



Influence of Scientific Aptitude on Achievement in Science of IX Standard Boys and Girls

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ABSTRACT

The study was undertaken with the objective of studying the influence of Scientific Aptitude on Achievement in Science of standard IX boys and girls in Pondicherry region. The present study was conducted on a sample of 128 boys and 192 girls from 7 schools in Pondicherry region. Scientific Aptitude Test constructed by Dr. Nagappa, P.Shahapur and Dr.C.R.Rao was administered. The mean, median, mode and standard deviation of scientific aptitude scores of IX standard students are found to be 38.64, 39.00, 39.00 and 7.60 respectively. The mean score indicates that the students' scientific aptitude is low. Also it is found that the level of Achievement in Science is computed to be 0.498, which is significant at 0.05 level.

KEYWORDS

Scientific Aptitude, Achievement, Science, IX Standard

INTRODUCTION

We are living in a society which is completely drawn into the scientific environment. The term science may be thought of an approach to the gathering of knowledge rather than as a field or subject matter. Science has become an integral part of our life and living. Now, we cannot think of a world without science. The wonderful achievements of science have glorified the modern world and transformed the modern civilization into a scientific civilization.

Science is no longer confined to a few seriously devoted persons. Since life in the present world invariably warrants, to variable degrees, knowledge of scientific facts and laws, science has now become every day science for everybody. In addition science inculcates certain special values such as intellectual, cultural, moral, aesthetic, utilitarian as well as vocational values peculiar to it, which no other subject can provide.

NEED FOR THE STUDY

The Scientific Aptitude in use implies that persons possessing certain characteristics can be identified and that many individuals can succeed in scientific endeavour. These characteristics include mental activity, creative abilities and capacity for critical thinking, ability to see relationship, suspended judgement and open-mindedness. The Scientific Aptitude predicts achievement of Science plays a major role in inculcating hope for continuous and progressive welfare. The strength of a modern economy depends on the strengths of its industry and industrial development. It depends upon technology and on the application of new scientific knowledge. At the same time, the nation's progress, welfare and prosperity also depend on a rapid, planned and sustained growth in the quality and extent of education and research in science and technology (Kothari Commission (1964-1966)).

Science plays a major role in the present age to satisfy the needs and desires of the people. It is valued mostly for its practical advantages it brings with it. Earlier students were encouraged to study the classics and mathematics as suitable subjects, but now science has established its claim in the school curriculum. It has now been recognized as a compulsory subject right from the elementary stage and now as one of the core subjects at secondary and higher secondary stages.

Science in curriculum provides certain values which are not provided by any other subject. It affords knowledge of certain facts and laws and an insight into methods and data peculiar to the domain of science. The Scientific Aptitude plays a major

role in science education, and in the lives of pupils pursuing science education. Science has become a compulsory subject in school curriculum, and is trying to inculcate Scientific Aptitude besides preparing the pupils for leading quality life.

OBJECTIVES OF THE STUDY

The objectives of the present study are

- To study the level of Scientific Aptitude of standard IX students.
- To study the level of Achievement in Science of standard IX students
- To find out the significant differences, if any, in the scientific aptitude and Achievement in Science of boys and girls.

HYPOTHESES OF THE STUDY

The level of Scientific Aptitude of standard IX students is not high.

The level of Achievement in Science of standard IX students is not high.

There is no significant difference between boys and girls in their Scientific Aptitude.

There is no significant difference between boys and girls in their Achievement in Science.

SAMPLE OF THE STUDY

In Puducherry region seven schools were selected for the present study. The sample consisted of 320 students of which 128 were boys and 192 were girls.

TOOLS

The tools used in the study were

1. Scientific Aptitude Test (S A T) by Dr. Nagappa P.Shahapur and Dr.C.R.Rao
2. Achievement in Science.

STATISTICAL TECHNIQUES USED

The data collected by the researcher from the sample were analysed statistically. In the present study the relevant data collected were the scores of Scientific aptitude and Achievement in Science secured by 320 students of standard IX from Puducherry Region. These data were analysed employing the following statistical tools to arrive at meaningful conclusions.

