

## A STUDY OF SCIENTIFIC ATTITUDE AND ACHIEVEMENT IN SCIENCE OF SENIOR SECONDARY SCHOOL STUDENTS

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### ABSTRACT

*The present study was an attempt to find out the study of scientific attitude and achievement in Science of Senior Secondary School Students. Around 100 students of senior secondary school of Rohtak district were taken as a sample on the basis of random sampling method. Scientific attitude scale was developed by Shailaja Bhagwat (2006) and Achievement Test in Science by Dr. S.C. Gakhar and Dr. Rajnish (2004). To determine the significance of difference between means of different groups, 't' test was applied and to find the relation between two means, 'r' test was applied. The findings of the study reveal that i) A significant difference has been found in scientific attitude of male and female of senior secondary school students. ii) No significant difference has been found in achievement in science of male and female students of Senior Secondary Schools. iii) A positive relationship has been found between scientific attitude and achievement in science of senior secondary school students.*

**KEY WORDS: Attitude, Scientific attitude, Achievement in Science, Senior secondary school students.**

### INTRODUCTION

The term 'Attitude' encompasses a wide range of affective behaviours (e.g. prefer, accept appreciate and commitment). In general, an attitude is a mental state of readiness exerting direct or indirect influences upon an individual's response to all objects and situations with which it is related. Therefore, if we have some idea about the attitude of an individual towards a specific thing or activity, whether the individual can be persuaded to participate in a particular thing on activity, then we would know whether she/he adopts it with interest and sincerity (Patil, 2011).

Scientific Attitude is the attitude of the person towards developments of science and technology (Bagchi, 1993). In recent times there has been rapid addition, knowledge to the world of science. To understand the world around us and to improve the quality of the life of society, students today need a proper attitude towards science. Through education one can develop a right attitude and the ability to innovate. True education lies in extent to which students are trained to evolve the originals in them. A basic education in science is essential for everyone to

understand and appreciate the scientific and technical developments and issued that affect our lives (Bloom, 1956).

There are a plethora of methods which are useful in evaluating student achievement in science. Mandated testing stresses the use of multiple-choice test items to appraise learner progress (Sheth, 2014). These are emphasized as being objective in that all students.

1. Take the same test for a particular grade level.
2. Adhere to the same time limits in test taking.
3. Receive the same directions for taking the test.
4. Tests are machine scored, not subject to human error in scoring unless there are glitches.

### RATIONALE OF THE STUDY

The rapid advancement of science and technology and increasing need for scientist and technologists have made it all the more important to provide science-based education in school. Vigorous method for the cultivation and promotion of science should be adopted. Science

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and scientific attitude have now become compulsory in the school curriculum because of the multifarious value to the individuals as well as the society.

People in remote areas are influenced by deep superstitions. We come across a number of incidents like Banamathi, Black Magic etc. In the newspaper and T.V. Channels, people are deceived by swamis and Babas though the world has become a global village. Hence it has become indispensable to develop favourable scientific attitudes and strengthen science education from the primary level itself so that student becomes good citizens and not to be deceived by corrupt people. In this regard this study has attained more significance; it investigates and compares the scientific attitude of senior secondary school students. Thus science has become an important area in education. Most of the countries popularize science among the pupils from IV grade onwards. This momentum had advanced and influenced the human beings. Pupils possessing positive scientific attitude would get more benefits of science compared to those who lacked the scientific attitude.

#### **PROBLEM STATEMENT**

"A Study of Scientific Attitude and Achievement in Science of Senior Secondary School Students".

#### **OBJECTIVES**

The present study has been carried out to fulfill the following objectives:

1. To study and compare the scientific attitude of Senior Secondary School Students.
2. To compare the scientific attitude of male and female students of Senior Secondary Schools.
3. To compare the achievement in Science of male and female students of Senior Secondary Schools.
4. To find out the relationship between scientific attitude and achievement in Science of Senior Secondary School Students.

#### **HYPOTHESES**

1. There is no significant difference in scientific attitude of male and female students of Senior Secondary Schools.
2. There is no significant difference in achievement in science of male and female students of Senior Secondary Schools.
3. There is no significant relationship in scientific attitude and achievement in Science of Senior Secondary Schools.

#### **METHODOLOGY**

In the present investigation descriptive survey method has been employed to study the scientific attitude and achievement in science of senior secondary school students.

#### **POPULATION AND SAMPLE**

Students from four urban schools of Rohtak District constituted the population of the subjects in the present study. The random sample method was used to draw the sample for the present study. Thus 100 senior secondary school students from four different schools (50 males and 50 females) were taken as sample for study.

#### **TOOLS USED**

1. Scientific Attitude Scale by Shailaja Bhagwat (2006).
2. Achievement Test in Science by Dr. S.C. Gakhar and Dr. Rajnish (2004).

