International Journal of Academic Research and Development
ISSN: 2455-4197
Impact Factor: RJIF 5.22
www.academicsjournal.com
Volume 3; Issue 2; March 2018; Page No. 1267-1269

Effectiveness of demonstration on pupil's achievement in mathematics

Dr. R Muthaiyan[1], S Anbuselvan[2]
[1] Assistant Professor, Department of Education and Management, Tamil University, Thanjavur, Tamil Nadu, India
[2] Ph.D., Research Scholar, Department of Education and Management, Tamil University, Thanjavur, Tamil Nadu, India

Abstract
Demonstrating is the process of teaching through examples or experiments. For example, a science teacher may teach an idea by performing an experiment for students. A demonstration may be to prove a fact through a combination of visual evidence and associated reasoning. The present study has investigating the hard parts in mathematics and the construction of Demonstration method at high school level and it found that the effectiveness and utilization in the case of achievement in mathematics.

Keywords: effectiveness, achievement in mathematics, high school, demonstration

Introduction

Demonstrating is the process of teaching through examples or experiments. For example, a science teacher may teach an idea by performing an experiment for students. A demonstration may be to prove a fact through a combination of visual evidence and associated reasoning.

Demonstrations are Similar to written storytelling and examples in that they allow students to personally relate to the presented information. Memorization of a list of facts is detached and impersonal experience, whereas the some information, convey through demonstration help to raise student interest and reinforce memory retention because they provide connections between facts and real-world applications of those facts. Lectures, on the other hand, are often geared more towards factual presentation than connective learning.

The term demonstration of learning refers to wide variety of potential educational Projects, Presentations, or Products through which students demonstrate what they have learned, usually as a way of determining whether and to what degree they have achieved expect learning standards or learning objectives for a course or learning experience. A demonstration of learning is typically both a learning experience in itself and a means of evaluating academic progress and achievement.

Schools and educators may use demonstrations of learning as a component of a wide variety of educational and instructional strategies, such as authentic learning. Community based learning, project-based learning or proficiency based learning. To name just a few, while demonstrations of learning are diverse in design, purpose, content and execution. They are typically evaluated against a common set of criteria or standards, using a rubric or set of scoring guidelines to ensure consistency during the evaluation process from student to student or demonstration to demonstration or to determine whether and to what extent students have achieved expected learning standards for a particular assignment, lesson, project or course. Demonstrations of learning may be evaluated by a teacher or group of teachers but in some cases review teams or panels of peers community members, and outside experts.

Demonstrations of learning are typically designed to encourage students to think critically solve challenging problems and develop important skills and work habit's such as written and oral communication, public speaking, research, teamwork, planning, self-sufficiency, goal setting or technological and online literacy. Demonstrations of learning may also encourage students to connect their projects to community issues or problems.

Need and Significant of the study

Today we are in grey revolution, the advancement in science and technology has changed the role of education, the role of teacher also changed the force of education. The teacher is the only source of information. However, today, teacher is one of the sources of information. The paradigm shift in the field of education is from teacher-centric to learner-centric; and learner center to be in the paradigm of any teacher at any level of education must adapt their relationship with the learner, switching from dispensing information to helping learners by guiding them rather than molding.

An appropriate educational technology in the hands of competent teachers can ensure better teaching learning process. At present, the role of the teachers in educating the pupils 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 levels of understandings, to develop the interest on 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. Moreover, 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. Teaching and Learning are the most important processes in our educational system. Learning is the process of changing behavioral tendencies of the learner. The method of teaching

differs from teacher to teacher; their aim is to reach the goals. For this purpose, teachers use various techniques, plans and strategies, which can match the objectives of teaching, as well as, those of pupils learning. The teacher can select and use various techniques whenever and wherever required.

The use of such technology in the institutions will motivate the teaching community and create better learning conditions. Hence, keeping all this in view the researcher attempted an experiment to apply self-learning in mathematics at high school level.

Statement of the Problem

"Effectiveness of Demonstration on pupil's Achievement in mathematics".

Objective of the Study

1. To find out the significance of difference between the pre-test and post-test mean scores of the achievement in mathematics of the experimental group.
2. To find out the significance of difference between the post-test mean scores of the achievement in mathematics of the experimental group with respect to sex.
3. To find out the significance of difference between the post-test mean scores of the achievement in mathematics of the experimental group with respect to study Habits.
4. To find out the significance of difference between the post-test mean scores of the achievement in mathematics of the experimental group with respect to parents' educational Qualification.
5. To find out the significance of difference between the post-test mean scores of the achievement in mathematics of the experimental group with respect to parents' occupation.

Hypothesis of the Study

The following of the hypothesis framed for this study

1. There is no significance difference between the pre-test and post-test means scores of the achievement in mathematics of the experimental group.
2. There is no significance of difference between the post-test means scores of the achievement in mathematics of the experimental group with respect to sex.
3. There is no significance of difference between the post-test means scores of the achievement in mathematics of the experimental group with respect to study habits.
4. There is no significance of difference between the post-test means scores of the achievement in mathematics of the experimental group with respect to parent's educational Qualification.
5. There is no significance of difference between the post-test means scores of the achievement in mathematics of the experimental group with respect to parent's Occupation.

