

Present Status of Science Education in Secondary Schools

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Abstract

This research paper is based on the study conducted on the present status of science education in secondary schools of Palghar district, Maharashtra. The survey method was used for the collection of data from students of secondary schools. The data was then analysed to find the methods of teaching used by teachers in the classrooms and also to know about the status of science education in schools. Measures of central tendency and standard deviation was used as statistical techniques for analysing the data.

Keywords --Science education, Learning, teaching, secondary school students

INTRODUCTION

Our country is a democratic nation with extraordinary diversity. Education is given utmost importance and we do everything possible to make our children educated and become good citizens who can live their life with contentment facing the challenges of life. But it is very much needed that from time to time we should think about the questions like “What is it that we are doing in our engagement with this task? Is it time for us to refresh what we provide to our children in the name of education?” and find answers to them. In this paper a study about the methods and techniques used in our secondary schools for teaching science and the strategies used by our learners is conducted.

Today we live in an age of science and technology. It is very much important for everyone to understand and apply science to his day-to-day life. This is possible only through a systematic process of science learning through school education. So, it is science education that primarily affects the overall understanding of everyone about science in general in their lives.(1) Since the 1950s there have been major reforms in science education with a shift away

from a focus on content and prescribed practical work, to emphasis on inquiry (thinking and working like scientists) and the social aspects of science and on the nature of science. The conventional notion on science education that transferring accumulated knowledge about the universe has been changed almost four decades ago. If our thinking about science is changed then our way of teaching and learning science should also be changed. But how far this is followed in our schools is an important question to be discussed.(2)

REVIEW OF RELATED LITERATURE

In this part, some of the researches that were done to analyse the teaching methods in schools is mentioned.

Abdul Sameer Khan(2019) conducted a study to integrate quality and values in the science teaching-learning process through the use of a self-constructed ten-day orientation programme based on techno-psycho-axiological approach. The study used Multi Case Study Method with Narrative Report writing-up style whereas in quantitative approach Quasi-Experimental Method with One Group Pretest-Posttest Design was used. The results of the

study revealed that the program was effective in enhancing the quality of science teaching process, developing values in students. The academic achievement of the students was also found to be increased due to the training program. This study reveals the significance of such methods to be adopted in our teaching learning process of science.

Bahunlang Tron(2018) conducted a study on science education in secondary schools of Meghalaya. The method adopted for the study was the descriptive cum evaluation method where the emphasis was given to the opinion and information provided by the participants, who were mainly the Heads of schools, the Science teachers and Secondary school students. The sample consisted of 309 principals of different schools, 608 science teachers and 1243 students. Questionnaires and interview schedules were used as tools for data collection. The study revealed that most of the teachers used traditional methods like lecture method and demonstration method to teach science. Reading from the textbook and explaining was the common method adopted by science teachers followed by the lecture demonstration method. Activity method and laboratory method were not at all used by teachers for teaching science. The study also revealed about the library and condition of classrooms in schools which negatively affected science education in schools.

Ranjan Kumar Sahu(2016) conducted a study on science teaching in secondary schools of Odisha. The objectives of the study were to find out the facilities available for teaching science in secondary schools, the opinion of teachers about the science syllabus and textbook, competency of science teachers and problems faced by science teachers in teaching science. Majority of the teachers and students in rural areas were not even getting the textbook in the beginning of the academic year. Due to so many problems, teachers were not using any innovative teaching methods for teaching science in their classes.

STATEMENT OF THE PROBLEM

A study on the present status of science education in secondary schools of Palghar District

OPERATIONAL DEFINITION OF TERMS

Present status: The condition of teaching-learning process of science subject in present days in schools

Secondary schools: Schools with secondary classes or sections. i.e., classes from standard 5 to standard 10 are considered here.

Palghar district: A district in Maharashtra

SCOPE AND DELIMITATIONS OF THE STUDY

In this study, schools in Palghar district affiliated to the state board of Maharashtra are considered. The study was conducted on students of standard 9 as they will be in a condition to say about the science education in till standard 9. Schools affiliated to other boards are not taken in to account.

AIMS OF THE STUDY

To know about the present status of science education in secondary schools of Palghar district

OBJECTIVES OF THE STUDY

1. To study about the present teaching methods used in science education for secondary school students.
2. To know about the expectations of students about science teaching in their classrooms.

DESIGN OF THE STUDY

The method used for the present study was survey method. The researcher constructed a questionnaire and data was collected using the questionnaire.

