

Use of Traditional Teaching Methods and Multimedia Techniques in Classroom Teaching

¹Jyoti Mahawar, ²Dr.Shruti Tiwari, ³Dr.Sonia Kaur Bansal

¹M.Ed. Scholar, ²Principal, ³Assistant Professor

¹School of Education, Suresh Gyan Vihar University Jaipur (Rajasthan India)

Abstract

It can be difficult for teachers to engage students in their learning while still delivering the necessary knowledge to improve learning results. Technology has a lot to offer when it comes to teaching and acquiring communication skills: TV, CD Rom, Computers, the Internet, Electronic dictionaries, Email, Blogs, Audio Cassettes, PowerPoint, Videos, DVDs, or VCDs. Due to the advent of technology, the educational landscape has undergone a revolution over the past two decades. This revolution has affected how individuals interact and work in society as well as the dynamics of educational institutions. The quick rise and development of information technology have provided a stronger framework for investigating a new teaching approach. The purpose of this study is to determine how learners' performance concerning presenting skills and effective writing is affected by multimedia-supported education. This chapter covers the need for multimedia technology in education, the issues that motivated the proposed study, its goals, and its significance.

Keywords- Traditional Teaching, Multimedia Techniques, Classroom Teaching, Students

Introduction

It has proven difficult for many instructors to teach subjects relating to science, technology, engineering, and math. Effective students effectively utilise their teachers' knowledge, concepts, and wisdom as well as practise learning materials. Consequently, creating authoritative learners is a key job of teaching. (P Kumari, 2015). The majority of teachers in science classrooms still use traditional teaching techniques, which have repeatedly presented difficulties for both students and teachers over time. One of the basic fundamental science subjects to which students are exposed to prepare them for subsequent scientific investigations and undertakings is biology, which is a crucial component of science.

Online learning has numerous advantages, such as it helps in saving time and expenditure or the probability of learning anytime and anywhere (Singh, Roma & Tiwari, Dr Shruti; 2021). Multimedia is changing the face of education all over the world and is recognised as a technology that can improve effective and efficient teaching and learning. Although technology is widely employed in many affluent countries for computer-based narrated animations, observations have indicated that using a computer to teach secondary school students is developing.

These days, experimental research has expanded to include the investigation of a wide range of issues that fall under the purview of numerous disciplines, including sociology, psychology, physics, chemistry, biology, and medicine (Bansal, Significance of Experimental Research In Educational Technology: A Review Study, 2020). Despite research showing the value of computer technology in education, their implementation has faced significant obstacles, leading to students' dismal performance in many courses, particularly the sciences. Therefore, this study explored switching from the traditional teaching approach to one based on computers to determine the impact of computer-based multimedia instructional packages on students' academic achievement in Biology.

In the series of these inventions, the use of the "multi-media approach in classroom teaching-learning" occupies a very important place. In the present scenario, it has influenced the field of education and it has made an important place in education and human life.

What is multimedia and the Use of multimedia in education?

Multimedia is a cutting-edge technology that enables the digital fusion of text, data, images, graphics, audio, and video animation. It offers fresh approaches to better the way information is delivered and how it affects the user. The information exhibited in picture and sound form is referred to as multimedia and does not just refer to simple text. As a result, it contains images, audio, and video that have been recorded and converted to digital form by input devices so that the data is ready for computer processing.

A computer can store multimedia data in some common formats. On output devices, we can show multimedia information.

Multimedia education use:

- Education is significantly impacted by multimedia.
- Many colleges and universities employ various forms of multimedia-based computer-based teaching software.
- It is not required that the teacher be present in class.
- Students in engineering institutions use interactive multimedia presentations to learn the fundamentals of electronics, put their designs into practice, and alter them.
- Using multimedia technology, CBT (Computer Based Training/Tutorials), also referred to as training and classroom multimedia teaches academic material.