Researcher procedure

In the present study experiment, research method was adapted for its suitability and accuracy. Single group of students, namely the experimental group taken for this study. The Demonstration methodused to for experimental group. Pre-test: Treatment: Post-test, was conducted by the experimental group.

Sample of the Study

The present study is concerned only to 8thstandard 50 students are studying in Government High School Pallakollai, Dharmapuri district was treated as experimental group.

Tools Used

Effectiveness of evaluation largely depends upon the accuracy of measurement. Accuracy of measurement in turn depends on the precision of the instrument or tool. The researcher himself prepared a achievement test in mathematics scale with guidance of the expect committee.

Statistical Techniques used in the Study

Statistical techniques serve the fundamental purpose of the descriptive and inferential analysis. The researcher used the following statistical techniques for analyzing the data.

1. Mean and Standard Deviation
2. 't'-test and F-test

Testing the hypothesis

Hypothesis-1

There is no significance difference between the pre-test and post-test mean scores of the achievement in mathematics of the experimental group.

Table 1: The hypothesis was tested using't'-test,

Group	N	Mean	S.D	SE_D	$\|m_1-m_2\|$	't'-Value	Level of Significance
Pre-Test	50	30.1875	6.0334	0.9293	64	68.8690	0.01
Post-Test	50	94.1875	2.6033				

The above table shows that the computed value of 't' (68.8690) is greater than the critical value of 1.96 at 0.05 level of significance. Hence, it is significant consequently, the null hypothesis is to be rejected, and it can be said that, there is a significant difference between the pre-test and post-test mean scores of the achievement in mathematics. It also inferred that the effectiveness of Demonstration method on achievement in mathematics compared to traditional method.

Hypothesis-2

There is no significant difference between the post mean scores of the achievement between the post mean scores of the achievement in mathematics of the experimental group with respect to sex.

Table 2: The hypothesis was tested using't' test

Group	N	Mean	PSD	SE_D	$\|m_1-m_2\|$	't'-Value	Level of Significance
Male	25	94.4286	2.6033	0.6936	0.9286	1.3388	N.S
Female	25	93.5000					

The above table shows that the computed value of't'(1.3388) is less than the critical values of 1.96 at 0.05 level of significance. Hence, it is not significant consequently, the null hypothesis is not to be rejected, and it can be said that there is no significant difference between the post-test mean scores of the achievement in mathematics of the experimental group with respect to sex.

Hypothesis-3

There is no significant difference between the post-test mean scores of the achievement in mathematics of the experimental group with respect to parents' educational qualification.

The hypothesis tested using 'F' test.

Table 3: Anova Table

Source of Variation	Sum of Squares	df	Mean Variance of Squares	F-Value	Level of Significance
Sample Between	3842.6542	4	960.6636	0.7584	N.S
Within Sample	57001.401	45	1266.6978		

The above table shows that the computed value of 'F' (0.7584) is less than the critical values of 0.05 level. Hence, it is not significant consequently, the null hypothesis is not to be rejected and it can be said that, there is no significant difference between the post-test mean scores of the achievement in mathematics of the experimental group with respect to parents' educational qualification.

Hypothesis-4

There is no significant difference between the post-test mean scores of the achievement in mathematics of the experimental group with respect to parents' occupation.

The hypothesis was test using 'F' test,

Table 4: ANOVA Table

Source of Variation	Sum of Squares	df	Mean Variance of Squares	F-Value	Level of Significance
Sample Between	4211.8950	3	1403.965	1.4673	N.S
Within Sample	44014.4415	46	956.8357		

The above table shows that the computed value of F (1.4673) is less than the critical value at 0.05 level. Hence, it is not significant consequently, the null hypothesis is not to be rejected, and it can be said that, there is no significant difference between the post-test mean scores of the achievement in mathematics of the experimental group with respect to parents' occupation.

Summary of Findings

The following are the findings of the present study

1. It inferred that the effectiveness of Demonstration method on achievement in mathematics was higher compared to traditional method.
2. There is no significant difference between the post-test mean scores of the achievement in mathematics of the experiments group with respect to sex.
3. There is no significant difference between the post-test mean scores of the achievement in mathematics of the experiment group with respect to parents' educational qualification.
4. There is no significant difference between the post-test mean scores of the achievement in mathematics of the experimental group with respect to parents' occupation.

Conclusion

The present study has investigated the hard parts in mathematics and the construction of Demonstration method at high school level and it found that the effectiveness and utilization were very high in the case of achievement in mathematics. Since, Demonstration method is having effectiveness on achievement in mathematics.

References

1. Aggarwal YP. Statistical methods: concepts, application, and computation. New Delhi: Sterling Publishers Private Limited, 2002.
2. Best W John. Research in Education. New Delhi: Prentice Hall of India Private Limited, 1975.
3. Muthaiyan R. Effectiveness of e-Content in Physics at tertiary level. DDE project submitted to Tamil University, Thanjavur, 2012.
4. Muthaiyan R. Effectiveness of self-learning by doing on pupil's achievement in angles. Seminar proceedings, M.A.M. College of Education, Trichirappalli, Tamil Nadu, 2012.