



EFFECT OF USING SCIENCE LAB EQUIPMENTS ON THE ACHIEVEMENT IN SCIENCE AMONG THE STUDENTS OF STANDARD IX

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ABSTRACT The aim of the study to find out the Effect of Using Science Lab Equipments on the Achievement in Science among the Students of Standard IX. The present study belongs to single group experimental method and the data was collected using Achievement Test in Science from the selected sample of 57 students studying IX-A in Government Higher School, Lalkudi through purposive single group sampling technique. The statistical techniques used to analyze the collected data were Mean, Standard Deviation and 't'-test. Salient findings of the study were i. The level of Effect of Using Science Lab Equipments on the Achievement in Science among the Students of Standard IX is high. ii. The male and female students are having similar level of post –test scores on Achievement in Science.iii. The Urban Students are having higher level of Achievement in Science than the Rural Students.

KEYWORDS :

INTRODUCTION

Science is one of the core components of the school curriculum. That is why, science as a separate subject has been incorporated in school curriculum. Science as a compulsory subject in school curriculum was done with the view to develop scientific attitude, scientific temperament, critical thinking active inquiry, independent work and understanding the physical world from different perspectives. Science also relies on influence and interpretation, experimentation often involving quantitative measurement as a tool to discover theoretical principle should be an important part of science teaching.

Science is a key of individual, social, cultural, industrial, economic, and national development. Science is a basic and essential part of everyday life. To develop knowledge and field of science, inculcation of scientific attitude scientific thinking and attitude towards science is essential. But it is shocking that most of youth of our nation are missing to attain scientific knowledge, scientific attitude and science interest and attitude.

Science is that knowledge which is received by the intellect and transmitted to others by the medium of words. We can say that science is the knowledge in its essence. The teaching of science offers students the ability to access a wealth of knowledge and information which will contribute to an overall understanding of how and why things work like they do. Science is able to explain the mechanics and reasons behind the daily functioning of complex systems, which range from the human body to sophisticated modern methods of transport. "Education should help the individual not only in acquiring knowledge and its application but also in developing a scientific temper and rational world view."

NEED FOR THE STUDY

Science Education can provide patience, honesty, humility, respect for logic, and consideration for consequence and understanding causal relationship, all these attributes can be seen as scientific attitudes. Teaching science in secondary classes is carried out by the active learning method. Science has introduced us to new ways of thinking, knowledge, reasoning and problem solving. It has to sharpen intellectual. Even though it is a time swallowing process it is very useful to develop the creativity and scientific aptitude and attitude of the students. Scientific methods are more involves reflecting thinking, problem solving and results from the achievement of certain abilities of skill and attitude. Scientific attitude, which is mental ability, is a collection of many qualities of which are peculiar to the study of science. The teacher here is a demonstration and a man of science to provide the necessary science lab material and using it our class room. It is through the essential attitude are developed. Science curriculum developers should focus on improving students' attitudes toward science and scientists. Scientific personalities were persons who possess good Scientific Attitude. Since Affective Domain can significantly enhance, inhibit or even prevent student learning,

teachers have great role to increase their effectiveness by considering the affective domain especially Scientific Attitude in planning courses, delivering lectures and activities, and assessing student learning.

OBJECTIVES OF THE STUDY

The objectives of the study were

- To find the out the level of Effect of Using Science Lab Equipments on the Achievement in Science among the Students of Standard IX when a teacher using science lab equipments fully while teaching.
- To find out the significant difference between in Effect of Using Science Lab Equipments on the Achievement in Science among the Students of Standard IX with respect to their Gender and Locality.

HYPOTHESES OF THE STUDY

The hypotheses of the study framed based on the objectives are as follow

- The level of Effect of Using Science Lab Equipments on the Achievement in Science among the Students of Standard IX is Low.
- There is no significant difference between in Effect of Using Science Lab Equipments on the Achievement in Science among the Students of Standard IX with respect to their Gender and Locality

METHODOLOGY

The present study belongs to single group experimental method, as it deals with cause and effect relationship.

i. Sampling Design

Purposive Single Group Sampling Technique was adopted and the data were collected from Government Higher School, Lalkudi.

ii. Size of the sample

The investigator has selected a sample of 57 Students of Standard IX from Government Higher School, Lalkudi.

iii. Variables in the study

Achievement in Science was the dependent variable and Science Lab Equipments used in the experimentation was the independent variable.

iv. Tool Development

The investigator used a tool namely "Achievement Test in Science" which consists of 50 multiple choice items on the selected topics in science. The investigator has followed the procedure to standardize the tool.

v. Data Analysis

The statistical techniques used to analyze the collected data were Mean, Standard Deviation and 't'-test.

