Article : INFLUENCE OF MULTIMEDIA IN ENHANCING ATTITUDES TOWARDS COMPUTER SCIENCE AT HIGHER SECONDARY LEVEL

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ABSTRACT

In ancient times, teacher was the only source of inspiration where students get knowledge but in the present educational scenario, teacher has become one of the sources of information where students get knowledge. Thus students have many teachers around them like audio teacher, T.V teacher, teacher, internet teacher, and multimedia teacher. Since the students and teachers are in grey revolution, the transformation of knowledge is expected to happen with modern advancement of technology so called multimedia technology, as technology is the one of the components of U.G.C. in higher education. Hence, keeping all these in views the investigator attempted an experiment to develop and validate a multimedia package in teaching computer science for higher secondary students. Thus more and more researches should be conducted in the area of multimedia. Objectives of the study were (i) to develop a multimedia package in teaching Computer Science at Higher Secondary Level.(ii) To find out the effectiveness of multimedia on attitude towards Computer Science at Higher Secondary Level. Findings of the study were (i) the attitudes mean scores of control and experimental groups do not differ significantly at the pre test. Further, these two groups have similar in terms of their attitude. (ii) the attitudes mean scores of control and experimental groups differ significantly at the post test. It is concluded that higher mean scores of experimental group students have better attitude than control group.

INTRODUCTION

In this cyber age, the unpredicted growth of interactive multimedia plays a prominent role in teaching. An appropriate educational technology in the hands of

competent teachers can ensure better teaching learning process. At present role of the teachers in educating the children has gained a paramount importance. The classrooms are over crowed, with heavy amount of syllabi, the pupils are expected to gain knowledge, to improve the level of understandings, to develop the interests of pupils, to enrich meaningful development of independent study-habit and to create purposeful development of self-confidence in learning an alternative process of teaching has to be adopted. More over in fast developing world, where knowledge explosion is taking place in every sphere, it is unreasonable to expect that the spoken or written words alone could convey the volume of relevant information to the learner.

Multimedia is so versatile by nature and that they have become dispensable to teachers, students and student-teachers than other professionals as they were the architects of the future generation of a nation so the investigator selected a topic for research entitled,**"INFLUENCE OF MULTIMEDIA IN ENHANCING ATTITUDES TOWARDS COMPUTER SCIENCE AT HIGHER SECONDARY LEVEL".**

DEFINITION OF THE TERMS

The key terms of the title are operated as follows:

- **Multimedia:** Multimedia approach to teaching is a strategy that comprises more than one instructional technique for a particular unit in Computer Science and it is not just the assembly of a few techniques; rather it implies the use of a number of techniques.
- **Attitude:** An attitude is operationally defined as the opinion or beliefs of an individual about multimedia in learning Computer Science.

OBJECTIVES OF THE STUDY

The following are the objectives of the present study:

v To develop a multimedia package in teaching Computer Science at Higher Secondary Level.

v To find out the effectiveness of multimedia on attitude towards Computer Science Higher Secondary Level.

HYPOTHESES OF THE STUDY

The following null hypotheses are framed for testing.

1. There is no significant mean score difference between the attitude of experimental group and control group in the pre-test.
2. There is no significant mean score difference between the attitude of experimental group and control group in the post-test.
3. There is no significant mean score difference between the attitude of control group in pre-test and post-test.
4. There is no significant mean score difference between the attitude of experimental group in pre-test and post-test.

METHODOLOGY

The investigator selected XI standard students of Bishop Heber Higher Secondary School,

Trichy as the sample of study.

EXPERIMENTAL DESIGN

The experimental design employed in this study is the randomized pretest posttest design.

Such a type of experimental design uses two equivalent groups. One group is known as

Experimental Group and the other is the Control Group.

TOOLS

The following are the tools used for the present study.

