

**EFFECTIVENESS OF SELF INSTRUCTIONAL COMPUTER PACKAGE ON
ACHIEVEMENT IN BIOLOGY OF IX STANDARD STUDENTS**

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Abstract

The purpose of the present study was to find out the difference between a pre-test and post-test of boys and girls in both control group and experimental group in achievement in Science in particular Biology of IX standard students. The sample of 40 students was taken from Morarji Desai Residential School, Yalavatti Hangal Taluka Haveri District. Achievement test science was constructed by the investigator. The test was constituted on Biology contents of 9th standard. Achievement test in science is prepared for administering pre-test and post-test The multimedia package was developed on the principals of programmed learning material (PLM). Developed programme material has different small frames. Each frame contains one bit of contents of the topic. This content is followed by a question and its answers are known as stimulus- response. This way the entire multimedia package developed. The procedure of data collection was also followed. The results of the study reveals that there is a significant difference between boys and girls with respect to pre-test, Post-test and gain scores in control group of achievement in Biology. There is a significant difference between boys and girls with respect to pre-test, Post-test and gain scores in experimental group of their achievement in Biology. There is a significant difference between pre –test and post-test mean scores of boys and girls under multimedia and conventional method of instruction in Biology.

1. INTRODUCTION:

Natural science is concerned with the description, prediction, and understanding of natural phenomena based on empirical evidence from observation and experimentation. Modern natural science is the successor to the natural philosophy that began in Ancient Greece. Science is about a whole lot more than that and to sum it up we believe that science is a way of helping the brain growth in finding new knowledge and helps us defeat our curiosity of how the world develops and works today. Science is important because it has helped to form the world that we live in today. Science is what we do to find out about the natural world. It is the total of physics, chemistry, biology, geology and astronomy. Science makes use of science, and it makes observations and experiments. Science produces accurate facts, scientific laws and theories. Then those hypotheses are tested by experiment. A way of knowing about nature-scientific knowledge is based on evidence. Scientific knowledge can last over time. Creativity plays an important role in

2. OBJECTIVES

The following are objectives of the present study.

1. To study the significant difference between boys and girls in respect of pre-test, Post-test and gain scores in control group of achievement in Biology.
2. To study the significant difference between boys and girls in respect of pre-test, Post-test and gain scores in experimental group of their achievement in Biology.
3. To study the significant difference between pre –test and post-test mean scores of boys and girls under multimedia and conventional method of instruction in Biology.

3. HYPOTHESES

The following are objectives of the present study.

1. There is no significant difference between boys and girls in respect of pre-test, Post-test and gain scores in control group of achievement in Biology.
2. There is no significant difference between boys and girls in respect of pre-test, Post-test and gain scores in experimental group of their achievement in Biology.
3. There is a significant difference between pre –test and post-test mean scores of boys and girls under multimedia and conventional method of instruction in Biology.

4. METHODOLOGY

The present study was an experimental study. Detail of the methodology like design of the study, population, sample, tool, development of the package, data collection and data analysis are discussed here as follows.

5. STATEMENT OF THE PROBLEM

The present study is stated as “Effectiveness of Self- Instructional Computer Package on Achievement in Biology of IX standard Students” .

6. DELIMITATION

The present study is delimited to Biology of Std. IX of Morarji Desai Residential School, Yalavatti, Hanagal Taluka.

7. RESEARCH DESIGN

Pre-test, post-test experimental and control group design was employed for the study.

Sample

Investigator was searched schools in Hanagal taluka where computer facilities are available. Finally the investigator has selected the Morarji Desai Residential School, Yalavatti, Hanagal Taluka where the school is suitable for conducting experiment on IX class students by dividing two groups (1) as experimental group (2) other was control group. Treatment was given randomly to group. There are 40 students in each class.

Technical Terms:

Computer Package: The computer package refers to a program which can be run in a computer this computer package act as tutor and handles the teaching, monitoring and feedback functions or teachers. It is based on the ordinary programmed instruction but students work from computer terminal the students observe displays shown on monitors. The C.P. allows the student to type information into the computer or responds to it by pressing the related keys.

Achievement: Here, achievement means the marks obtained by the students of standard IX on the pre- test and post-test of Biology constructed by the investigator on the elected from standard IX.

Tools:

Following tools were constructed to realize the above objectives:

1 Achievement test: Achievement test science was constructed by the investigator. The test was constituted on Biology contents of 9th standard. Achievement test in science is prepared for administering pre-test and post-test. This achievement test is prepared by the researcher keeping in mind content of the Biology, which is selected for purpose of preparing Multimedia Package.

The achievement has the total weight age of 20 marks. The researcher has considered 30 minutes of time for answering the test. The prepared test was referred to the experts in the field of education and Biology for its content validation and modification. Considering the suggestions by the experts, the final achievement test was prepared.

2. Procedure of the study:

For developing multimedia package the investigator was considered the Std. IX science syllabus. The investigator was kept in mind the following objectives during the development of multimedia package.

1. The students will be able to give the meaning of all difficult Biology.
2. The students will be able to learn Biology with examples.
3. The student will be able to understand Biology easily.
4. The students will be able to develop interest in Biology..