The elements of the multimedia application in education

Multimedia applications may have a straightforward definition, but putting them into practice can be challenging. Utilizing instructional multimedia computer technologies, we must comprehend how to place each multimedia component together. Every component utilised in multimedia apps has been around before. When used by professors, lecturers, and students, educational multimedia applications combine these components to create a potent new tool. Applications that use multimedia can be found in a variety of settings, including workplaces, homes, and public spaces. Students can use multimedia programmes to examine a range of information for a deeper comprehension of educational objectives. Applications for educational multimedia are used to increase learning efficiency. To facilitate learning, a multimedia learning environment includes a variety of components. There are six main elements in multimedia applications for educational purposes which are texts, images, audio, video, animations and user control.

Advantages of using educational multimedia applications

The goal of every teacher or lecturer is to improve learning outcomes for their pupils by finding more engaging techniques to engage their audience. Words alone do not teach as well as words combined with images. Therefore, educational multimedia applications use a variety of multimedia elements to show stress-specific themes only, making them more effective because it is simpler for students to focus on them than on static printed learning materials. When given information that must be focused on but is distant from one another or is provided simultaneously at two different sites, students frequently divide their attention. As a result, learning outcomes are improved when related information is delivered in both words and pictures at the same time. According to research, when professors or lecturers incorporate multimedia elements into the learning process, students will participate in the course more actively because they will pay more attention as the lesson becomes more fascinating. For instance, kids are more easily understood, and the information can be promptly ingested into long-term memory when the animation and narration are provided at the same time. An illustration of a multimedia application is a presentation that can highlight certain information that lecturers or teachers want to convey.

Applications using multimedia are used to pique students' interest and hold it throughout the learning process. The student's perspective on the subject matter and learning may be improved. When compared to the traditional teaching methods used by professors and lecturers, multimedia applications help pupils remember more information and promote deeper learning. Applications using multimedia in education can also make learning enjoyable and help people feel less tense and anxious when learning about some intimidating subjects.

When teachers give their students more control over the presentation's pace—allowing them to slow it down, jump in, and stop when they want—students learn more. Since multimedia apps can be presented in a variety of ways to engage students

with diverse learning styles and strengths, they can personalise the information needed by the individual. Every learner may have distinct learning styles and preferences. A student might prefer a visual presentation while another student would choose to read particular learning items through printed materials. Because they are created with their needs in mind, multimedia applications for education are beneficial for every individual student and lecturer.

Objectives

- To study the substantial differences between underachievers' performance in biological science using traditional teaching methods and multimedia technology.

Hypotheses

There is no significant difference between academic achievement in Biological Science of secondary school underachievers in science through Traditional teaching and multimedia teaching.

Methodology

A method of experimentation was thought to be the most suitable given the nature of the issue. This approach focuses on examining how dependent and independent variables relate to one another. Using the purposive random sampling technique, 200 students in the XI standard were selected from a population of 2 secondary schools in the District of Jaipur, with 100 coming from public schools and 100 from private institutions. Standard scores were generated from the scientific achievement test's raw scores. Calculations were made to determine how the IQ and science achievement test standard scores differed. Students in the XI standard who scored at least 15 points lower on the scientific achievement test than they did on the intelligence test were chosen as the study's sample. Thus, 60 science underachievers were found. They were then split into the control group and the experimental group. The experimental group received treatment in the form of a multimedia lesson from the researcher on biological science, whereas the control group received a traditional lesson on the same material. In other words, treatment was not provided to this group. The experimental and control groups received a biological science accomplishment test following the conclusion of the treatment to gauge their conceptual knowledge.

Population

The population of the study was 9th class underachievers in the science of government and Private secondary school of Jaipur.

Samples

The sample for the current study was made up of 60 XI science underachievers. Two groups were created from the sample (30 students in the control group and 30 students in the experimental group).

Hypothesis- Comparison of the Control Group's Biological Science Achievement Test Pre- and Post-Test Scores

Table-1

Group	N	Mean	S.D.	t-ratio	Level of significance
Pre-test	30	20.4	2.57	1.62	0.05
Post-test	30	22.15	3.78		

Data Analysis

There is no statistically significant difference between pre-test and post-test achievement scores in biological science for the control group, according to the calculated t-ratio between pre-test and post-test achievement scores, which came out to 1.62 and is statistically insignificant at 0.05 levels of significance. Since the underachievers in science scored the same on the accomplishment exam in biological science pre-and post-test, it is inferred that traditional teaching was ineffective.

