



An Experimental Study On Improving Understanding of Science Concepts Through Science Experience Activities At Primary Level

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ABSTRACT

Science and technology have become elements of our culture and perhaps the most effective factors of development and therefore have an ever-increasing impact on society. The scientific advances have brought considerable changes in our society and the needs of the modern society have become complex. Further, we have set democratic socialism as our national goal. Our nation has launched a massive programme of education. Primary education is the first type of formal education, which a huge majority of our children receive. At the primary school level, only science can be Introduced and technical education is taught in the secondary level. Science is based on the concepts. The study carried out on the children of primary students to find out the effectiveness of Science Experience Activities to improving the performance of science at the Primary School level.

KEYWORDS

Science Concepts, Science Experience Activities

INTRODUCTION

“A child’s mind is not a vessel to be filled, but a flame to be kindled” - Henry Steele Commager.

Importance of Education at the Primary Level

Ours is an age of science and technology. As a matter of fact, science and technology have become elements of our culture and perhaps the most effective factors of development and therefore have an ever-increasing impact on society. The scientific advances have brought considerable changes in our society and the needs of the modern society have become complex. In view of this fact, primary education assumes more importance. For a majority of our children, it is the only opportunity for gaining the functional literacy which can stand them in good stead in later life. Even if this education is not provided to masses, it is a great injustice to the society. In view of the above importance of Elementary Education, an attempt has been made to increase the percentage of literacy and to raise the standard of education. At the primary school level, only science can be Introduced and technical education is taught in the secondary level. Science is based on the concepts. The ‘body’ of science is built by the concepts as the cells’. So, the understanding of science concept through the science experience activities among primary school children is a necessary follow up activity.

CONCEPT

The object of concepts is to study, organise, manipulate and isolate the properties of objects. The act of isolation of properties requires thinking which can proceed by giving names to such properties. Therefore conceptualization is essential to the process of thought and scientific technique, since it renders precise meaning for communication and brings about economy in the use of language. Concepts are not only basic to scientific method, but they are the foundation of all human communication and thought. Ghosh said that in science, concepts must be communicable in a special sense. They must be constructed in such a way that their components are known. Clarification of the elements of such a construct is the main function of definition, which is considered basic to the general problem of conceptualization. The process of communication

becomes difficult between individuals who do not share the conceptual system. Concepts develop from a shared experience. The development of a conceptual system is very much like the development of a language.

NEED AND SIGNIFICANCE THE STUDY

A review of related literature showed that there are hundreds of studies on science attitudes, science teaching and achievement in science at various levels. However experimental studies exclusively on the effectiveness of science experience activities on learning of science concepts are very rare and that too are at the primary level studies. Therefore the present investigation was planned. If the science experience activities significantly promote understanding of science concepts among primary level students, the finding of the study will help other teachers to use the above strategies in improving the understanding of science concepts.

OBJECTIVES OF THE STUDY

1. To evolve Science Experience activities suitable to science concepts at the primary level.
2. To implement the science experience activities at the primary level.
3. To find out the effectiveness of science experience activities in improving understanding of the science concepts in relation to the variables of the study.

HYPOTHESES OF THE STUDY

Science experience activities significantly improve understanding of science concepts at Primary level.

DESIGN OF THE STUDY

The design of the study was pre-test, post- test, parallel groups design. The independent variable was the science experience activities and the dependent variable was the students’ understanding of science concepts.

SAMPLE FOR THE STUDY

The sample selected by purposive sampling method. The sample selected for the group consisted of 60 children IV standard. Out of 30 children control group from Ramanathan Chettiar High School, Karaikudi and 30 children experimental group from Alagappa Primary School, Karaikudi, Sivagangai District.

METHOD OF THE STUDY

The present study is a parallel group - Pre-test - treatment - Post-test design. Experimental research is the only type of research that can test hypotheses to establish cause-and-effect relationships. In an experimental study, the researcher manipulates at least one independent variable, controls other relevant variables, and observes the effect on one or more dependent variables. The manipulation of the independent variable is the one characteristic that differentiates experimental research from other types of research. The independent variable, also called the treatment, causal, or experimental variable, is the treatment or characteristic believed to make a difference. In educational research, independent variables that are frequently manipulated include method of instruction, type of reinforcement, arrangement of learning environment, type of learning materials, and length of treatment.

DATA ANALYSIS

The relevant data obtained from the responses through criterion reference test for 60 students in the pre-test, progressive test and post-test has been analysed by mean, standard deviation and 't' test to prove the significant effect of the understanding of science concepts. The responses of the primary students were also analysed.

Mean , Standard deviation and t values of control group and experimental group students of Std IV

Standard IV	N	Control Group		Experimental group		t	Level of Significant
		Mean	SD	Mean	SD		
Pretest	30	22.5	3.14	23.5	3.74	1.11	Not Significant at 0.01 level
Progressive Test	30	27.5	4.68	37.66	9.26	5.36	Significant at 0.01 level
Post test	30	31.66	5.62	56	10.93	10.83	Significant at 0.01 level

FINDINGS

There is a difference between the pre test scores of experimental and control group students of standard IV teaching through science experience activities has enhanced the understanding of science concept at First standard level

There is a difference between the progressive test scores of experimental and control group students of standard IV teaching through science experience activities has enhanced the understanding of science concept at First standard level

There is a difference between means pre test scores of experimental and control group students of standard IV is 22.5 and students are almost in the level in beginning of experiment.

CONCLUSION

The study carried out on the children of primary students to find out the effectiveness of Science Experience Activities to improving the performance of science at the Primary School level. This promotes children testing themselves, verifying the activities and suggesting projects on their own. This alleviates their fear of the subject and infuses interest, inquisitiveness and enthusiasm among them. Activities make understanding of the science subject learner-friendly through enjoyable experiences and projects.

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