

EFFECT OF MULTIMEDIA TECHNIQUES AND CONVENTIONAL METHOD IN SCIENCE AT SECONDARY SCHOOL FOR ATTITUDE TOWARDS SCIENCE

VIRAJ MODI

Research Scholar

DBHPS, DHARWAD

Email: modivirajgkk@gmail.com

DR. A. L. PATIL

Principal

KSR College of Education, Belgaum

Abstract

The purpose of the study was to find the Effect of Multimedia Techniques and Conventional Method in Science at Secondary school for Attitude towards science. The sample of the present study includes 100 students studying in IX standard were drawn using a stratified random sampling technique. The study revealed that i) The result implies that the Multimedia Technique is more effective for girls than boys in developing Attitude towards science; ii) The result implies that the Control group both the boys and girls are at the same level in terms of Attitude towards science, before the treatment.

Keywords: *Multimedia Technique, Conventional Method, Attitude towards science*

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VIRAJ MODI
DR. A. L. PATIL

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Introduction

In the age of science and technology, the quality of knowledge is rapidly expanding. In Indian secondary schools learning comes from traditional method as reading textbooks. There is a need of innovation in our traditional system of instruction to meet the challenges of present day society. Students need unique experiences in the learning of the contents. Learning becomes effective when teacher uses several resources in classroom. Student understands of facts, concepts and principles become effective when they are taught through innovative tools of modern technology. In the subject like English visual experience are more effective than verbal experiences.

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The sixth five-year plan document states that, "The importance of educational technology has to be adequately provided for greater efficiency, effectiveness and wider reach of educational programme". In spite of the recommendations given by NPE and Programme of action (POA), the present classroom is rigid in terms of time schedule, teacher and duration of period.

This makes teaching-learning process quite uninteresting, non-participatory and boring. Majority of the education system is characterized by classroom and examination. Learning takes place at different levels and different modes.

The use of media to enhance teaching and learning complements traditional approaches to learning. Effective instruction builds bridges between students' knowledge and the learning objectives of the course. Using media **engages students, aids student retention of knowledge, motivates interest** in the subject matter, and **illustrates the relevance** of many concepts.

Multimedia can make able the recognition of words, terms and their contextual meaning. These are the easily understand vocabulary trainees for foreign languages or technical terms. They are the multimedia corresponding of multi-choice tests for

the learning and testing of contextual meaning. At the next level, preparation begins to play a role as shapes and colours, graphs elements and movement through space and/or time allows the user to ask questions about the contents of graphic or series movement. Interactive learning can also be achieved via role-playing and games. For example many users govern a imitate medieval town or discuss a picture with a gallery visitor in another location via Internet.

Media other teaching techniques — should be used sensible in the learning process. There are a number of important considerations for faculty before they integrate media or ask their students to use or develop media in their courses. In this section discuss the tips for effectively using media, notes number of common mistakes to be avoided and describes how to involve students creating media on their own. Present media resources can also be used to engage students and facilitate **learning** strategies, which promote more learning. For example, media provides a useful platform for teaching with cases, cooperative learning, problem solving, and for giving more interactive lecture demonstrations.

Student-created media involves a high degree of engagement; promotes individual learning, social interaction and immersion; and is highly customizable and collaborative (Yowell and Rhoten, 2009).

Brainstorming is a method teams use to generate ideas to solve clearly defined design problems. This method, which is often used during guided tours, can also be used in multimedia computing. This can take the form of an interactive exchange of ideas with other users.

The Concept of Multimedia

The term multimedia is Derived from the word “multi” and Media” multi, form the Latin multus, meaning “much” or “many” Media, the plural form of the Latin medium, meaning “an Intervening agency, means, or instrument”

In our world the medium is an intervening agency between our message or communication and our users- that is, the receivers of that message. The message or communication is our content, and backing the olddays, we considered “print” and “online” to be our two technical communication media or innerving agencies.

In reality, clearly define “innerving agency” is not so easy manyfactors can intervene between the message and receiver (use) not just themedium. Today, what typically comes to mind when we hear “multimedia” is one or more of the following.

- Text

- Audio
- Static images
- Moving images- a series of consecutive drawings or photographs presented in rapid succession to simulate natural movement.

Any of these can be provided physically or online.

The implication of this terminology exercise is that four “media” that we typically associate with “multimedia” are simply presentation formats just like those we associate with information design, such as table, ordered list, and unordered list.

Need of the Study

According to Salinger(2004), “Multimedia content should be seen as a tool to improve the understanding, engagement and motivation of learners; to test their understanding using novel assessment methodologies based on trial and improvement; simulations and manipulation of models”. The nature of multimedia to satisfy this condition as the learner while reading the didactic content builds an understanding and then the moral of the story reinforces that understanding. The term ‘didactic’ refers to content such as self- instructional material, audio and video that convey some moral, fact or learning. Here learning objects differ from the traditional media in the sense that it can be simultaneously delivered, accessed and used with respect to time and pace, but digital resource that can be reused to support learning. The younger generation is smart and fast in all aspects. When technology is imparted in education means there will be hope to blast of new innovative achievement in instructional teaching. In this age of electronic media, computers and the internet are used to collate, store, and transmit millions of items of information in no time.

Science teaching in secondary schools can be improved significantly with some informal activities including science meals, science clubs and libraries. All these programmes can make the classroom more participative, less authoritarian teachers and give children greater freedom and facilitate learning rather than dictate learning. The science education should enable the learner to know the facts and principles of science and its application, consistent with the stage of cognitive development. It helps to obtain the skills and understand the methods and processes that lead to generation and validation of science knowledge and to development a historical and developmental perspective of science.