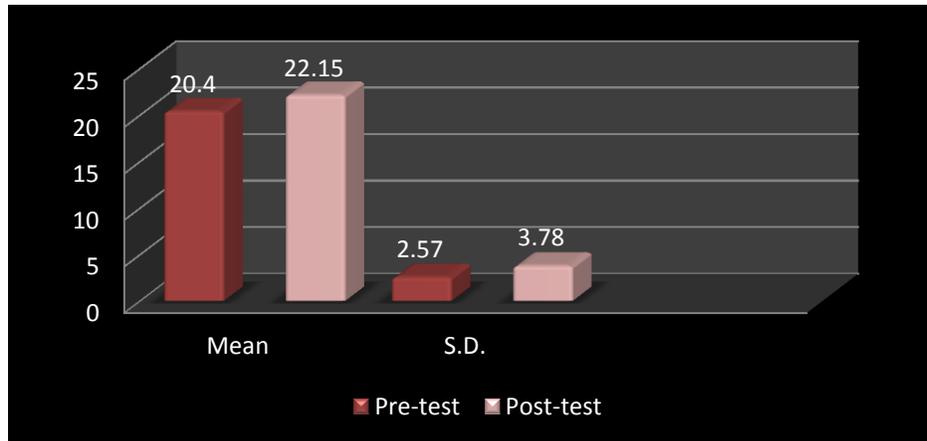


Fig:- Comparison of the Control Group's Biological Science Achievement Test Pre- and Post-Test Scores

Hypothesis- Comparison of the Experimental Group's Biological Science Achievement Test Pre- and Post-Test Scores

Table-2

Group	N	Mean	S.D.	t-ratio	Level of significance
Pre-test	30	22.15	3.78	6.40	0.05
Post-test	30	28.6	3.67		

Data Analysis

There is a significant difference between the control group and experimental group concerning the post-test scores of the achievement test in Biological science, as indicated by the calculated t-ratio of the post-test scores of the achievement test in Biological science between the control group and experimental group being 6.40, which is statistically significant at 0.05 levels of significance. As a result, it can be said that underachievers in science who were taught using multimedia technology significantly improved their performance in biology.

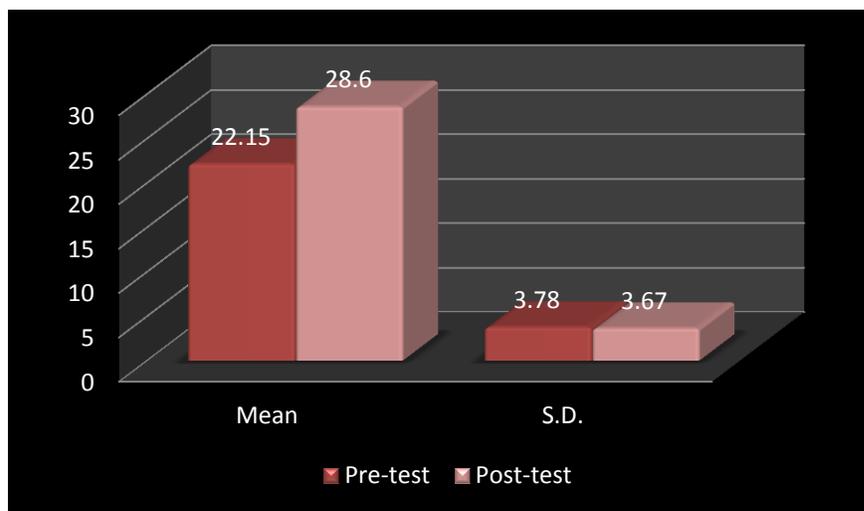


Fig:-Comparison of the Experimental Group's Biological Science Achievement Test Pre- and Post-Test Scores

Conclusion

According to the study's findings, the experimental group of underachievers in science who were taught biological science using a multimedia-based method outperformed students who received traditional direct instruction. Thus, teaching biological science to class IX underachievers in science using a multimedia-based approach was found to be more effective than using a direct approach. The use of multimedia enables the development of a streamlined approach that makes scientific underachievers' understanding simple. It improves underachievers' academic performance in biological science courses.

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