EFFECTIVENESS OF SELF LEARNING COMPUTER ASSISTED INSTRUCTIONAL PACKAGE FOR TEACHING BIOLOGY AT HIGHER SECONDARY LEVEL

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ABSTRACT

Computer can play vital role in learning process as it can work with the imagination of students. CAI brings with it several potential benefits as a teaching/learning medium. These include self-paced learning, self-directed learning, the exercising of various senses and the ability to represent content in a variety of media. Humans are multi-sensory animals. The more senses through which we receive information, the easier it is to remember. According to people remember 20% of what they hear, 40% of what they see and hear and 75% of what they see, hear and do. The fact that the computer can exercise various senses and present information in a variety of media can enhance the learning process. The present study investigated the effect of self learning computer assisted instructional package for teaching Biology at higher secondary level. The sample of the study was 30 students of XI standard. Experimental group was taught self learning computer assisted instructional package and to a control group using traditional method. The result indicated that students who studied by self learning computer assisted instructional package has higher achievement than students in the control group.

Key words: Computer assisted, Biology concept, Instructional package

I INTRODUCTION

CAI is an individualized instruction as it caters to the individual difference. Some students are slow learners and some are fast learners. The Indian classroom is a heterogeneous group. Some students need more time to learn while others need less time, so learning speed differs from learner to learner. CAI also provides different learning experience according to the understanding level of the students. It also provides facilities like selecting the topics of their own interest. It provides individual attention to each and every student and thus enhances the quality of teaching learning process and thus we can overcome the problems faced in an overcrowded classroom.
Interactive Learning

CAI provides immediate feedback to the students and thus constantly interacts with them. In CAI students actively take part in the learning process. As it contains many examples and diagrams it makes the learning process interesting. It can sustain the motivation of the students as the topic can be presented in an enjoyable manner as concepts can be presented systematically, interestingly and immediate feedback can be given which sustains the motivation of the students. Graphics and pictures can be presented which can attract and retain student attention. Children get reinforcement when they answer the question correctly and the topic is presented in a systematic manner in an increasing order of difficulty. Any concept in Biology can be explained with the help of pictures and this visual image can help in understanding the concept at ease. In order to overcome the difficulties faced by the students, teacher should adopt different methodology in teaching of Biology like drill method, using different audio visual aids, computer aided instruction, Biology club etc. One of the methods is auto-instructional method. It is a method of individualized instruction. One of its forms is CAI (Computer Assisted/Aided Instruction) auto instructional teaching. It 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.

II REVIEW OF LITERATURE

Alessi, S. M. & Trollip, S. R. (2001). conducted a study aimed at Developing Individualized Self Instructional Modules on Selected Topics in Biology for Instructional use at the Teachers. After making use of the experimental method, it was concluded that the students as well as teachers have a positive attitude towards the use of self-instructional materials as a mode of instructions in Biology.

Hede, A. (2002). conducted a study aimed at An integrated model of multimedia effects on learning, the findings of the study indicated that the strongest predictors that are positively associated with computer use are training on excel and the need for ongoing support for the inclusion of technology in Biology teaching. This paper concluded with recommendations as to how school leaders can support mathematics teachers to fully adopt computer technology use in teaching and learning.

the CIP, learning effectiveness, and students’ satisfaction. The Sample group consisted of 90 students purposively selected from a public school in Thailand. The research results showed that the quality of CIP was at a very good level and it would help students to improve their learning effectiveness up to 66.57%.

Malik, S & Agarwal, A (2012) conducted a study which aimed to use Multimedia technology to present computer basics subject in a way that leads to the availability of adequate skills and information related to the computer domain. The results of the study showed significant statistical differences at the significance level of 0.01 between the average Grade of the Experimental Group in the Post application and the delayed Post Academic Achievement test.

