

A STUDY ON LEARNING MATHEMATICS USING MULTIMEDIA AMONG STUDENTS OF IX STANDARD

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Introduction

Mathematics education is the practice of teaching and learning mathematics, along with the associated scholarly research. Researchers in mathematics education are primarily concerned with the tools, methods and approaches that facilitate practice or the study of practice. Recent international research indicates that more limited, traditional approaches still dominate. This research describes an interactive multimedia resource designed to provide experiences to develop teachers' knowledge and practices for teaching and assessing mathematics in IXth standard classrooms.

Purpose of the Research

1. To assist students to meet demand of the emerging knowledge based society with new forms of ICT and ability to use the multimedia technology to enhance the quality of learning.
2. To improve academic performance and achievement of IX th standard students in learning mathematics

Previous Research Studies

1. In the conventional teaching, mathematics teachers mostly have been using the textbook and blackboard in the classroom and some of the schools only using geometrical instruments.
2. Teachers need to be equipped not only with subject expertise and effective teaching strategies but also with ability to use the multimedia technology to enhance the quality of learning.
3. There are a lots of changes made in multimedia technology to help students in learning mathematics.
4. Presently, traditional educational approaches have resulted in a mismatch between what is taught to the students and what the industry needs .
5. Therefore, the study selected innovative strategies for teaching mathematics and also developing interest to learn mathematics.

Research Objectives

The research objectives of this study are

1. To devise multimedia package for the improvement of performance in the chapter of 'Geometry' of IX standard Mathematics.
2. To evaluate the effect of multimedia learning package as learning tools on students' achievement in Mathematics.
3. To train the teachers to teach Mathematics using multimedia way of teaching.

Hypotheses of Research

The hypotheses for this research are:

H1: There is a significant difference between students' performance in learning mathematics using multimedia education and their performance using conventional way of teaching.

H2: Students can perform better in learning mathematics using multimedia education.

Methodology

1. Type of research: Experimental study.
2. Population: IXth standard - 35 Students.
3. Sample and sampling technique: The sample consists of 35 students. Random sampling technique.
4. Instrumentation.

Tools Used

1. A Multimedia package for the teaching Mathematical concepts to students of IX standard.
2. Achievement test in mathematics constructed and validated.

Construction of the Tool

25 questions of mathematical concepts of IX standard level from the chapter 'Geometry'

Validation of the Tool

After marking the answer scripts, the students who have made errors are to be interviewed to identify the reasons for making such errors. The data collected from the interview are to be analysed to categorize the errors.

Description of the Tool

Objective types of 25 Mathematical questions according to the IX th standard syllabus and as per the assessment of knowledge, understanding, application and skill in learning mathematics

Procedure

Data collection is based on IX standard students in two levels of conventional teaching and multimedia teaching. Initially a pre-test consists of 25 objective type questions from the chapter 'Geometry' is conducted to diagnose the learning disabilities due to the conventional teaching. After identifying the mistakes and errors committed by students, it is planned to teach the topic of 'Geometry' using multimedia packages.

Table 1: Mean and Standard Deviation

Test	Number of Participants	Mean	S.D	t-Value	Table value at 5% level	Remarks at 5% level of significance
Pre-test	35	80.34	11.20	2.73	2.52	S
Post-test	35	92.69	6.17			

Table 2: Difference Between the High Achiever and Low Achiever

Evaluation	Mean Value	High achiever	Low achiever
Pre-test	80.34	92	52
Post-test	92.69	100	76
Global mean value	80.34		
Difference between Pre-test and Post-test	12.35		
Difference between High achiever and Low achiever		8	24

Analysis and Findings

From the results and scores of students, it is found that there is a significant difference between students' performance in learning mathematics using multimedia education and their performance using conventional way of teaching. Students can perform better in learning mathematics using multimedia education. Teaching mathematical concepts using multimedia packages improves learning mathematics and problem solving skills in mathematics more than conventional teaching.

Educational Implications

Teachers and students are to be encouraged and insisted and to be provided enough resources to teach the concepts of mathematics using multimedia packages which are to be prepared by the teachers innovatively according to the needs and interests of students to enhance better learning, to improve study habits in mathematics, to relate mathematical knowledge in their daily life, to make the class a live one and to improve scoring in mathematics.

Suggestions for Further Research

Further research can be carried out to impliment multimedia in teaching mathematics, not only for lower class but also for higher classes and researchers are to be encouraged to fulfill their requirement by introducing various multimedia packages.

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