The Statistical Techniques used were

Descriptive analysis

Correlation analysis

RESULTS AND DISCUSSION

The Mean, Median Mode and Standard Deviation of the Scientific Aptitude test of standard IX students (N=320) are found to be 38.64, 39.00, 39.00 and 7.60 respectively.

Table-1

Variable	N	Mean	Median	Mode	S.D
Scientific Aptitude	320	38.64	39.00	39.00	7.60
Achievement in Science	320	38.09	38.00	30.00	11.68

The obtained range is 0 to 80. The calculated Mean (38.64) of Scientific aptitude is lesser than the scale average (40.00). Therefore the level of Scientific Aptitude of standard IX students is low. Hence, the null hypothesis is accepted. It is concluded that the level of Scientific Aptitude among standard IX Students is not high.

The Mean, Median, Mode and Standard Deviation of standard IX students' Achievement in Science are 38.09, 38.00, 30.00 and 11.68 respectively.

The calculated mean 38.09 of Achievement in science is lesser than the average 40.00. Therefore the level of Achievement in Science is not high. Hence, the null hypothesis is accepted. It is concluded that the level of Achievement in Science of standard IX students is low.

Table – 2
Mean and standard deviation of Scientific aptitude

Variables	Sub-sample	N	Mean	S.D	M.D	't' value	Sig.level (0.05)
Scientific Aptitude	Boys	128	34.45	8.26	3.43	2.60	S
	Girls	192	41.43	5.60			
Achievement in Science	Boys	128	36.02	11.84	3.43	2.60	S
	Girls	192	39.45	11.39			

The mean scores of Scientific Aptitude of boys (N=128) is 34.45 and Standard Deviation is 8.26. The Mean Scores of Scientific Aptitude of girls (N=192) is 41.43 and Standard Deviation is 5.60.

The mean difference 3.43 between the mean scores for boys and girls in Scientific Aptitude is found to be significant at 0,05 level for 298 df. As the calculated 't' value 2.60 is greater than the table value 1.96 at 0.05 level of significance, the null hypothesis is rejected.

Therefore rejecting the null hypothesis, it is concluded that there is a significant mean difference between boys and girls in their Scientific Aptitude.

The mean scores of Achievement in Science of boys is 36.02 and Standard Deviation is 11.84. The Mean Scores of Achievement in Science of girls is 39.45 and Standard Deviation is 11.39.

The mean difference 3.43 between the mean scores for boys and girls in their Achievement in Science is found to be significant at 0, 05 level for 318df. As the calculated 't' value 2.60 is greater than the table value 1.96 at 0.05 level of significance, the null hypothesis is rejected.

Therefore rejecting the null hypothesis, it is concluded that

there is a significant mean difference between boys and girls in their Achievement in Science.

MAJOR FINDINGS

Major findings of the study are as follows:

1. The level of Scientific Aptitude is low of standard IX students in Puducherry Region as their Mean score 38.64 is below average.
2. The level of Achievement in Science of standard IX students in Puducherry Region is low as their Mean score 38.09 is below average.
3. The boys and girls differ significantly in their scientific aptitude and Achievement in Science.

RECOMMENDATIONS

As Scientific Aptitude is a potentiality for future achievement in a scientific endeavour, it is necessary to develop Scientific Aptitude among the students.

The results of many researches prove that there is a positive relationship between Scientific Aptitude and Achievement in Science, students can be trained in scientific aptitude to get more achievements in their science subjects.

SUGGESTIONS FOR FURTHER RESEARCH

The study can be conducted for Tamil medium students also.

A study could be conducted to study the relationship of Scientific Aptitude with intellectual and psychological factors.

CONCLUSION

It is concluded that the level of Scientific Aptitude is not high.

The level of Achievement in Science is low.

It is found that the girls have higher scientific aptitude than that of the boys.

It is also found that the girls have higher achievement in science than that of the boys.

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