

Report of the UGC Minor Research Project as a part of Eleventh Plan

**EFFECT OF COMPUTER ASSISTED INSTRUCTION (CAI) ON
STUDENTS' ACHIEVEMENT IN SCIENCE**

by

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UGC Ref. No. MRP(S)-676/09-10/KLMG061/UGC-SWRO dated 27 Jan 2010

Submitted to

University Grants Commission

Bahadur Shah Zafar Marg

New Delhi-110 002

Computer-Assisted Instruction (CAI) is an interactive instructional technique whereby a computer is used to present the instructional material and monitor the learning that takes place. It uses a combination of text, graphics, sound and video in the learning process. It is especially useful in distance learning situations. The computer has many purpose I the classroom, and it can be utilized to help a student in all areas of the curriculum. CAI refers to the use of computer as a tool to facilitate and improve instruction. CAI programs use tutorials, drill and practice, simulation, and problem solving approaches to present topics, and they test the student's understanding.

This study was designed to see the effect of computer-assisted instruction as a supplementing strategy on the academic achievement of secondary school students in the subject of science. The major objectives of the study were: (1) To find out the relative effects of computer-assisted instruction as supplementing strategy on the academic achievement in science; (2) To explore the difference between treatment effects on the students of high and low intelligence; and (3) To investigate the difference between treatment effects on male and female students. To achieve the objectives of the study, following null hypotheses were tested: (1) There is no significant difference between the mean scores of the students taught science with CAI as supplementing strategy and without CAI; (2) There is no significant difference between the mean scores of the high achievers and low achievers of experimental and control groups; and (3) There is no significant difference between the mean scores of male and female students of experimental and control groups.

There were two different treatment pattern applied during the experiment. Both the groups were taught through routine method by the same teacher. The computer-assisted instruction was used as additional strategy for the experimental group. During the experiment period, the experimental group received the treatment of independent variable, i.e. computer-assisted instruction whereby the experimental group was exposed to certain web-sites consisting of drill and practice, tutorials, simulations and animation. In the meanwhile the control group was kept busy in other activities such as guided practice and independent practice. This was adopted to control the variable of time and to realize the primary objective of the study. The experiment continued for six weeks. In order to find out treatment effects, a teacher-made post-test was administered to the experimental as well as control group immediately after the treatment was over. The purpose of this test was to measure the achievement of the students constituting the sample of the study.

The achievement scores of the sample were obtained as a result of the post-test. After obtaining the scores, the lists were prepared for each group and the means, standard deviations, differences between means were computed. Significance of difference between the mean scores of both the groups on the variable of previous achievement was tested at 0.05 level by applying t-test. To see the treatment effects for male and female students as well as high and low levels of achievement of both the groups, the factorial design (2 X 2 analysis of variance) was applied. For this purpose the students of both groups were divided into two halves, namely, high achievers (above the mean scores) and low achievers (below the mean score) on the basis of scores on previous achievement test.

Analysis of data revealed that the students taught computer-assisted instruction as supplementary strategy performed significantly better. The students with high achievement level showed better results than those with low achievement level when taught through computer-assisted instruction. The computer-assisted instruction was found equally effective for both male and female students.