1. Multimedia package developed by the investigator.
2. Attitude scale

DEVELOPMENT AND VALIDATION OF THE MULTIMEDIA PACKAGE

Validity includes the checking of the content for correctness by an expert in the subject matter and the checking of the treatment given to the content by an instructional designer or experienced teacher in order to verify that the language is well chosen for the indented population, the example and the explanation are relevant to their interests and prior learning, the visual and graphic presentation really communicate what they should and the material really to relate to the learning objectives that gave rise to the material development project

ATTITUDE SCALE

The student's attitude scale toward Computer Science was developed by the investigator. The attitude scale consists of 50 items with five point scale. The questionnaire was given to the experts in the field of education to draw their opinions. Based on the opinion of the experts, the necessary corrections or rewording were made in the questionnaire. Hence, the content validity for the questionnaire was established.

Likert scale type method adopted. The statements were scored the followings. The favorable statements, the 'strongly agree' response was given a weightage of 5, 'agree' response a weightage of 4, 'undecided' response a weightage of 3, 'disagree' response a weightage of 2 and 'strongly disagree' response a weightage of 1. For unfavorable statements the scoring system is reversed, the "strongly disagree" response was given a weightage of 5 and the `strongly agree' response was given a weightage of 1. Then the total score for an individual was calculated by adding the weightage obtained for the different items.

ACHIEVEMENT TEST

An achievement test on Multimedia Package material for XI standard was constructed by the investigator and administered on the samples. Item difficulty and Item Discrimination index were estimated. Reliability of the test was determined by applying Spearman-Brown Prophecy formula, which was 0.78. Face validity and content validity of the test were determined by getting the opinion of the experts of the subject.

A personal data sheet to get the background information of the sample subjects was also used.

EXPERIMENT CONDUCTED

Selected students were divided into two groups of 20 each as Experimental Group and Control Group. For the Experimental Group the investigator conducted by the Multimedia Method and for the Control Group the investigator conducted by using the conventional Method.

Pretest Conducted

The achievement Test prepared was administered on both the groups before teacing them the topic. These scores were collected.

Learning by Experimental Group

After administering the pretest the Experimental Group was given the Multimedia Package. The investigator gave assistance and explanation whenever necessary and the students took two days time to complete the learning.

Learning by Control Group

The Control Group was taught the same topic with the prescribed in the traditional way by the investigator himself/herself and it took two days time.

Posttest Conducted

The Achievement Test was administered on both the groups and the answer sheets were collected and scored.

STATISTICAL TECHNIQUES USED

Statistical techniques serve the fundamental purpose of the description and inferential analysis. The following statistical techniques were used in the study:

« Mean (m) and standard deviations (SD)

« 't' test for determining the significance of difference between means of two sub-groups.

HYPOTHESES TESTING

Null Hypothesis 1

There is no significant mean difference between the attitude of experimental group and control group in pre-test.

Group (N =20)	Mean	S.D	Calculate 't' value	Remarks at 5% level
Control group	156.5	11.98	0.2207	Not Significant
Experimental group	157.25	9.83		

(At 5% level of significance the table value of 't' is 1.96)

It is inferred from the above table that the calculated 't' value between the experimental group and the control group with respect to their attitude in pre-test is lower than the table value at 0.05 level of significance. Therefore the null hypothesis is accepted.

Null Hypothesis 2

There is no significant mean difference between the attitude of experimental group and control group in post-test

Group (N =20)	Mean	S.D	Calculate 't' value	Remarks at 5% level
Control group	162.95	11.98	5.22	Significant
Experimental group	178.95	5.07		

(At 5% level of significance the table value of 't' is 1.96)

It is inferred from the above table that the calculated 't' value between the experimental group and the control group with respect to their attitude in post-test, is higher than the table value to 0.05 level of significance. Therefore the null hypothesis is rejected. Hence there is significant mean difference between the attitude of experimental group and control group in post-test.

Null Hypothesis 3

There is no significant mean difference between the attitude of control group in pre-test and post-test

Group (N = 20)	Pre Test		Post Test		Calculated 't' value	Remarks at 5% level
	Mean	S.D	Mean	S.D		
Control group	156.5	11.98	162.95	13.04	1.54	NS

(At 5% level of significance the table value of 't' is 1.96)

It is inferred from the above table that the calculated 't' value of the Control group with respect to their attitude in pre-test and post-test is lower than the table value at 0.05 level of significance. Therefore the null hypothesis is accepted. Hence there is

no significant mean difference between the attitude of control group in pre-test and post-test.

