Actual t value t = 7.80 is greater than sample (2.04) and as this mean difference is significance at 0.05 level, it can be said that the difference is not due to differentiation between sample, and significance is real.
3) From above references, researcher has concluded that there is a significant difference between D.T.Ed. Student Teachers in control and experimental group post test scores, and Null hypothesis is rejected at 0.05 levels.

Mean Analysis (Control & Experimental Group) :

Test Mean	**Control Group**	**Experimental Group**
Score	12.83	17.93

Graphical Analysis of Mean Scores:



Conclusion :

The researcher has conducted research to compare the effectiveness of the program by computer assisted instruction and traditional method. It is found after the data analysis that mean achievement of controlled groupies less than of experimental group. It is clear that the effect of computer Assisted instruction is better than traditional method of teaching. After t – test it is found that, in the post test the null hypothesis is rejected i.e. there is significant difference between the mean achievements of the two groups' one taught by traditional method and other by using computer Assisted instruction.

Suggestions:

Though teaching is an art and there are very few born teachers a majority of teacher, who have no inherent flair for teaching and are unable to arouse that much interest in the students to learn, can improve upon by practice so it is essential that.

1) Every teacher should be acquired with different methods of teaching.
2) The teacher should use variety of methods according to the demands of the content
3) The method should be made flexible to suit variety of circumstances.
4) The teaching should be pupil centered rather than teacher centered.
5) Teaching – learning process should be co-operative endeavor of teacher and students.
6) Teaching should be included rapid feedback to the students for their response.
7) Teaching should be taken into consideration the interest of students and try to motivate them to learn.
8) CAI can be used by teacher to covert the lecture to more of a demonstration.
9) The use of CAI can be made to show diagrams, charts, graphs, several categories of learning in Mathematics.
10) Verbal information, concept formation, problem solving and attitude formation which are an essential part in Mathematics and can be fulfilled by CAI.
11) Computers can be used for revision of difficult topics, remedial teaching, for slow learners and finally to bridge the gap between slow learners and bright learners.

Importance of Present Research:

1) Researcher has used educational technology to compare the effectiveness, which encourages students and teachers to adopt. New technologies in daily teaching – learning process.
2) Though Mathematics is a subject, which is felt difficult by students, present research will definitely help to create interest about Mathematics among students and teachers.
3) Present research is useful to the teachers to know the technique of CAI in effective manner.
4) Researcher has given an effective treatment to the students to reduce their problem regarding mathematics subject.
5) Researcher has examined that when. We use scientific technology in our day to day teaching students take active participation in teaching learning process.

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