Table – 1 Mean and the SD Scores on the Achievement in Science among the Students of Standard IX in Total

S.No	Variables	N	Pre-test		Post-test	
			Mean	SD	Mean	SD
1.	Total Students	57	59.67	16.23	84.24	18.62

From the above table -1 it is noted that the Pre and Post test Mean and Standard Deviation scores of Effect of Using Science Lab Equipments on the Achievement in Science among the Students of Standard IX scores are 59.67 and 6.23, 84.24 and 8.62. The post-test mean scores on Achievement in Science are significantly higher than the pre-test. Therefore the level of Effect of Using Science Lab Equipments on the Achievement in Science among the Students of Standard IX is high.

Table – 2 't' values between the Pre-Test and Post-Test Mean Scores on the Achievement in Science among the Students of Standard IX with respect to their Gender

Gender	Test	N	Mean	SD	t-value
Male	Pre-test	36	57.44	16.98	14.07*
	Post-test	36	81.27	20.15	
Female	Pre-test	21	61.90	15.48	13.20*
	Post-test	21	87.19	17.10	

* Significant at 0.05 level.

It is understood from the above table-2 that the 't' values 14.07 and 13.20 are significant at 0.05 level. The result reveals that the male and female students are having higher level of post –test scores on achievement in science than the pre-test. Hence the framed null hypothesis is found to be rejected.

Table – 3 't' values between the Pre-Test and Post-Test Mean Scores on the Achievement in Science among the Students of Standard IX with respect to their Locality

Locality	Test	N	Mean	SD	t-value
Rural	Pre-test	30	54.93	15.37	15.08*
	Post-test	30	77.96	19.61	
Urban	Pre-test	27	63.70	16.65	12.42*
	Post-test	27	89.55	16.94	

* Significant at 0.05 level.

It is clearly seen from the above table-3 that the 't' values 15.08 and 12.42 are significant at 0.05 level. The result reveals that the male and female students are having higher level of post –test scores on Achievement in Science than the pre-test. Hence the framed null hypothesis is found to be rejected.

Table – 4 't' value between the Post-Test Mean Scores on the Achievement in Science among the Students of Standard IX with respect to their Gender

Gender	Test	N	Mean	SD	t-value
Post-Test	Male	36	81.27	20.15	1.13**
	Female	21	87.19	17.10	

** Not Significant at 0.05 level.

From the above table-4 it is noted that the 't' value 1.13 is not significant at 0.05 level. The result reveals that the male and female students are having similar level of post –test scores on Achievement in Science. Hence the framed null hypothesis is found to be accepted.

Table – 5 't' value between the Post-Test Mean Scores on the Achievement in Science among the Students of Standard IX with respect to their Locality

Gender	Test	N	Mean	SD	t-value
Post-Test	Rural	30	77.96	19.61	2.37*
	Urban	27	89.55	16.94	

* Significant at 0.05 level.

It is obviously seen from the above table-5 that the 't' value 2.37 is significant at 0.05 level. The result reveals that the Urban Students are having higher level of Achievement in Science than the Rural Students. Hence the framed null hypothesis is found to be rejected.

FINDINGS OF THE STUDY

The findings of the study are as follows

- i. The post-test mean scores on Achievement in Science are significantly higher than the pre-test. Therefore the level of Effect of Using Science Lab Equipments on the Achievement in Science among the Students of Standard IX is high.

- ii. The male and female students are having higher level of post –test scores on Achievement in Science than the pre-test.
- iii. The male and female students are having higher level of post –test scores on Achievement in Science than the pre-test.
- iv. The male and female students are having similar level of post –test scores on Achievement in Science.
- v. The Urban Students are having higher level of Achievement in Science than the Rural Students.

IMPLICATION OF THE STUDY

As the study found positive effect of using lab equipments among the students of standard IX, it is understood that the importance of science education and science clubs are to be increased in schools, colleges and throughout society. Virtual laboratory helps school students to learn and develop knowledge and attitude. Provisions are to be created to use virtual science laboratory which are some of the most essential route for students at various levels. Students are able to use this knowledge to understand new concepts, make well-informed decisions and pursue new interests. Science also helps to provide tactile or visible proof of many facts we read about in books or see on the television; this helps to increase understanding and helps children and teenagers to retain that information. Many students find science extremely inspiring and interesting.

CONCLUSIONS

This study may be more useful in developing content, curriculum for enhancing the scientific attitude among all level of students. The evolving innovative teaching techniques and their application in regular classroom may develop scientific attitude. Science teachers have to incorporate appropriate scientific facts during the teaching of science to develop more interest in science and develop positive attitude in students towards science learning, so that students able to better learning in such a way to adjust themselves in the fast developing scientific world. It is very clear that teaching and learning of physics to a greater extent is anchored in laboratory activities due to the fact that it is a subject that should not be taught in abstraction. When more practicals are done, this may lead to more likelihood of students understanding the concepts, principles and laws of physics. But in a situation where reverse becomes the case, teaching will be jeopardized and learning greatly affected. Teachers can adopt various strategies and techniques and gives them hands on experiences in arousing scientific attitude in students that will finally lead to the mastery of content area and better achievement.

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