#### **STATISTICAL TECHNIQUES USED**

The Mean, Standard deviation, 't' test and 'r' test were used to find out the significance of difference between the groups.

#### **RESULTS**

The study results among male and female students are given as follow:

Table 1 represents the mean score of scientific attitude of male and female secondary school students. It clearly represents that the mean score for scientific attitude of male students is higher than the female students.

**Table 1: Level of Scientific Attitude of Senior Secondary School Students**

Category	Scientific Attitude of Senior Secondary School students		
	Female	Male	Total
Very High	2	5	7
High	12	28	40
Average	27	16	43
Low	3	0	3
Very Low	0	0	0
Total	50	50	100

Source: Field Survey

It is observed from the table 2 that the mean scores of scientific attitude of male senior secondary students is 80.92, while mean scores of female senior secondary students is 74.04 respectively. The 't' value is 4.011 which is greater than the table value at 0.05 (1.98) level of significance and at 0.01 (2.63) level of significance. So, the null hypothesis that "there is no significant difference in scientific attitude of male and female students of senior secondary schools" is rejected. The scientific attitude of male senior secondary students is better than their counterpart female senior secondary students.

Figure 1: Mean Scores of Scientific Attitude of Male and Female Secondary School Students

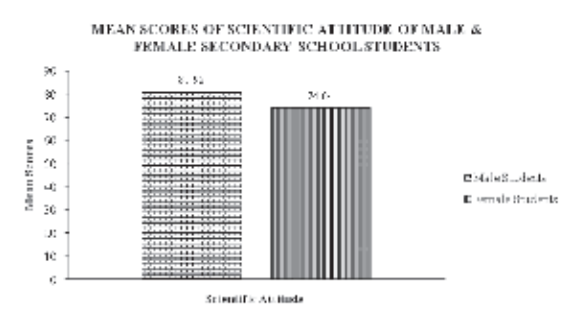


Table 2: Mean, S. D. and 't' value for Scientific Attitude of Male & Female Secondary School Students

Variable	Group	N	Mean Scores	S.D.'s	t-value	Level of Significance
Scientific Attitude	Male students	50	80.92	7.745	4.011	Significant at 0.01 level
	Female students	50	74.04	9.220		

Source: Field Survey

Table 3 highlights that the 't' value is 0.691 which is less than the table value at 0.05 level of significance and at 0.01 level of significance. So the null hypothesis that is "there is no significant difference in achievement in science of male and female students of Senior Secondary Schools" is accepted.

Figure 2: Mean Scores of Achievement in Science of Male & Female Secondary School Students

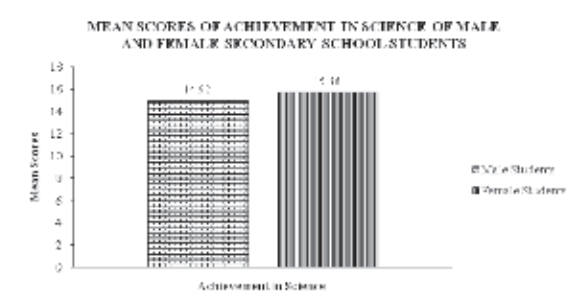


Table 3: Mean score of achievement in science of male and female secondary school students:

Variable	Group	N	Mean Scores	S.D.'s	t-value	Level of Significance
Achievement in Science	Male Students	65	14.52	4.698	0.691	Significant at 0.01 level
	Female Students	65	13.66	5.953		

Source: Field Survey

Table 4 depicts that a positive co-efficient of correlation has been found between scientific attitude and achievement in science of senior secondary school students. So, the null hypothesis "there is no significant relationship in scientific attitude and achievement in science of senior secondary schools" is rejected. Hence, there exists a significant and positive correlation between scientific attitude and achievement in science of senior secondary school students. It indicates that scientific attitude and achievement in science of senior secondary school students positively correlated with each other. Hence, it could be concluded that senior secondary school students have high scientific attitude if they have high achievement in science. It can be interpreted that higher the scientific attitude,

higher the achievement in science and vice-versa.

**Table 4: Relationships between Scientific Attitude and of Achievement in Science of Senior Secondary School Students**

Group	Mean Scores	S.D's	r <sup>2</sup> -value
Scientific Attitude	77.48	9.206	0.171
Achievement in Science	15.29	5.337	

Source: Field Survey

#### MAJOR FINDINGS

The major findings of the present study are as follows:

1. A significant difference has been found in scientific attitude of male and female senior secondary school students.
2. No significant difference has been found in achievement in science of male and female students of Senior Secondary Schools.
3. A positive relationship has been found between scientific attitude and achievement in science of senior secondary school students

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