Null Hypothesis 4

There is no significant mean difference between the attitude of experimental group in pre-test and post-test.

Group (N = 20)	**Pre Test**		**Post Test**		**Calculated 't' value**	**Remarks at 5% level**
	Mean	**S.D**	**Mean**	**S.D**		
Experimental group	157.25	9.83	178.95	5.07	8.96	S

It is inferred from the above table that the calculated't' value of the experimental group with respect to their attitude in pre-test and post-test is higher than the table value at 0.05 level of significance. Therefore the null hypothesis is rejected. Hence there is significant mean difference between the attitude of experimental group in pre-test and post-test.

MAJOR FINDINGS

The following are the findings of the present study

1. The attitudes mean scores of control and experimental groups do not differ significantly at the pre test. Further, these two groups have similar in terms of their attitude.
2. The attitudes mean scores of control and experimental groups differ significantly at the post test. It is concluded that higher mean scores of experimental group students have better attitude than control group.
3. The attitudes mean scores of control group does not differ significantly at the pre and post test. It is concluded that the pre and post test of control group has similar in terms of their attitude.

4. The attitudes mean scores of experimental group differ significantly at the pre and post test. It is concluded that the pre and post test of experimental group has similar in terms of their attitude.

INTERPRETATIONS

There is no significant mean difference between the attitude towards Computer Science of experimental group and control group in the pre-test. Thus, both control group and experimental group have almost same level of attitude towards Computer Science, though mean score of experimental group is slightly higher than that of control group in the pre test.

It can be seen from the table that experimental group have higher than that of the control group in the post test. Therefore multimedia package has influence on the attitude towards Computer Science. It is observed that method of teaching with modern tools matters to develop attitude among students.

There is no significant mean difference between the attitude towards Computer Science in the pre and post test of control group. Thus, both the pre and post test of control group have almost same level of attitude towards Computer Science, though mean score of post test mean is slightly higher than that of pre test of control group.

It can be seen from the table that the post test have higher than that of the pre test in the experimental group. Therefore multimedia package has influence on the attitude towards Computer Science. It is observed that method of teaching with modern tools matters to develop attitude among students.

RECOMMENDATIONS OF THE STUDY

The recommendations of the study are as follows:

v The multimedia approach can be given to the other subject like English, Chemistry, and Geography etc.

v Lecture method in the class may be minimized and other new innovative methods can be introduced.

v All the theoretical knowledge and practical knowledge can be enhanced through multimedia.

v Laboratory demonstrations like dissections of plants and animals can be also be taught through multimedia.

v Students should be motivated before they start learning through multimedia.

v Pupils may also be involved in the preparation of multimedia along with teachers.

v Science teachers should be trained to use the multimedia effectively in the classroom.

v In service training course for the preparation of multimedia should be given to the science teacher.

CONCLUSION

Technology has greatly improved the methods and educational opportunities available in the computer science classroom. Computer based lessons have evolved so that students can experience more than they could in a traditional lab, in an interactive environment that promotes a new level of understanding. By utilizing the web, JavaScript, Java Applets and Java lessons can be made available to virtually anyone on any computer. While there are some limitations which hold we based lessons back, the future certainly looks promising, and the continued development of web based lessons is surely to a new experiences for many students.

Multimedia provides us with some wonderful new approaches to this aspect of intrinsically motivating learning. Multimedia enables the science teachers to provide our students with experiences of variable difficulty, randomness and simulating nature. Students should have higher self-esteem at the end of Computer Science courses than at the beginning. Proper multimedia experiences help ones to empower people and enhance their self-esteem. Multimedia can be useful in

disseminating Computer Science to encourage active learning, develop cooperation among people, enhance people's self-esteem, and respect diverse talents and ways of teaming. Proper usage of multimedia offer people in every situation, a bit of Computer Science, which they will complete with a heightened interest in the natural world and an increased sense of self-esteem.

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