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## A Study of Secondary School Students Attitude Towards Science with Respect to Gender, Type of School

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### Abstract

Education is a process of all round development of child so that he or she may express his capabilities and potential in every field. Scientific attitude is one of the primary goals of education and one of its significant results. People with a scientific mind-set are more effective citizens in today's society. It also assists people in living up to their expectations and satisfaction in a variety of methods and means of developing scientific attitudes at this level of schooling. The present study was conducted on sample of 270 students of 9<sup>th</sup> and 10<sup>th</sup> standard of Secondary school from Kathua district. For the present research, the standardized tool i.e. Attitude towards science developed by Dr. Savita Mishra in 2017 have been employed for the collection of the requisite data. It can be revealed that there exists no significant difference in the Attitude of secondary school students towards science in relation to their gender. The finding of the study revealed that there was no significant difference in the attitude of secondary school students towards science in relation to type of school. Therefore, it can be revealed that there is no significant difference in the attitude of boys toward science in relation to type of school. It also revealed that there exists no significant difference in the Attitude of girls toward science in relation to type of school.

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### Introduction

Education is a process of all round development of child so that he or she may express his capabilities and potential to the fullest. Education provides the opportunity for growth and development. In the ladder of education from nursery to university education, the secondary level of education is important because this level provide the base for future education. Education is one of the best processes of development. An attitude is a positive, negative, or mixed evaluation of an object expressed at some level of intensity. It is an expression of a favourable or unfavourable evaluation of a person, place, thing, or event. These are those fundamental determinants of our perceptions and actions toward all aspects of our social environment. Attitudes involve a complex organization of evaluative beliefs, feelings, and tendencies toward certain actions. Education, according to Swami Vivekananda, "is the manifestation of perfection already present in man." Man must learn to cooperate (or great). Swami Vivekananda said that the keys to success are courage, trust (confidence in oneself and in God), patience, and persistent effort. Values and education are only the foundation for a solid structure; similarly, a healthy root system contributes to a healthy body's leaves and branches. Education is a purposeful activity directed at achieving certain aims, such as transmitting knowledge or fostering skills and character traits. These aims may include the development of understanding, rationality, kindness, and honesty. Various researchers emphasize the role of critical thinking in order to distinguish education from indoctrination. Some theorists require that education results in an improvement of the student while others prefer a value-neutral definition of the term. In a slightly different sense, education may also refer, not to the process, but to the product of this process; the mental

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states and dispositions possessed by educated people. Education is a social structure that prioritizes an individual's social development in addition to their natural, moral, political, and economic growth (Veugelers, 2011; Singh, 2011). Therefore, education serves as a tool to help students become fully integrated members of the existing social order. Additionally, education has the potential to be a tool for social change, enabling people to comprehend what a society should ideally look like and how it should operate. Consequently, education is a powerful tool for remaking society (Jan 2012) <sup>[13]</sup>.

An attitude is an emotional reaction to someone or something. It is a personal reaction to an object that is formed through experience and can be classified as favourable or unfavourable. The use of science as the object or stimulus for these feelings distinguishes a set of attitudes known as "attitude towards science." Education is the main instrument for any social change, and science education plays a vital role in any educational system. Time and again, our educational committees, commissions, and policies have identified the place and importance of science education. It is only through the development of scientific attitude among the students, we, the teachers, will be able to develop and nourish the all-round personality of our students. Science is an organized body of knowledge with careful observation and experimentation. In other words, we can say that science is an overall product of human activity in a systematic and organized way. Science has nothing but a curiosity of knowing, which suitable explanation in an organized and planned way. Scientific attitude is one of the key objectives of science teaching, and it is one of the major outcomes of it. Scientific attitude makes people live as efficient citizens in the present society. It also helps people live up to their expectations and satisfaction many ways and means are used and applied to develop scientific attitudes at various levels of education. Teachers should always remember that without a questioning mentality and a spirit of inquiry, courses in science will just entail accepting dogma and will never contribute to the development of scientific attitude in students. Students should be encouraged to do and observe science in order to feel and develop the components of a scientific mind set in their minds. As a result, there is a perceived need to investigate secondary school pupils' scientific attitudes. Scientific attitudes play a major role in the educational and life sciences of students pursuing educational science. In the learning process, students can perform a scientific attitude well when students understand the concept and critical problems in solving diligently in learning. This is said to be a very influential scientific attitude in the teaching-learning process involving student's attitudes toward science such as personality and curriculum. Scientific attitude had good habits of thinking, in addition to improving student achievement in the learning process. Science plays an important role in improving people's quality of life, either directly or indirectly. The qualities acquired by the student through science learning are valuable for a citizen living in society. As a result, science is now a required subject in all school systems, beginning with elementary school. Education is the main instrument for any social change, and science education plays a vital role in any educational system. Time and again, our educational committees, commissions, and policies have identified the place and importance of science education. It is only through the development of scientific attitude among the students; we, the teachers, will be able to

develop and nourish the all – round personality of our students.

