IMPACT OF SVC IN TEACHING MATHEMATICS AMONG X STANDARD STUDENTS AT DINDIGUL DISTRICT

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Abstract: Mathematics plays a vital role in every human's life. It helps the society for smoother function and provides data based information. Mathematics develops the problem-solving skill which helps to solve the problems in daily life situation. Now a day, innovation strategy has vital role in education for students. Some of the innovation strategies have improved the learning mathematics concept of students. The main objective of the study was to found the impact of SVC (Smart Virtual Classroom) in teaching mathematics. The investigator had followed the experimental design for this study. The investigator selected the 80 samples selected for this study by random sampling technique. The statistical techniques used in the study were mean, standard deviation and t-test. The findings revealed that there was a significant difference between the control group and the experimental group in the learning of mathematics at the post-test level. After the treatment, the experimental group students have more achievement scores exposed the content through SVC strategy when compared with control group students who are learned through conventional method at post-test level. Therefore, the control group need be the SVC strategy for learning mathematics.

Keywords: Secondary level, SVC, Control group and Experimental group

INTRODUCTION

"Don't fear for facing failure in the first attempt, because the successful mathematics starts with zero only"
–Dr.APJ Abdul Kalam (Former President of India)

Mathematics plays a vital role in every human's life. It helps the society for smoother function and provides data based information. Mathematics develops the problem-solving skill which helps to solve the problems in daily life situation. Mathematics helps us to think analytically and develops reasoning abilities. The analytical and reasoning skills are very important because they help us analyze the problems, frame the hypothesis and solve the problems. In education, the importance and the place of a particular subject depends on the fact that "to what extent the subject is helpful in achieving the aims of the education". If any subject is more useful for achieving educational objectives then its importance increases accordingly. In ancient time, mathematics has played a vital role in 'achieving aims of education, as compared to others. The Kothari Commission has explained about placing mathematics as a compulsory subject up to secondary or tenth standard. Some of the innovation strategies have improved the learning mathematics concept of students. In this paper, we focus on impact of SVC teaching and enhancing the mathematics concept among the students of standard X.

NEED AND SIGNIFICANCE OF THE STUDY

Mathematics curriculum is a vast curriculum, because it is correlated with all sciences and arts. It is also much related to daily life. Most of the mathematics teachers have been using the textbook, blackboard in the classroom with lecture method and some of the school mathematics teachers using geometrical instruments. The Tamil Nadu SSLC examination results: 2018-2019, reported that the number of failures in mathematics in high school level examination is more as compared to that of other subjects because mathematics is a highly abstract subject. Mathematics subject needs for learning by inductive, deductive, analytic, synthetic, laboratory, project, problem solving and heuristic method also. Teachers need to be equipped with not only subject expertise and effective teaching methodologies. In secondary level, mathematics subject has the characteristics of precision, logical sequence, structure, abstractness and symbolism also. The secondary level students cannot understand the mathematical concept. Therefore, the study selected innovative strategy for teaching mathematics for students and developing interest habit in learning mathematics.

STATEMENT OF THE PROBLEM

In secondary level, Mathematics textbooks cover topics such as number system, algebra, logarithms, geometry, mensuration, probability, graphs, and statistics. The conventional classroom environment in mathematics has been strongly oriented towards a syllabus-based delivery, teacher using control and textbook resources. At the present, mathematics teachers need to be equipped with not only subject expertise and effective teaching methodologies, but also with capacity to assist students to meet demand of the emerging knowledge based society with new forms of ICT and ability to use that technology to enhance the quality of learning. Therefore, the investigator had planned the statement of the problem "Impact of SVC in teaching Mathematics among X standard students at Dindigul District".

OBJECTIVES

- To make the students to understand the concept of mathematics through power point with animation and video at secondary level.
- To conduct pre-test in mathematics subject before using power point with animation and video treatment.
- To use power point with animation and video through SVC for teaching mathematics at secondary level.
- To conduct post-test in mathematics subject after using power point with animation and video.
- To analyze the impact of SVC through pre-test and post-test.