TOOL FOR DATA COLLECTION

A questionnaire was prepared by the researcher for collecting data. The items of the

questionnaire were prepared after thorough review and discussion with experts in the field of education. The questionnaire consisted of statements and a 5 point scale was provided starting from strongly disagree to strongly agree. It had 1 open-ended question where the students were requested to write the method of teaching their teacher mostly uses in class for teaching science. A pilot study was conducted and the reliability and validity of the questionnaire were established. After discussion with the experts, the questionnaire was made final.

SAMPLE FOR THE STUDY

For the present study, Students of standard 9 of six different schools(affiliated to state board, Maharashtra) of Palghar district were selected through simple random sampling method. The total number of students taken as sample was 268.

TECHNIQUES OF DATA ANALYSIS

- Measures of central tendency
- Standard deviation

FINDINGS AND DISCUSSION OF THE STUDY

FINDINGS:

Table 1 shows the summary of results obtained from students through the questionnaire. The mean of the variable teaching strategies (TS) was found to be 2.4562 and that of learning strategies was found to be 2.3613. The median of teaching strategies was found to be 2.46 and that of Learning Strategies was 2.36.

Table 1: Summary of Descriptive statistics

		Statistic	Std. Error	
TS	Mean	2.4562	.02484	
	5% Trimmed Mean	2.4599		
	Median	2.4667		
	Variance	.113		
	Std. Deviation	.33596		
	Minimum	1.54		
	Maximum	2.54		
	Range	2.00		
	Interquartile Range	.46		
	Skewness	-.172	.180	
	Kurtosis	.088	.357	
	LS	Mean	2.3613	.02302
		5% Trimmed Mean	2.3661	
Median		2.3600		
Variance		.200		
Std. Deviation		.44668		
Minimum		1.96		
Maximum		2.40		
Range		2.44		
Interquartile Range		.56		
Skewness		-.188	.180	
Kurtosis		.170	.357	

DISCUSSION

From the table it is clear that in most of the schools, students are not understanding the concepts of science clearly so that they find any application of the concepts in their life. Students are not getting motivated to learn science. Most of the students are of the opinion that, if science is taught through activity, they understand more clearly.

The five point Likert scale is considered an interval scale. The mean is very significant. If the mean is between 1 and 1.8. it means strongly disagree, if the mean is between 1.81 and 2.60, it means disagree. If the mean is between 2.61 and 3.40 it means neutral and if the mean is between 3.41 and 4.20 it means agree and from 4.21 to 5 it means strongly agree.(3)

From table 3 and table 4, in most of the statements, the mean is less than 3.41. So we can infer that , students does not agree with the positive statements given in the questionnaire as they are not experiencing it in their science classes.

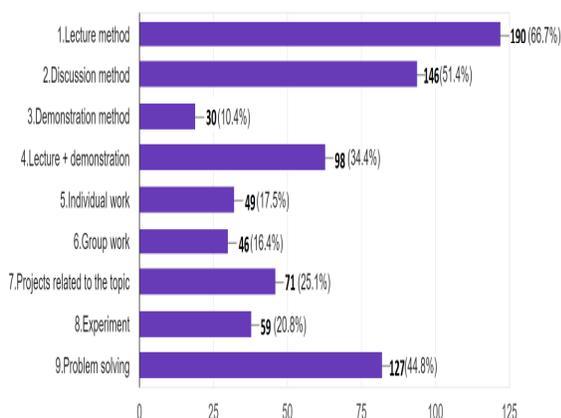
Also it can be concluded that the data is approximately normally distributed.

Figure 1 shown below shows the response of the students about the common methods of teaching that their teacher uses in science teaching.

Figure 1: Method of teaching adopted by teachers in schools

1.Which method does your teacher use while teaching science? (you can select more than one option)

285 responses



From the figure also it is clear that in most of the classes lecture method is followed for teaching science even in this technological era.

CONCLUSION

“It is science alone that can solve the problems of hunger and poverty, of insanitation and illiteracy, of superstition and deadening custom and tradition, of vast resources running to waste, of a rich country inhabited by starving people. Who indeed could afford to ignore science today? At every turn we have to seek its aid.”

Pandit Jawaharlal Nehru

The progress of our nation is based on the progress in the field of science. For this, we should start right from our school education. To create more progressive and productive citizen, science education in our schools should be boosted up. We know that the method of teaching science should be activity-based. The principle of learning by doing is to be applied in our teaching-learning process. Students should be

given experiences based on their daily life and they must be made competent enough to apply the concepts they learn in the classrooms to their life.

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