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ACADEMIC ACHIEVEMENT AND SCIENTIFIC APTITUDE IN SCIENCE AMONG THE STUDENTS OF STANDARD-X

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Abstract: *The investigator attempted to find out the significant relationship between Academic Achievement and Scientific Aptitude in Science among the Students of Standard X. Scientific Aptitude Inventory was developed and Academic Achievement in Science Test as a tool was used to assess the Variables for this study. The Investigators employed Stratified Random Sampling Technique for the selection of the sample. The size of the sample consists of 6 government schools, 4 aided schools in Perambalur District which 30 students from each school are selected. The total size of the sample for this present study was 300 students. The major findings of the study revealed that the aided school students are having higher Scientific Aptitude compared to the government school students. The urban school students are having higher Scientific Aptitude compared to the rural schools students. The female students are having higher Scientific Aptitude compared to the male students. The urban school students are having higher Academic Achievement in science compared to the rural school students.*

Key words: academic achievement, scientific aptitude, science

INTRODUCTION

The Dictionary of Psychology (1934) specifies that "Scientific Aptitude is a condition or set of characteristics regarded as symptomatic of an individual's ability to acquire with training some knowledge, skill or set of response". In the present study scientific aptitude is defined as the present condition which is indicative of individuals' potentialities for the future. It is a device designed to indicate a person's potential ability for performance of certain type of activity of a specialized kind.

REVIEW OF RELATED LITERATURE

The investigator has reviewed few studies related to the topic under investigation. Spleke (2005) concluded that males have a profile of spatial and numerical abilities producing greater aptitude for mathematics. Shri Vastava Veen (1992) have found that Attitudes Science student of Higher secondary classes having more scientific aptitude were more creative that those having less scientific aptitude. Benny (1990) studied 400 second year PUC students and found a significant relationship between critical thinking, scientific aptitude and socio-economic status to achievement in science. Found a Sex differences in achievement in science favoring males existed. Rao Digumarti Bhaskara (1990) in this study investigator concluded that scientific aptitude in secondary school pupil was also average. The pupils of private school and urban schools and English medium schools and residential schools help a bit more scientific aptitude. Zacharia (1980) have found that a high correlation between the secondary school pupils achievement in social studies. The pupils' interest in social studies was closely related in their achievement at all levels of pupils. Sharma (1975) the study revealed that there was a significant difference between the performance of boys and girls on the test in general science. The girls were superior to the boys in the subject.

OBJECTIVES OF THE STUDY

- To study the Significance of difference in the Mean Values of Scientific Aptitude and Academic Achievement in Science among Government and Aided school students.
- To find out the Significance of difference in the Mean Values of Scientific Aptitude and Academic Achievement in Science among Rural and Urban school students.
- To study the Significance of difference in the Mean Values of Scientific Aptitude and Academic Achievement in Science among male and female.
- To study the Significance difference between Scientific Aptitude and Academic Achievement in Science among male.

HYPOTHESES OF THE STUDY

- There is no significant difference in the Mean Values of Scientific Aptitude among Government and Aided school students.
- There is no significant difference in the Mean Values of Scientific Aptitude among Rural and Urban school students.
- There is no significant difference in the Mean Values of Scientific Aptitude among male and female.
- There is no significant difference in the Mean Values of Achievement in Science among Rural and Urban school students.

METHODOLOGY

Sampling techniques

The present study was a survey type research. In this study, the Investigator employed Stratified Random Sampling Technique for the selection of the sample. The size of the sample consists of 6 government schools, 4 aided schools in Perambalur District in which 30 students from each school are selected. The total size of the sample for this present study was 300 students.

Tools Used

For the purpose of measuring the variables selected for the study, the following tools were used by the Investigator.

- **Scientific Aptitude Inventory:** An Aptitude test was constructed by the Investigators.
- **Academic Achievement in Science Test:** An Academic Achievement Test in Science was constructed by the Investigators.