HYPOTHESES

The following null hypotheses were formulated;

- There is no significant difference between the control group and the experimental group in the learning of mathematics at the pre-test level.
- There is no significant difference between the pre-test and post-test scores as regards learning mathematics by the experimental group.
- There is no significant difference between the pre-test and post-test scores as regards learning mathematics by the control group.
- There is no significant difference between the control group and the experimental group in the learning of mathematics at the post-test level.

DEFINITION OF KEY TERMS

SVC

Smart Virtual Classrooms (SVC) are integrating the technology for teaching and learning process in the classrooms such as computers, network, software, audience response technology and audio/visual devices. The investigator had adopted the SVC strategy for X standard students to enhance their mathematics achievement.

Secondary school

The secondary school consists of IX and X standard students in the Tamil Nadu educational system. Only X standard students are selected for the present study.

SAMPLE

The sample of consisted of 80 students in X standard of K.R higher secondary school, Oddanchatram, under Tamilnadu syllabus in Dindigul District. The sample included only boys.

METHODS

The investigator had followed the experimental study for this research and he had used the random sampling techniques for select the sample. The sample classified into two groups one is experimental group and other control group. Both groups equated at their quarterly examination scores in the subject of mathematics. The experimental group students exposed to teaching through SVC, whereas the students of control groups taught through conventional method of teaching.

TOOLS USED

The following tools were used for the study:

- A power point slides with animation and video developed by the investigator for the teaching mathematical concept to students, which is included, only X standard students.
- An achievement test (Pre-test & Post-test) in mathematics constructed and validated by investigator for X standard students.

VARIABLES OF THE STUDY

In the study teaching mathematics by using multimedia package and conventional teaching are identified as independent variable and achievement test of students in mathematics subject is identified as dependent variable.

DEVELOPMENT OF POWER POINT SLIDES

The power point slides were developed in Microsoft office power point 2010. The animation, sounds, videos and pictures are included in slides. It provided attract sense, easy and joyful learning to students. The mathematics subject contains only "Algebra" of X standard was broken down in to 50 small learning modules. All the learning modulus were arranged logically based on psychological principles of learning i.e. from easy to hard, simple to complex and known to unknown.

EXPERIMENTAL DESIGN

The investigator had followed the design for the study is given below:

Steps	Experimental Procedure	
Step 1	Selected one school (No.of students:80)	
Step 2	Divided by two groups (by using quarterly examination scores in mathematics)	
Step 3	Control Group (40)	Experimental Group (40)
Step 4	Pre-test	Pre-test
Step 5	Comparison of pre-test scores	
Step 6	Conventional method teaching	SVC strategy
Step 7	Post-test	Post-test
Step 8	Comparison of post-test scores	
Step 9	Comparison of pre-test and post-test scores of both group	

STATISTICAL USED

The mean, standard deviation and t-test were used for analyzing the data.

TESTING OF HYPOTHESES

Hypothesis 1

There is no significant difference between the control group and the experimental group in the learning of mathematics at the pre-test level.

Table 1: Testing of control group and experimental group scores in pre-test

Variables Control group	N	Mean	S.D	Standard Error Mean	t - value	Remarks (0.05 level)
Pre-test	40	30.700	7.002	1.107	2.130	Significant
Post-test	40	34.025	6.959	1.100		

The obtained value 0.065 is less than the table value (degrees of freedom=78, 1.9909) at 0.05 level significant. Therefore, the null hypothesis is accepted and it is concluded that there is no significant difference between control group (M=30.700) and experimental group (M=30.600) students in their pre-test level. Before treatment, the both group students were equal level in their mathematics achievement.

Hypothesis 2

There is no significant difference between the pre-test and post-test scores as regards learning mathematics by the control group.

Table 2: Testing of pre-test and post-test scores of control group

Variables Pre-test	N	Mean	S.D	Standard Error Mean	t - value	Remarks (0.05 level)
Control	40	30.700	7.002	1.107	0.065	Not significant
Experimental	40	30.600	6.743	1.066		

The above table: 2 reveals that the calculated t-value 2.130 is greater than the table value at 0.05 level of significance. So the null hypothesis is rejected. Hence, there is significant difference between the control group and the experimental group in the learning of mathematics at the post -test level. The results found that the mean achievement scores of control group students have high in post-test (34.025) when compared with pre-test (30.700) in their mathematics achievement through conventional method.

