EFFECT OF COMPUTER ASSISTED INSTRUCTION (CAI) IN LEARNING GEOGRAPHY CONCEPTS AT SENIOR SECONDARY STAGE

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Abstract

This study aims to prove the effectiveness of computer assisted teaching method over the teacher centred method together with the academic achievement of geography students. In this study randomized post test only control group design was used and X class concepts (Resource and Development, Water Resources, Forest and Wild Life Resource) of geography were selected for study. This study has lasted for one month with the post-test of both the groups. After t-test analysis, data showed that computer assisted instruction was more effective than teacher-centred method to increase the academic achievement in geography.

Key Words: Computer Assisted Instruction, Geography Learning

Introduction: - Technology has become very important in human life at the present time. Technology proves to change the less developed characteristics of the countries by changing their culture and social structures. Therefore, the knowledge which provides appearing and the advance of the technology have been key for development and improvement.

The knowledge had changed the human profile by getting importance after it became power in 21st century. Anymore the necessity to people who can reach and use the knowledge and produce, in another word, who can communicate with each other by using knowledge increases from day to day.

Geography Teaching is also a science which redounds to student to have positive behaviours related to technology. Therefore one of the main aims of the geography teaching education is to bring up people who can keep with the science age which changes and grows up at any moment and can benefit from the latest technological inventions in every field and to teach the necessity of the science in all technological inventions and developments.

Computer assisted education is an education method which uses the computers as an environment in which learning occurs, make strong the education period and student’s motivation, can be useful for students due to their learning speeds. This education method is formed by combining computer technology and learning principles by oneself.

Objectives of the study: - The present problem endeavoured for the realizations of the following objectives:

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1. To study the relative superiority of CAI over traditional method of teaching geography.
2. To study the achievement of boys and girls in geography in the context of CAI.

**Hypothesis of the study:**

1. There is no significant difference in the achievement of the students taught through CAI and traditional method - H1.
2. There is no significant difference in learning of concept in relation to sex – H2.

**Sample:**

The study was conducted on sample of 80 students of class X, both boys and girls, chosen randomly from four schools, selected randomly from all the recognized schools in Narnaul city and its suburb areas.

**Tools used for the study:**

1. Instructional material in the form of CAI for teaching geography of X class.
2. Achievement test on the topics of Geography.

**Statistical Techniques Used:**

The following statistical technique was used to analyse the obtained data:

1. Descriptive statistics used as mean and standard deviation to understand nature of data.
2. Inferential statistics: t-test was employed to analyse the data.

**Design of the Experiment:**

On the basis of design, that is Randomized post test only design; whose schematic description is as:

<table>
<thead>
<tr>
<th>Group</th>
<th>Treatment</th>
<th>Post Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control (R)</td>
<td>TC</td>
<td></td>
</tr>
<tr>
<td>Experimental (R)</td>
<td>X</td>
<td>TE</td>
</tr>
</tbody>
</table>

In the above schemation

R denotes randomization

X denotes treatment given to experimental group by CAI

TC denotes post test scores of control group

TE denotes post test scores of experimental group

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Conduction of Experiment: -

Firstly the investigator conducted the experiment in C.L. Public School, Narnaul in the first week of March. The investigator reached the school at the time given by the principal of school. He taught the control group with the help of subject teacher for three days for two hour daily. The experimental group was also taught for three days. Each student was given the time of two hours daily. For maintaining the discipline in the computer laboratory the help of computer teacher was sought. After six days of teaching to both the groups, the achievement test was administered to both the groups after a gap of two days.

Following the above procedure the experiment was conducted in rest of the three schools that is, Yaduvanshi Public School, Patikara, Narnaul, Prerana High School, Patikara, Saini Senior Secondary School, Narnaul.

It took one month for conducting the whole experiment. All the measure was taken to keep secret from the students that they are under experiment and the group to which they belong as well as no leakage of information occurred from one group to another.

Data Interpretation: -

The hypothesis $H_1$ ‘There is no significant difference in the achievement of students taught through CAI and traditional method’ was analyzed on the basis of the design; Randomized post test design. Indicates the $t$-test for the mean, standard deviation and $t$-values for control and experimental groups.

Table 1.1

<table>
<thead>
<tr>
<th>Group</th>
<th>Number</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>‘t’ Value</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>40</td>
<td>49.50</td>
<td>14.28</td>
<td>3.53</td>
<td>Significant</td>
</tr>
<tr>
<td>Experimental</td>
<td>40</td>
<td>61.75</td>
<td>16.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As shown in table 1.1 that there is a difference in the achievement of the students who were taught through CAI as compared to the students taught through traditional methods. The mean value of control group in 49.50 and standard deviation is 14.28 while the mean value of experimental group is 61.75 and standard deviation is 16.7. The $t$-values calculated is 3.53 which is significant at 0.05 and 0.01 level. So our hypothesis is reject. The $t$-value, mean and S.D. shows the there is significant difference in the achievement of students in the two groups (control group and experimental group). The mean of experimental group is more than the control group; it shows that achievement of experimental group students is superior to that of control group students.

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The hypothesis H₂ ‘There is no significant difference in learning of concept in relation to sex’ was analyzed on the basis of the design; Randomized post test design. Table 1.2 indicates the t-test for the mean, standard deviation and t-values for achievement of boys and girls.

Table 1.2

‘t’ TEST FOR THE MEAN SCORES OF BOYS AND GIRLS ON ACHIEVEMENT TEST IN GEOGRAPHY

<table>
<thead>
<tr>
<th>Group</th>
<th>Number</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>‘t’ Value</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>40</td>
<td>57.0</td>
<td>16.06</td>
<td>0.73</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Girls</td>
<td>40</td>
<td>54.25</td>
<td>17.41</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As shown in table 1.2 that there is no difference in the achievement of boys and girls. The mean value of boys is 57.0 and standard deviation is 16.06 while the mean value of girls is 54.25 and standard deviation is 17.41. The ‘t’ value calculated is 0.73 which is not significant at the level 0.05 and 0.01. So our hypothesis is not rejected. The t-value, mean and standard deviation shows that there is no significant difference in the achievement of boys and girls.

Main Findings: -

On the basis of analysis of data findings are:

1. There is a significant difference between the mean gain score of the Control group taught through traditional method and the Experimental group taught through CAI.
2. The performance of the Xth class students taught through CAI has been better as compared to those taught through traditional method.
3. Geography can be taught in a better way through the CAI.
4. The students remain actively involved in the lesson and become willing participants in the demonstrations when taught with CAI.
5. If Geography is taught through lecture and other traditional method, the students some time remain passive listeners.
6. Computer as an audio visual aid is effective in improving Geography teaching in all situations.
7. There is no difference in the achievement of boys and girls and both were in favour of CAI.
Educational Implications: -

The finding of the present study shows that the learning modules produced higher learning outcome on pupil achievement in the subject Geography, since it is a self-instructional learning material, it provides an opportunity for self learning and self evaluation.

A number of CAI learning modules can be prepared on various subjects. The teacher must be given sufficient training and encouragement in preparing the CAI module.

References


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