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Research Article

A STUDY OF ACHIEVEMENT IN PHYSICAL SCIENCE OF SENIOR SECONDARY SCHOOL STUDENTS IN RELATION TO CERTAIN DEMOGRAPHIC VARIABLES IN SAMBHAL DISTRICT OF UTTAR PRADESH

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ABSTRACT

Science is one of the most important and compulsory subjects in the school curriculum. A science student engaged in a human activity is directed towards seeking new knowledge about living and non-living things. Physical science is the branch of science which deals with nature and natural phenomena. As students try to acquire new concepts of nature through practicing or passing through the process of observation. During the process of teaching, the school will inculcate the higher virtues of science teaching such as critical thinking, accurate observation, scientific method and particularly arousing scientific curiosity. It paves way to the career deciding course at plus two stage. The acquisition of the knowledge of scientific terms, principles and concepts, a clear understanding of them, the ability to use such knowledge in different situations in the life and in the development of skills should be the outcomes of teaching and learning of science. There is a need for awareness in science for the full fledged development of a child. Considering the importance of science, "A Study of achievement in physical science of senior secondary school students in Sambhal District of Uttar Pradesh has been undertaken. For this purpose descriptive survey method of research was used. A Sample of 130 senior secondary school students were randomly selected for six different schools located in Sambhal district. The methodology of the study includes 't' test.

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INTRODUCTION

The effect of science is quite obvious all around us. Science has brought about a change in our life style and also tremendous changes in our way of thinking, attitudes, outlook, etc. Science has become a part of our daily lives; all day, every day, and also wherever we go. Science is playing a major role in the present age to satisfy the needs and desires of the people and it has become one of the human activities. Study of science develops our ability to generate many questions, collect information, organize and test our ideas, problem solving and apply what we learn. Not only these but also science has built a platform for building confidence, developing communication skills, and making science of the world around. Science is a way of knowing and thinking about the natural and physical world. Science covers the broad field of knowledge that deals with observed facts and the relationship among those facts. Observing, measuring, inferring, classifying, predicting, and communicating are some of the skills fundamental to science. They are not only integral to science investigations, solving problems, and making decisions; but also they contribute to science as a body of knowledge and a way of knowing. For the

same reason teaching of Science has become an unavoidable part of general education. In addition, Science inculcates intellectual, cultural, aesthetic, moral, utilitarian as well as vocational value to the citizen living in the society.

Science helps in satisfying the natural curiosity with which we all are born. And it is only with science that we can find how nature is operated. It also specifies new natural laws through experimental work and using chain of evidence. And all these can be learned in a systematic, logical, though oriented process through study of science. Specific observations, logical thinking, spirit of investigation, enquiry, and skill of asking questions are promoted through study of science only.

These can be developed among students of secondary schools through science teaching and learning in the classrooms. Science has been recognized as a compulsory subject right from the elementary stage and as one of the core subjects at secondary and at senior secondary stages. It has taken a good many years of active and persistent effort to reach this position, because of its multifarious values gifted to the individual as well as to the society. The students can become more independent or self-directive in their learning. These

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learning help children to meet their basic need and also give a kind of satisfaction that cannot be achieved in any other way. If properly taught, science can and will help all children understand how to learn. Considering science from the intellectual point of view, it is the most inexhaustible store house of knowledge. Since nature is an inexhaustible source of knowledge, science as a subject, offers the widest range of knowledge to the learners.

The teaching of science is generally divided into two main categories:

1.) Biological Sciences and 2.) Physical Sciences

Physical Sciences: Physical Sciences i.e. Physical and Chemistry---include those branches of science which are related with the study of non-living material. Physics is the branch of science which deals with nature and natural phenomenon. It is the science which explains natural phenomenon or the behavior of a natural system on the basis of established laws of nature. Physics is the study of the properties of matter and energy concerns both, the macroscopic and microscopic state of matter.

Since the word achievement implies a value judgment, it is understood that any particular learning or behaviour that is learned may come within the scope of achievement. A science student engaged in a human activity is directed towards seeking new knowledge about living and nonliving thoughts. A student tires to acquire new knowledge about living and non-living things. A student tries to acquire new concepts of nature through practicing science or passing through the process of observation. Today, the science students are not concerned with the memorization of facts alone. They are interested in relating facts, to the understanding of a given process. A problem solving attitude prevails among the students. Hence science should be learned and taught as a process of enquiry. The whole society accepts the importance of science. Considering the importance of science, the achievement of senior secondary school students in science was taken into consideration for a detailed investigative study.

Objectives for the Present Study

The present study was done considering the following objectives:

1. To find out the level of achievement in physical science of senior secondary school students.
2. To find out the influence of following variables on achievement in physical science of senior secondary school students.
 - i. Gender
 - ii. Type of School
 - iii. Residence

Hypotheses

The hypotheses which are framed for the present study are as following:

1. There is no significant difference in achievement in physical science of boys and girls of senior secondary schools.

2. There is no significant difference in achievement in physical science of private and government senior secondary schools.
3. There is no significant difference in achievement in physical science of urban and rural senior secondary schools.