Hypothesis 3

There is no significant difference between the pre-test and post-test scores as regards learning mathematics by the experimental group.

Table 3: Testing of pre-test and post-test scores of Experimental group

Variables Experimental	N	Mean	S.D	Standard Error Mean	t - value	Remarks (0.05 level)
Pre-test	40	30.600	6.743	1.066	4.409	Significant
Post-test	40	37.025	6.281	0.993		

It is inferred from the above table: 3 that the calculated t- value (4.409) is greater than the table value (df=78, 1.9909). Hence, the hypothesis is rejected. Thus, there is significant difference between pre-test and post-test mathematics achievement scores in experimental group students. Moreover, the experimental group students have more achievement scores (M=37.025) at post-test level when compared with pre-test scores (M=30.600) through SVC strategy.

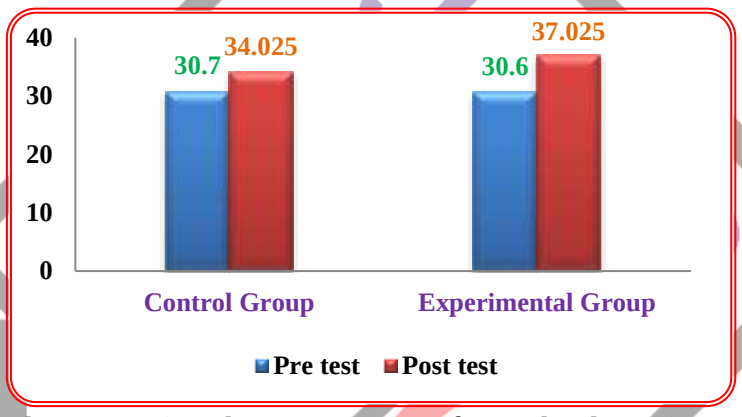
Hypothesis 4

There is no significant difference between the control group and the experimental group in the learning of mathematics at the post-test level.

Table 4: Testing of control group and experimental group scores in post-test

Variables Post-test	N	Mean	S.D	Standard Error Mean	t - value	Remarks (0.05 level)
Control	40	34.025	6.959	1.100	2.024	Significant
Experimental	40	37.025	6.281	0.993		

It is inferred From the above table: 4, It is inferred that the calculated t- value (2.024) is greater than the table value (df=78, 1.9909). Hence, the null hypothesis is rejected. Thus, there is significant difference between the control group and experimental group students in their mathematics achievement scores at post-test level. The mean difference between control group(34.025) and experimental group (37.025) is 3.000. Moreover, after the treatment the experimental group students have more achievement scores (M=37.025) exposed the content through SVC strategy when compared with control group students (M=34.025) who were learned through conventional method at post-test level.



Graph1: Comparison the post-test scores of control and experimental groups

Photo: Conducted experiment through SVC

Findings

- There is no significant difference between the control group and the experimental group students in the learning of mathematics at the pre-test level as regards their previous mathematics achievement scores (Quarterly Examination).

- There is a significant difference between the pre-test and post-test scores as regards learning mathematics by the control group. This shows that the conventional method of teaching will help the students to learn mathematics. Therefore, control group need to the multimedia program for learning mathematics.
- There is a significant difference between the pre-test and post-test scores as regards learning mathematics by the experimental group. This shows that the SVC strategy has helped the students to score more marks in the post –test.
- There is a significant difference between the control group and the experimental group in the learning of mathematics at the post-test level. The mean difference between control group (34.025) and experimental group (37.025) is 3.000. Moreover, after the treatment the experimental group students have more achievement scores (M=37.025) exposed the content through SVC strategy when compared with control group students (M=34.025) who are learned through conventional method at post-test level. The students learning with help of the SVC strategy fared better in mathematics than the students learning through the conventional method. Therefore, the control group need be the SVC strategy for learning mathematics.

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