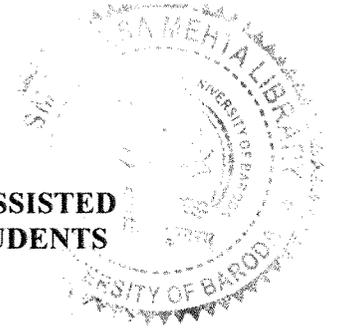


**DEVELOPMENT AND IMPLEMENTATION OF COMPUTER ASSISTED
INSTRUCTION IN MATHEMATICS FOR STANDARD VIII STUDENTS**



A
Summary Submitted to
The Maharaja Sayajirao University of Baroda
for the Degree of
DOCTOR OF PHILOSOPHY
IN
EDUCATION
(As Per the O Ph.D.8(v))

Guide

Prof. Dr. (Mrs.) Harsha J. Patadia

Investigator

Ms. Pramila Gururajan

**1P/TH
13887**



**CENTRE OF ADVANCED STUDY IN EDUCATION
FACULTY OF EDUCATION AND PSYCHOLOGY
THE M.S. UNIVERSITY OF BARODA
VADODARA 290 002
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Summary

1. Introduction

Ravindra(2006), "Ours and previous few generations have failed to produce good mathematics teachers at school level in adequately large numbers." In order to overcome the difficulties faced by the students, teacher should adopt different methodology in teaching of mathematics like drill method, using different audio visual aids, computer aided instruction, mathematical club etc. CAI is very useful to the teachers and the students as it lessens the burden of teaching and learning and it makes teaching and learning interesting. It also helps the students to learn at their own pace and at their own convenience.

2. Statement of the Problem

Development and Implementation of Computer Assisted Instruction in Mathematics for Standard VIII Students

3. Objectives of the Study

- To develop the CAI in Mathematics for Standard VIII GSHSEB (Gujarat State Secondary and Higher Secondary Education Board) students.
- To study the effectiveness of the developed CAI in terms of students' achievement in Mathematics with one of the experimental groups of standard VIII students.
- To study the effectiveness of the developed CAI in terms of students' achievement in Mathematics with another experimental group of standard VIII students along with treatment of simultaneous discussion.
- To study the relative effectiveness of learning mathematics in class VIII among the three groups A, B and C (Where C is the control group and A and B are experimental groups) in terms of achievement of the students.
- To study the reaction of the students belonging to experimental groups about the mode of learning mathematics at the end of the experimentation.

4. Hypothesis

- There will be no significant difference in the achievement scores of group C students and group A students.
- There will be no significant difference in the achievement scores of group C students and group B students.

- There will be no significant difference in the achievement scores of group A students and group B students.

5. Methodology of the Study

5.1 Design of the Study

The present study is experimental in nature. True experimental design was followed in this present study. The design was post-test-only control group design. Data was collected in two stages initial and final try-outs. In initial tryout there were thirteen students' in each group and in final tryout there were twenty students in each group viz Experimental Group A (only CAI), Experimental Group B (CAI with simultaneous discussion) and Control Group. Groups were selected using lottery method. After completion of profit and loss, simple interest and compound interest, they were tested by scholastic achievement test prepared by the investigator on the basis of content analysis and responses of the experimental groups were collected using reaction scale.

5.2 Population of the Study

All students studying in Standard VIII English Medium school of GSHSEB constituted the population.

5.3 Sample of the Study

VIII standard students of two English medium schools of Vadodara, following GSHSEB Syllabus, form the sample of the study. The selection of the schools for this study was done purposively considering the availability of computer facility and willingness of school to conduct the study.

6. Tools for Data Collection

Scholastic Achievement test (serving the purpose of post test) and Reaction Scale.

7. Data Analysis

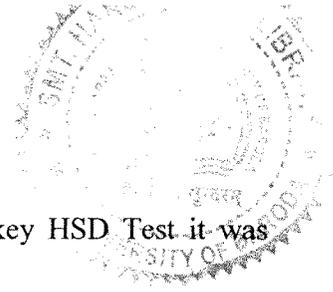
To study the effectiveness of the developed CAI ANOVA was computed. Reaction Scale was analyzed using Chi Square technique.

8. Major Findings

The analysis and interpretation of data in the previous paragraphs reveals the following major findings.

8.1 Findings from the Analysis of the ANOVA Result for Initial Try-out

Initial try out using inferential statistics ANOVA at .05 level of significance it was found that there was significant difference between the mean achievement score of Experimental Group



A, Experimental Group B and the Control Group. Further using Tukey HSD Test it was found that

- i. There was no significant difference between the mean achievement score of Experimental Group A (only CAI) and the Control Group (Conventional Method).
- ii. There was significant difference between the mean achievement score of Experimental Group B (CAI with simultaneous discussion) and the Control Group (Conventional Method)
- iii. There was significant difference between the mean achievement score of Experimental Group A (only CAI) and the Experimental Group B (CAI with simultaneous discussion).

8.2 Findings from the Analysis of the ANOVA Result for Final Try-out

Final try out using inferential statistics ANOVA at .05 level of significance it was found that there was significant difference between the mean achievement score of Experimental Group A, Experimental Group B and the Control Group. Further using Tukey HSD Test it was found that

- i. There was no significant difference between the mean achievement score of Experimental Group A (only CAI) and the Control Group (Conventional Method).
- ii. There was significant difference between the mean achievement score of Experimental Group B (CAI with simultaneous discussion) and the Control Group (Conventional Method)
- iii. There was no significant difference between the mean achievement score of Experimental Group A (only CAI) and the Experimental Group B (CAI with simultaneous discussion).

8.3 Findings from Analysis of Reaction Scale for Initial Try-out

I. Experimental Group A

Out of total *fifty four* statements bearing positive as well as negative nature, the computed chi-square values of *twenty six* statements were found to have statistically significant *higher values than the tabulated value of chi-square* at 4 degrees of freedom and at .05 level of significance which shows that there was a significant difference between the observed and expected frequencies and the students *were found to have positive reaction and favorable attitude towards the statements carrying such higher values.*

II. Experimental Group B

Out of total *fifty four* statements bearing positive as well as negative nature, *the computed chi-square values of twenty five* statements were found to have statistically significant *higher values than the chi-square table values* at 4 degrees of freedom and at .05 level of significance which shows that there was a significant difference between the observed and