Design and Methodology of the Study

Descriptive survey method of research has been employed for undertaking the present study. Through stratified random sampling technique, a sample of 130 senior secondary school students were selected for the present study. Sampling was collected through lottery method from six different schools of Sambhal District of Uttar Pradesh. Sample was collected from government, and private schools of Sambhal consisting of boys and girls of rural and urban senior secondary students

Sample Design

S. No.	Name of the School (Sambhal)	No. of Students	
		Boys	Girls
1.	Bal Vidya Mandir Senior Secondary School	5	10
2.	Al Qadeer Senior Secondary School	15	10
3.	St. Mary's Senior Secondary School	15	15
4.	Tahir Husain Senior Secondary School	7	8
5.	Al- Hind Inter College	8	7
6.	Lubna Senior Secondary School	15	15

Tools Used for the Study

To measure the achievement in physical science, marks of board examination were taken into consideration. It is done as there is no standardized achievement test available, and the board examination is conducted by a state level committee constituted by the Government of Uttar Pradesh.

Statistical Analysis

The mean scores are considered so as to compare the sub-sample variation in achievement levels. The values of standard deviation are applied to identify the dispersion of scores in each case. The data was analyzed using the 't' test.

Data Interpretation and Analysis

To Study Achievement in Physical Science possessed by the whole sample

Table 1 Level of Achievement in physical science possessed by the whole sample

Sample Size	Mean	Standard deviation
130	47.9	23.21

It can be seen from table-1, that the students of senior secondary schools hold average level of achievement in physical science.

Hypothesis-1: There is no significant difference in achievement in physical science of boys and girls of senior secondary schools.

Table 2 Comparison of achievement in physical science of boys and girls

S.No.	Category	N	Mean	S.D.	't' value
1.	Boys	65	51.66	21.49	0.69*
2.	Girls	65	46.14	22.77	

*Not Significant at 0.01 level

From the above table-2, it can be seen that there is no significant difference between the level of achievement in physical science possessed by boys and girls. The difference is not significant as the obtained 't' value (0.66) is less than 't' table value (2.58) at 0.01 level of significance. Both the boys and girls are with average achievement. The achievement in physical science is average in both the groups.

Hypothesis-2: There is no significant difference in achievement in physical science of private and government senior secondary school students.

Table 3 Comparison of achievement in physical science in senior secondary school students of private and government schools

S.No.	Category	N	Mean	S.D.	't' value
1.	Private	40	68.15	23.4	6.93*
2.	Government	90	37.32	17.8	

*Significant at 0.01 level

From the above table -3, it is evident that there is significant difference in the level of achievement of physical science possessed by senior secondary school students studying in private and government schools. The students studying in private schools are found far better in holding achievement in physical science than those of government schools. Senior secondary school students of government schools are found to be with below average in physical science achievement.

Hypothesis-3: There is no significant difference in achievement in physical science of rural and urban senior secondary schools students.

Table 4 Comparison of achievement in physical science in the senior secondary students of rural and urban schools

S.No.	Category	N	Mean	S.D.	't' value
1.	Rural	60	37.65	15.65	4.62*
2.	Urban	70	57.40	23.10	

*Significant at 0.01 level

From the above table 4, it can be seen that there is significant difference between the level of achievement in physical science possessed by both rural and urban senior secondary school students. It can be seen that urban senior secondary school students are relatively better in holding physical science achievement than rural senior secondary school students.

CONCLUSION

From the present study it is observed that the student studying in senior secondary schools hold an average level of achievement in physical science. No significant difference is found between the levels of achievement in physical science possessed by boys and girls. But the variables--Residence and Type of School had significant difference in the level of achievement in physical science, and thus hypothesis is rejected. It can be seen that students of urban senior secondary

schools hold high achievement in physical science that those of rural senior secondary school students.

Education Implications of the Study

Based on the findings of the present study some suggestions are worth mentioning. Science is one of the important and compulsory subjects in the school curriculums and it occupies important place in the senior secondary schools. It helps the students to decide their study subjects at plus two stage. So there must be good achievement in science at senior secondary school level itself. And this achievement depends on students' interest in science, class environment, usage of laboratories and libraries, use of audio---visual aids in teaching learning situations etc. If these are provided and implemented properly, then there will be a good and higher achievement. It is a known fact that facilities in urban areas and private schools are better than those of rural and government schools. If the above requirement is implemented in well mannered way by the government schools and also in rural areas it will definitely be helpful in gaining higher achievement. It is found that boys are holding higher achievements in physical science than girls, so the teachers must help girls in achieving well in science examinations. Good library, laboratories, teaching and learning aids, must be provided for better results in all senior secondary schools irrespective of their location.

Suggestions for Further Research

Based on the present study, a good number of new thrust areas can be identified and studied by the future researchers. The areas, variables and other factors which are not covered by this study may be put to test associating with achievement. Critical observations can also be taken up at different levels, students studying in State and Central Government schools, also need to identify the influence of educated and uneducated parents on students' achievement, and also should find out the effect of digital and smart classroom on achievement of the students in other science subjects like Mathematical science and Biological science.

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