In this electronic era, we have a variety of resources starting from traditional media to present potential compute. Internet etc that are storehouses of multimedia

and materials. Multimedia plays a vital role in day to-day life at present as it is found to be useful and practical. It combines knowledge and pleasure, and light and sound with relevant visuals to be used with imagination ideas, artistic ability, professional experience and expertise likewise, the investigator select the study.

Objectives of the Study

1. The effect of Multimedia Technique and Experimental Method in Science will be different on boys and girls at Secondary school Level in terms of Attitude towards science.
2. The effect of Multimedia Technique and Conventional Method in Science will be different on boys and girls at Secondary school Level in terms of Attitude towards science..

Hypotheses

1. The effect of Experimentalgroup in Science will be different on boys and girls at Secondary school Level in terms of Attitude towards science..
2. The effect of Conventional group in Science will be different on boys and girls at Secondary school Level in terms of Attitude towards science..

Methodology

The present study was mainly aimed to study the Effect of Multimedia Techniques and Conventional Method in Science at Secondary school for Attitude towards Science

In order to collect data Experimental method of research was followed. Researcher formed two groups Experimental group and Control group. Researcher were selected 50 students for each group. After the treatment for four months the Achievement test and Attitude scale were administered on the two groups.

Sample

For the present experimental study researcher selected 100 students from Belgaum district of Secondary schoolaof purposive sampling method.

Tools

For the collection of the data following tools were employed by the investigator,

- i. Achievement Test
- ii. Attitude Scale
- iii. Multimedia Technique
- iv. Conventional Classroom Teaching

Statistical Techniques

The Analysis of Difference between the Mean Gain of Girls and Boys with respect to the Attitude towards Science for the Experimental Group.

The gain score of girls and boys were subjected to statistical analysis and their Arithmetic Mean and Standard Deviation were calculated. The results of the significance of difference between the Means gain of girls and boys of Experimental Group is given in table -1.

Table-1: Significance of difference between the Mean gain of girls and boys on Attitude towards science for the Experimental Group

Test	Mean	SD	N	df	t	Level of significance
Girls	19.53	5.62	19	48	3.24*	P<0.01
Boys	14.13	5.78	31			

*Significant at 0.01 level

An independent sample 't' test revealed a significant difference in the Mean gain scores of the girls and boys of Attitude towards science of the Experimental Group. Results given in table-1 indicate that the Mean gain on Attitude towards science for girls (M = 19.54) is higher than the boys (M = 14.14). The obtained 't' value 3.24 is higher than the table value 2.58 at 0.01 level for df 48. So the difference between Mean gain of girls and boys on Attitude towards science is significant at 0.01 level.

The result implies that the Multimedia Technique is more effective for girls than boys in developing Attitude towards science.

The Analysis of Difference between Mean of Girls and Boys with respect to the Pre-Test on Attitude towards Science for the Control Group.

The pre-test scores of girls and boys were subjected to statistical analysis and their Arithmetic Mean and Standard Deviation were calculated. The result of the significance of difference between the Means of the pre-test of girls and boys of Control Group is given in table-2.

Table-2: Significance of difference between the pre-test Mean of girls and boys on Attitude towards science for the Control Group

Test	Mean	SD	N	df	t	Level of significance
Girls	121.00	5.27	28	48	1.04*	P>0.01
Boys	19.52	5.02	22			

*Not Significant at 0.05 level

An independent sample ‘t’ test revealed that there is no significant difference in the Means of the pre-test on Attitude towards science of girls and boys of the Control Group. Table-2 indicates that the pre-test score on the Attitude towards science for girls (M = 121.01) is higher than the boys (M = 119.51). The obtained ‘t’ value 1.01 is lesser than the table value 1.96 at 0.01 level for df 48. So there is no significant difference between the Mean scores of girls and boys on pre-test on Attitude towards science.

The result implies that both the boys and girls are at the same level in terms of Attitude towards science, prior to the treatment.

Discussion and Conclusion

The result implies that the Multimedia Technique is more effective for girls than boys in developing Attitude towards science. The result implies that the Control group both the boys and girls are at the same level in terms of Attitude towards science, prior to the treatment.

Educational Implications

- The study has shown that Multimedia technique used for achieving Knowledge and Skills in science would help in the nurturing of scientific knowledge of students.
- In this study the various components of Multimedia technique used including charts, pictures, videos and different activities performed would enhance the science learning in a positive way.
- The study has revealed that achievement of Knowledge and Skills in science would help in the modification of Attitude towards science.
- Students would develop scientific values, gets opportunity to learn science in a fruitful way, scope for doing practical work, thinking about future

participation in science, develop self-concept in science, understand importance of science and use science outside the school with this study.

- Study has shown that the greater Attitude towards science was developed among the students which would help to change their behavior and establish an interest to understand science in a better way.
- In the present study, the multimedia approach was found far superior than the traditional approach of teaching in promoting the acquisition of both lower and higher order objectives i.e. knowledge, understanding and application. Hence, multimedia approach can be effectively implemented in secondary schools to attain different objectives of teaching biology.
- Multimedia approach is more effective for all the students with different learning abilities as individual differences can be overcome in learning through different media.
- Multimedia approach is effective for all the students having different learning styles.

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