IMPROVING ACADEMIC ACHIEVEMENT OF VIII STANDARD STUDENTS IN THE CONCEPT ELECTRICITY USING SIMPLE EXPERIMENTS

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INTRODUCTION

Science subject is related to our day today life. The main objective of the science subject is to enable the students to develop the knowledge and skills in their life. To get knowledge and understanding, direct experience plays avital role ratherthan rote learning. The process and ideas of science subject are of great importance to everyone and influence their personal life. The major purpose of science education is to increase the flow of science specialist, scientists and engineers. This can be achieved by motivating the students to learn science. The school students are naturally curious, which makes science an ideal subject for them to learn. Science allows students to explore their world and discover new things through activities such as experiments.

NEED AND SIGINIFICANCE OF THE STUDY

Science experiments can help them to understand the process of scientific investigation and develop their understanding the concepts. The experiments can engage students and help them to develop important skills such as scientific investigation and understanding the concepts. Generally the upper primary students were not allowed to do science experiments in the class rooms. Thescienceteacher usually demonstrates the experiments in the class. The researcher is being a teacher educator, he had an interactionwith the students and teachers. The researcher came to the conclusion that electricity concepts are very difficult for the VIII standard students and teaching these concepts using simple experiments would increase the understanding and academic achievement of the students.

CAUSES OF THE PROBLEM

The following are the causes of the problem.

1. Generally students were not allowed to do the experiments. The science teacher demonstrates the experiments.

2. So students are trying for rote memory without understanding the concepts. So they feel very difficult and came to the conclusion that the science subject is very difficult.

STATEMENT OF THE PROBLEM

The statement of the problem may be stated as"improving academic achievement of VIII standard students in the concept electricity using simple experiments.

OBJECTIVES

1. To develop the studentsunderstanding in the concept electricity through simple experiments.
2. Toimprove the academic achievement of the students in the concept of electricity.

HYPOTHESIS

There is a significant difference between the pre test and post test marks of the eighth standard students in their academic achievement in the concept electricity.

DESIGN OF THE STUDY

Table shows the schematic presentation of the experimental design.

Sl.No	TYPE	SOURCE
1.	Nature of Experiment	Pre-Post test-experimental Method-single group Treatment
2.	Tools used	Achievement test(Pre and Post Test)

3.	Sample	27 students from VIII standard of G.H..School Vetriyur inThirumanur block.
4.	Variables	1Simple experiments. (Independent variable) 2.Achievement test marks(Dependent variable)
5.	Data analysis	1.Calculation of Mean and SD 2.Calculation of effect size

SAMPLE

All the 27 students studying in eighth standard will be selected as sample.

CONDUCTION OF PRETEST

There is a test conducted to know the students' achievement marks at the entry level of the eighth standard in the lesson electricity.

CONDUCTION OF EXPERIMENTS

The lesson electricity in VIII standard consists of some experiments. Seven experiments were selected and equipments were purchased. The DIET Faculty explained the experiments and videos of the experiments also shown. Then the students were allowed to carry out the experiments individually. When the students were allowed to do the experiments, the researcher and the subject teacher explain the concept in the particular experiment. Then the students are able to understand the concepts easily and doing the experiment again and again. The students are really delighted and carry out the experiments. The experiments were

1. Transfer of charges by friction (comb)
2. Transfer of charges by friction (balloon)
3. Gold leaf electroscope experiment
4. Electroplating experiment

5. Series circuit
6. Parallel circuit
7. Transfer of charges by conduction

CONDUCTION OF POST TEST

The experimentation may need three-five days. After the experimentation using the simple experiments there was a test conducted to know the level of achievements of the students in the same lesson. Both the pre test and post test questions were prepared separately.

DATA ANALYSIS

The data collected using the pre test and post test were analyzed using appropriate statistical technique.

Table shows the Mean, S.D. and Effect Size values for Pre test and Post test scores of eighth standard students

TEST	N	Mean	M1-M2	S.D	EFFECT SIZE
Pre Test	27	32.96	-31.59	22.67	1.25
Post Test	27	61.37			

EFFECT SIZE

Now a day's Effect size is used instead of "t" test to find out the significance.

Formula for Effect size = $\frac{\text{'M1-M2}}{\text{PSD'}}$

M1= Mean of the first group (Pre test)

M2= Mean of the second group (Post test)

PSD= Pooled Standard Deviation (i.e. - combined S.D of first and second group)

$$\frac{32.96 - 61.37}{22.67}$$

The mean of the pretest is = 32.96

The mean of the post test is= 61.37

The difference between the mean of the pretest and post test is = 28.41. The standard deviation of first and second group is (PSD) = 22.67

If the effect size value is above 0.60, it is significant. Here the calculated effect size value is 1.25. So, it is significant.

FINDINGS

The mean scores of the post test were increased considerably for the students (difference=28.41) and the effect size value is above 0.60.So the academic achievement is increased by the use of simple experiments. So the hypothesis is accepted. There is a significant difference between the pre test and post test marks of eighth standard students in their academic achievement.

DELIMITATIONS OF THE STUDY

1. This study is conducted for the lesson electricity in the eighth standard science subject only.
2. Similar simple experiments may be prepared and used for the other science lessons and the students will understand the concepts clearly and easily.

EDUCATIONAL IMPLICATIONS

1. Allow the students to carryout experiments themselves will increase their interest.
2. The students understand the concepts easily when they are doing the science experiments

WEB RESOURCES

https://www.youtube.com/watch?v=677PQitX7Fk

https://www.youtube.com/watch?v=MgBPQbXqN6c