The multimedia package was developed on the principals of programmed learning material (PLM). Developed programme material has different small frames. Each frame contains one bit of contents of the topic. This content is followed by a question and its answers are known as stimulus- response. This way the entire multimedia package developed. This programme material was shown to two subject experts for validating it in terms of the content of the subject and clarity of the language used in the material is also given to the two experts in the field of programme learning for checking the systematic flow of instruction and formation of frames. Finally, the suggestion given by the experts was incorporated. After completion of the programmed material it was programmed through the computer software for converting it into a multimedia package.

8.DATA COLLECTION

The presenter has major 2 aspects; one aspect is to study the effectiveness of multimedia package. For this purpose single group pre-test and post-test design was followed. As per research design, an achievement test was administered twice, before the experiment as pre-test and after the experiment post-test with the help of computer. Before the student started studying Biology through Multimedia package the investigator conduct pre-test. The students attempted the test and also got their doubts clarified. Investigator collected the scores of students when they completed the pre-test. The time by students for answer the test was thirty minutes. Then investigator implemented the developed Multimedia Package 2 day after. All the students who had given pre-test were also given post-test and investigator had collected scores of individual students.

Statistical analysis

Collected data were analyzed using appropriate statistics techniques. To study effectiveness of developed multimedia package, Mean, Standard Deviation, Standard Error of difference and t-value was computed.

9. DATA ANALYSIS

Table- 1: Comparison of Means of Boys and Girls with respect to change of Achievement in Control Group

Test	Gender	n	Mean	SD	t-value	p-value	Signi.
Pre-Test	Boys	20	22.40	2.29	2.2248	<0.05	S
	Girls	20	21.25	3.40			
Post-Test	Boys	20	23.80	2.40	2.5631	<0.05	S
	Girls	20	25.25	3.23			
Gain Scores	Boys	20	4.40	1.45	2.8571	<0.05	S
	Girls	20	4.00	1.30			

The above table reveals that the mean value of boys in pre-test, post-test score is 22.40 and 23.80 respectively. However the mean value of girls in pre-test, post-test scores is 21.25 and 22.25 respectively when it was taken the marks of students both in pre-test and post-test of control group.

Table- 2 : Comparison of Means of Boys and Girls with respect to change of Achievement in Experimental Group

Test	Gender	n	Mean	SD	t-value	p-value	Signi.
Pre-Test	Boys	20	21.24	2.31	2.3925	<0.05	S
	Girls	20	22.36	2.31			
Post-Test	Boys	20	28.71	2.47	2.5600	<0.05	S
	Girls	20	31.00	2.25			
Gain Scores	Boys	20	8.48	1.66	2.3133	<0.05	S
	Girls	20	8.64	1.34			

The above table indicates that the mean value of boys in pre-test, post-test score is 21.24 and 28.71 respectively. Further, the mean value of girls in pre-test, post-test scores is 22.36 and 31.00 respectively when it was taken the marks of students both in pre-test and post-test of experimental group.

Table 3: Pre and Post –test Mean scores Difference between Boys and Girls under Multimedia and Conventional Method

Method	Test	Sex	N	D f	M	SD	t-value	Significance
Multimedia Method	Pre-test	Boys	20	19	20.95	8.82	2.71	<0.05
		Girls	20	19	20.10	6.19		
	Post-test	Boys	20	19	52.80	6.05	2.05	<0.05
		Girls	20	19	53.50	4.96		
Conventional Method	Pre-test	Boys	20	19	19.80	6.01	2.03	<0.05
		Girls	20	19	20.35	6.03		
	Post-test	Boys	20	19	40.95	8.35	3.28	<0.05
		Girls	20	19	43.00	9.07		

The above table shows that the mean value of boys in pre-test, post-test score is 20.95 and 52.80 respectively when multimedia method was used. However the mean value of girls in pre-test, post-test scores is 20.10 and 53.50 respectively when multimedia method was used. Further, the mean value of boys in pre-test and post score 19.80 and 40.95 respectively when conventional method was used. However, the mean value of girls in pre-test and post-test scores 20.35 and 43.00 respectively when the conventional method was used.

10. FINDINGS

1. There is a significant difference between boys and girls in respect of pre-test, Post-test and gain scores in control group of achievement in Biology.
2. There is a significant difference between boys and girls in respect of pre-test, Post-test and gain scores in experimental group of their achievement in Biology.
3. There is a significant difference between pre –test and post-test mean scores of boys and girls under multimedia and conventional method of instruction in Biology.

11. CONCLUSION

The study was conducted by the investigator has revealed that the Multimedia Package developed by the investigator on selected topics of Biology of class IX students was found effective in terms of achievement of the learners and their interest. And the findings of the study shows There is a significant difference between boys and girls in respect of pre-test, Post-test and gain scores in control group of achievement in Biology. There is a significant difference between boys and girls in respect of pre-test, Post-test and gain scores in experimental group of their achievement in Biology. Such software's need to be developed and widely deployed for the revival of Biology. Such attempts need to be made at a large scale at all levels of Education.

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