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Effectiveness of CAI for Teaching of Mathematics of Standard VII

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Abstract

The importance of using computers in a mathematics class may not be limited to the ability of computer assisted instruction (CAI) to improve learning; rather, computer use adds another dimension to the teacher's repertoire of strategies, which may improve overall learning. To make the teaching of mathematics effective a number of teaching methods and technologies are being evolved, computer assisted instruction (CAI) is one of them. In present study an attempt has been made to compare effectiveness of CAI method and traditional method of teaching "Mean, Median and Mode" unit of mathematics of class VIIth standard. A total of 66 students from the VIIth class of a Gujarati medium higher secondary L.B.S school in Rajkot were chosen as a sample. Further they were divided into two equal competent groups' i.e. experimental and controlled group on the basis of performance in the score of mathematics test. After every experiment, achievement-test was administered and the results were evaluated and analyzed by considering appropriate statistical measures like mean, standard deviation (SD) and t-value. The analysis reveals that the t-value was significant in case of experimental group. So, the researcher has rejected the null hypothesis and concluded that CAI method was effective for teaching mathematics to the VIIth standard students as compared to the traditional method. This will beckon a step further towards quality secondary education.

Key words: Computer assisted instructions, achievement.

Introduction

The development of positive attitudes toward science can motivate student's interest in mathematics education and science-related careers. Some studies showed that computer assisted instruction (CAI) was more effective than the other methods in increasing students' interest in science and mathematics lessons¹ and during teaching process computer assisted applications aid the consolidation of attitudes and restructuring of the knowledge by students themselves². Now-a-days computer has become an integral part of teaching-

learning process³. There is little computer software available in the market that helps the learners studying mathematics. Keeping this in view, the researcher felt a need to carry out a comparative study of effectiveness of CAI and traditional method of teaching mathematics for the VIIth standard. For it the researcher prepared a learning material for teaching the unit "Mean, Median and Mode" in mathematics to access its effectiveness compared to conventional method. The study aims- to develop a CAI to teach "Mean, Median and Mode" unit in mathematics subject and to compare the effectiveness of CAI and traditional method of teaching mathematics.

Experimental

Hypothesis of the study

The null hypothesis was formulated as that there is no significant difference between mean scores achieved by the VIIth standard students when taught mathematics by CAI and traditional method in the replication of the experiment.

Experimental design

For the present research work the researcher has chosen two groups achievement design only.

Sample

In the present study 66 students of VII class were selected as the sample. All the students belong to L.B.S school. The school is well equipped with the computer laboratory. There are four division of VII class in the school among which two divisions were selected randomly. The students were divided in equal numbers in experiment group and controlled group. Same experiment was implemented in the Sister Nivedita School.

Tool

Mathematics achievement test was used as tool for this study. The dependent variable to be measured in the present study was academic achievement. To measure it after the treatment a unit achievement test of 25 marks was constructed by the researcher. After every experiment, mathematics achievement test was administered.

Development of CAI

CAI was prepared for the unit "Mean, Median and Mode" of standard VII. CAI programme was finalized after discussing with experts from subject and methodology fields.

Procedure

A pre-test was administered in order to form two equal competent groups. This test was based on students' pre-knowledge. The students securing more or less the same marks in this test were paired. Based on these pairs group 'A' and Group 'B' were formed. Group A was named as control and group B was treated as experimental for this unit. The unit of "Mean, Median and Mode" was taught to group A using traditional method by the researcher. At the same time, group B was taught the same unit using CAI method by a teacher

having expertise in using computer. The test given to both the groups was same for every experiment.

Results and Discussion

The data obtained from achievement-test of the control group and experimental group was analyzed using suitable statistical techniques like mean, standard deviation and t-test⁴. For this, the scores of experimental and control group students for the achievement test were considered. A rejection or acceptance of a null hypothesis was decided on 0.05 and 0.01 level of significance. Results presented in Table 1 and 2 show that the t value is being significant for both the cases and the mean value for experimental group is higher than control.

Table 1. Achievement test in LBS school

Group	Number	Mean	SD	t- value
Experimental	33	24.23	2.28	4.12**
Control	33	19.25	3.19	

** Significant at 0.01 level

Table 2. Achievement test in Sister Nivedita school

Group	Number	Mean	SD	t- value
Experimental	33	22.12	2.02	4.23**
Control	33	18.26	3.27	

** Significant at 0.01 level

Conclusions

On the basis the null hypothesis is rejected and concluded that CAI is an effective method for teaching "Mean, Median and Mode" unit of mathematics compared to traditional one.

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