

SCIENTIFIC ATTITUDE OF HIGH SCHOOL STUDENTS IN RELATION TO THEIR ACADEMIC ACHIEVEMENT

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ABSTRACT:

The present investigation was undertaken to study the scientific attitude in relation with academic achievement. The sample of study consisted of 120 students from high schools by using simple random sampling technique. The tools used were Science Attitude Scale (SAS) by Dr. Avinash Grewal and Academic Achievement Report of students. The findings of the study showed that there were significant differences between male and female, rural and urban high school students towards Scientific Attitude. Besides, significant positive correlations were found between Scientific Attitude and Academic Achievement.

Key words: Scientific Attitude, Achievement, Science, Gender, High School Students

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INTRODUCTION:

Science has become a part of our life. It has extended immensely the limits of our curiosity and has increased the ways of utilizing our leisure. Science and technology have been playing an important role in our life. So, it becomes essential to promote knowledge pertaining to science at different levels of education. Today there is a growing realization that science teaching and learning must become effective. Therefore science educators should emphasize the development of scientific attitude among student. Developing positive attitude toward science regardless of individual difference is one of the purposes of science education (Arisoy, 2007; Azizoğlu & Cetin, 2009).

Attitude can be defined as “feelings, beliefs and values held about the enterprise of school science, science and the impact of the science on society” (Osborne, 2003). Munby (1983) defined scientific attitude as the thinking patterns generally characteristic of scientists, such as objectivity, curiosity, questioning, and justifying conclusions with evidence. Attitude toward science was closely related to achievement in science (George, 2000). The attitude has an effect upon students’ selections of different subjects and also on their interest and achievement in the scientific knowledge. The scientific way of handling any problem and scientific attitude of mind should be inculcated in all individuals in order that they do not accept things on hearsay; propaganda or superstitious traditions but upon conclusions arrived at on the basis of evidences.

To inculcate the scientific attitude in the high school students, subjects like physics, chemistry, and biology are being taught. This study is being made to know the development of scientific attitude of high school students.

OBJECTIVES OF THE STUDY:

The following were the objectives of the study:

1. To study the Scientific Attitude of high school students
2. To study the Academic Achievement of high school students.
3. To study the relationship between Scientific Attitude and Academic Achievement of high school students.

HYPOTHESES OF THE STUDY:

1. There exists no significant difference in Scientific Attitude of male and female high school students.
2. There exists no significant difference in Scientific Attitude of urban and rural high school students.
3. There exists no significant difference in Academic Achievement of male and female high school students.
4. There exists no significant difference in Academic Achievement of urban and rural high school students.
5. There exists no significant relationship between Scientific Attitude and Academic Achievement of high school students.

METHODOLOGY:

Keeping in view the nature of the present study, descriptive method of research was used for the collection of data. 120 High school students were selected by random sampling. The questionnaire Science Attitude Scale (SAS) was developed and standardized by Dr. Avinash Grewal was allocated to all students. For Academic Achievement marks obtained by students in previous class Examination were taken.

STATISTICAL TECHNIQUES:

To draw the meaningful results from the study, the statistical techniques such as Mean, SD, 't' test and co-relation were used by this investigator.

RESULTS & DISCUSSION:

- **H-1** It is hypothesized that there exists no significant difference in Scientific Attitude of male and female high school students.

Table – 1

Means, Standard Deviations and t-ratio Showing Differences in Scientific Attitude of Male and Female High School Students

GENDER	N	MEAN	S.D.	t-value
MALE	57	48.33	6.31	3.09 S*
FEMALE	63	44.69	6.54	

*significant at .05 level

Table 1 show that the value of t-ratio **3.09** is significant at 0.05 level. Thus the hypothesis 1 “there exists no significant difference in Scientific Attitude of male and female high school students” is **REJECTED**. This reveals that amongst male and female high school students, male (M: 48.33) students performed much better when compared to the female (M: 44.69) students regarding Scientific Attitude.

- **H-2** It is hypothesized that there exists no significant difference in Scientific Attitude of urban and rural high school students.

Table – 2

Means, Standard Deviations and t-ratio Showing Differences in Scientific Attitude of Urban and Rural High School Students

INSTITUTION	N	MEAN	S.D.	t-value
URBAN	56	48.46	4.95	3.25 S*
RURAL	64	44.64	7.45	

*Significant at .05 level

Table 2 reveals that the value of t-ratio **3.25** is significant at 0.05 level. Thus the hypothesis 2 “there exists no significant difference in Scientific Attitude of urban and rural high school students” is **REJECTED**. However there exists a difference in the mean and S.D. scores of

urban and rural (M 48.46: M 44.64 & S.D. 4.95: 7.45) high school students towards Scientific Attitude.

- **H-3** It is hypothesized that there exists no significant difference in Academic Achievement of male and female high school students.

Table-3

Means, Standard Deviations and t-ratio Showing Difference in Academic Achievement of male and female high school students

GENDER	N	MEAN	S.D.	t-value
MALE	57	415.38	66.08	2.31 S*
FEMALE	63	444.74	72.39	

*Significant at .05 level

Table 3 shows that the value of t-ratio **2.31** is significant at 0.05 level. Thus the hypothesis 3 “there exists no significant difference in Academic Achievement of male and female high school students” is **REJECTED**. However there exists a difference in the mean and S.D. scores of male and female (M 415.38: M 444.74 & S.D. 66.08: 72.39) high school students on Academic Achievement.

- **H-4** It is hypothesized that there exists no significant difference in Academic Achievement of urban and rural high school students.

Table – 4

Means, Standard Deviations and t-ratio Showing Difference In Academic Achievement of urban and rural high school students

INSTITUTION	N	MEAN	S.D.	t-value
URBAN	56	466.98	56.99	5.95 S*
RURAL	64	399.14	66.65	

*Significant at .05 level

Table 4 reveals that the value of t-ratio **5.95** is significant at 0.05 level. Thus the hypothesis 4 “there exists no significant difference in Academic Achievement of urban and rural high school

students” is **REJECTED**. However there exists a difference in the mean and S.D. scores of urban and rural (M 466.98: M 399.14 & S.D. 56.99: 66.65) high school students on Academic Achievement.

- **H-5** It is hypothesized that there exists no significant relationship between Scientific Attitude and Academic Achievement of high school students

Table – 5

Co-efficient of correlation between Scientific Attitude and Academic Achievement of high school students

VARIABLE	N	df	Co-efficient of correlation	Level of significance
SCIENTIFIC ATTITUDE	120	118	0.34	0.05 S*
ACADEMIC ACHIEVEMENT	120			

*Significant at .05 level

Table 5 shows that co-efficient of correlation between scientific attitude and academic achievement of high school students is 0.34 which is significant at 0.05 level of significance. It indicates that there is a significant positive relationship between Scientific Attitude and Academic Achievement. Thus the hypothesis 5 “there exists no significant relationship between Scientific Attitude and Academic Achievement of high school students” is **REJECTED**.

CONCLUSION:

The result of the present study are in consistence with the result of Ramsden (1998), Weinburgh (1995), Simpson and Oliver (1985) where it was found that boys show more positive attitudes towards science than girls. Similarly the result of study done by Dr. Gunwant Dhattrak and Dr. Shashi Wanjari (2011) supports that scientific attitude of urban student is more as compared to rural students. Human attitudes do not undergo a quick change in short period of time. Thus an effort should be made to improve the student’s attitude towards science. In this teachers can play a major role as teachers are models for students. The more the pupils enjoy the school science, the higher the improvement in the student’s attitude towards science.

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