Statistical Techniques Applied

The hypotheses of the study were tested by making an analysis of the collected data with the help of statistical techniques, which are classified as

- Descriptive Statistics - Mean, Standard Deviation
- Differential Statistics – t-test

DATA ANALYSIS AND INTERPRETATION

Hypothesis – 1

There is no significant difference in the Mean Values of Scientific Aptitude among Government and Aided school students.

Table No – 1

Management	N	Mean	Standard Deviation	"t" value
Government	180	16.89	4.081	2.01*
Aided	120	17.75	2.817	

* Significant at 0.05 level

The table no - 1 reveals that the 't' value 2.01 is found to be significant at 0.05 level. From the table, it is observed that the Mean scores of the Aided school students are significantly higher than the Government school students. Hence the framed null hypothesis is rejected.

Hypothesis – 2

There is no significant difference in the Mean Values of Scientific Aptitude among rural and urban school students.

Table No – 2

Location	N	Mean	Standard Deviation	"t" value
Urban	150	18.01	3.243	3.75*
Rural	150	16.46	3.871	

*Significant at 0.05 level

From the table no - 2 reveals that the 't' value 2.51 it is found significant at 0.05 level. From the table, it is understood that Mean scores of the Urban school students is significantly higher than the Rural school students. Hence the framed null hypothesis is rejected.

Hypothesis – 3

There is no significant difference in the Mean Values of Scientific Aptitude among male and female.

Table No –3

Gender	N	Mean	Standard Deviation	"t" value
Male	150	16.48	3.663	3.65*
Female	150	17.99	3.485	

* Significant at 0.05 level

It is understood from the table no-3 reveals that the 't' value 3.65 is found to be significant at 0.05 level. From the results, it is observed that the Mean scores of the Female students are significantly higher than the Male students. Hence the framed null hypothesis is rejected.

Hypothesis – 4

There is no significant difference in the Mean Values of Achievement in Science among Rural and Urban school students.

Table No – 4

Location	N	Mean	Standard Deviation	"t" value
Urban	150	12.57	3.799	2.51*
Rural	150	11.57	3.015	

*Significant at 0.05 level

The table - 4 reveals that the't' value 2.51 is found to be significant at 0.05 level. From the table, it is observed that the Mean scores of the urban students are significantly higher than the Rural school students. Hence the framed null hypothesis is rejected.

MAJOR FINDINGS

The major findings of the present study are given below.

- The Aided school students are having higher Scientific Aptitude compared to the Government School students.
- The Urban school students are having higher Scientific Aptitude compared to the rural school students.
- The Female students are having higher Scientific Aptitude compared to the Male students.
- The Urban school students are having higher Academic Achievement in science compared to the rural school students.

DISCUSSION

Based on the findings, the study shows that the performance of the aided school students is better than government schools students in their Scientific Aptitude. Ghosh and Chatterji (1972) the test scores were highly related with the academic success for girls' scientific groups. Shrivastava, Madhulika (1988) revealed the controversial findings that male students were better than female students in the area of scientific aptitude. Rao Digumarti Bhaskara, (1990) studies also reported the pupils of private school students possessed a bit high Scientific Aptitude than government schools students. The present study also shows that female students are having higher Scientific Aptitude compared to the male students. The following findings are closely associated with this study. He revealed the controversial findings that scientific aptitude in secondary school pupil was also average and his studies also reported the pupils of urban school students possessed a bit high Scientific Aptitude than rural school students. The present study also shows that urban school students are better than rural school students in their Scientific Aptitude & Academic Achievement in science.

CONCLUSION

The aided school having well equipped laboratories, good libraries, quality teaching and better teacher taught relationship, greater exposure of students to audio visual teaching aids etc. Because of these differences, the aided school students' superior in possessing high Scientific Aptitude than the government school students. The urban school students will be exposed to science fairs, science exhibitions, science clubs, etc. Because of these differences, the urban school students' superior in possessing high Scientific Aptitude than the rural school students.

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