III OBJECTIVES OF THE STUDY
1. To develop computer assisted instructional package for teaching Biology at higher secondary level
2. To compare the effectiveness of the developed computer assisted instructional package over traditional teaching method.
3. To find out the gender difference in the achievement of students learning through computer assisted instructional package method.
4. To find out the locality wise difference in the achievement of students learning through computer assisted instructional package method

IV HYPOTHESES
1. There will be significant difference in achievement of students taught through computer assisted instructional package Method and Traditional Teaching Method.
2. There will be significant difference in the achievement of boys and girls taught through computer assisted instructional package method.
3. There will be significant difference in the achievement of rural and urban taught through computer assisted instructional package method.
V METHODOLOGY
The investigator adopted experimental method for the present study. The experimental group was taught using computer assisted instructional package Method and to a control group using Traditional Method.

VI THE TOOLS USED FOR THE STUDY
i. computer assisted instructional package
ii. Achievement Test

VII SAMPLES USED FOR THE STUDY
The sample selected for the study consisted of 30 XI standard students of Sivaganagai district. Random sampling technique was adopted in selecting the sample for the study.

VIII RESEARCH FINDINGS AND DISCUSSION
The first objective was to study and compare the effectiveness of the developed computer assisted instructional package Method with Traditional Method. For this mean, SD and t value was calculated which is exhibited in the table 1

<table>
<thead>
<tr>
<th>Post test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t test</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control group</td>
<td>15</td>
<td>77.14</td>
<td>9.20</td>
<td>5.72</td>
<td>S(2.04)</td>
</tr>
<tr>
<td>Experimental</td>
<td>15</td>
<td>92.8</td>
<td>5.05</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The post test mean achievement scores of the control and experimental group and calculated t value are presented in the above table 1, the obtained t value is 5.72 are significant at 5% level. It means that there is significant difference between the control and experimental groups students in their achievement for the post test. Shanthi (2003) also found that interactive multimedia based learning has a significant positive effect on students’ academic achievement.
Fig: 1 Showing the comparison of post test achievement scores on computer assisted instructional package Method with Traditional Method

Table;2

Comparison of mean Achievement post test scores of experimental group Boys and girls and calculated t value

<table>
<thead>
<tr>
<th>Post test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t test</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>8</td>
<td>93.71</td>
<td>4.53</td>
<td>0.64</td>
<td>NS (2.16)</td>
</tr>
<tr>
<td>Girls</td>
<td>7</td>
<td>92</td>
<td>5.65</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is very clear from the table 2 that there is no significant difference between the achievement of Boys and Girls taught through computer assisted instructional package with regard to their post test achievement scores. It is also evident from the study conducted by Wharrad (2001) that there is no significant difference between boys and girls in relation to academic achievement.
Table 3
Comparison of mean achievement post test scores of Experimental group rural and urban and calculated t value

<table>
<thead>
<tr>
<th>Experimental group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t test</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td>6</td>
<td>61.5</td>
<td>12.27</td>
<td>0.72</td>
<td>NS</td>
</tr>
<tr>
<td>Urban</td>
<td>9</td>
<td>65.5</td>
<td>9.54</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is very clear from the table 3 that there is no significant difference between the achievement of Rural and Urban taught through computer assisted instructional package with regard to their post test achievement scores. It is also evident from the study conducted by Vaidyanathan N. (2001) that there is no significant difference between rural and urban in relation to academic achievement.
IX RECOMMENDATION

Computer assisted instructional package can be developed and used in all the subjects, because it is a learner centered tool that will suit the needs of all the students including under achievers and toppers. Computer assisted instructional package can be used for students with learning disabilities. Special training can be arranged for teachers in preparation of Computer assisted instructional package in their respective subjects.

X CONCLUSIONS OF THE STUDY

On the basis of analysis and interpretation of data it can be concluded that the students learning through Computer assisted instructional package group gain significantly better achievement on academic outcomes.

XI ACKNOWLEDGEMENT

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XII REFERENCES