### Significance of the study

The most significant effect of science education is a scientific mentality that allows we need to think rationally. It is the manifestation of a variety of qualities and virtues in a person's behaviour and activities. Grinnell claims that "scientific temper is not an approach to solve the problem baggage of superstitions and religious dogmatism." There is a need to guide pupils in meaningful learning so that they can learn more effectively (Chowdhary, 2013). Scientific attitudes are extremely required to eliminate ignorance and backwardness; to bring balanced opinions to society problems and conflicts; and to maybe lead to a better future society (Sekar, 2013). The application of scientific methods to achieve a reasonable perspective on societal concerns and challenges may be the most significant endeavour (Karan, 2011). Without the scientific mind-set, no new knowledge would be discovered. It is the process of examining the provided information and reasoning and formulating fair judgments about the facts. Without the ability to critically think, we may be misled by strong sight bias and overconfidence in our judgments (Kaur, 2013) <sup>[14]</sup>. Both science and technology necessitate human collaboration. Scientists' work is pointless unless and until it is conveyed to and understood by others (Bondi, 1996). A person's scientific approach is the sole way to remedy these perception flaws. The scientific mind-set is the source of completely conveying these concepts with numerous verifications and objective observations. As a result, research on a person's scientific attitude can contribute to national development by eradicating superstitious ideas and encouraging objectivity, open-mindedness, and critical thinking in problem solving.

The scientific mind-set is the adaption of a specific method to problem solving, accessing ideas and information, and making conclusions. Using this method, evidence is collected and reviewed objectively so that the bias of the person making the choice does not influence the decision. Before making a choice, no source of pertinent information is discarded without being thoroughly analysed, and all available evidence is carefully consider the evidence is deemed insufficient, the judgment is stayed until there is sufficient information to make a determination. No concept, conclusion, judgment, or solution is accepted simply because someone makes a claim; rather, it is regarded sceptically and critically until its soundness can be judged based on the weight of evidence relevant to it. A person motivated by a scientific mind-set is one who is eager to follow such a technique and does soon a regular basis (Sagar, 2003) <sup>[16]</sup>. Any country's development is built on scientific understanding. Scientific progress is dependent on scientific understanding. The advancement of knowledge is dependent on constant scientific inquiries. (Pitafi and Farooq 2012) In order to continue on the path of future progress. We must acquire a scientific temperament (Raza, 2014). Scientific attitude is one of the primary goals of education and one of its significant results. People with a scientific mind-set are more effective citizens in today's society. It also assists people in living up to their expectations and satisfaction in a variety of methods and means of developing scientific attitudes at this level of schooling. This demonstrates that education is in charge of establishing scientific attitudes at the elementary, secondary, and territorial levels. The attitude

of a learner towards a subject determines to a large extent, his/her success and consequently his/her choice of a profession. In most cases this attitude is formed during secondary classes. It therefore, important to discover attitudes of students and try to modify, if possible, through teaching strategies. Like the above researches, various study have also been conducted in this field. The researcher after study these researches noticed that no doubt various researches have been conducted on Attitude toward Science in relation to various different variables. But still less emphasis has been laid on Attitude toward Science. This encouraged the researcher to take Attitude toward Science with respect to Gender, type of school. As per NEP 2020, scientific attitude is important for students to develop critical thinking so that student thinks rationally and solve the problem in systematic manner.

### Objectives of the study

1. To study the attitude of secondary school students towards science.
2. To study the attitude of secondary school students towards science in relation to Gender.
3. To study the attitude of secondary school students towards science in relation to type of school.
4. To suggest the educational implications in the light of result of the study.

### Hypotheses of the study

1. There is no significant difference in the attitude of secondary school students towards science in relation to Gender.
2. There is no significant difference in the attitude of secondary school students towards science in relation to type of school.
3. There is no significant difference in the attitude of boys toward science in relation to type of school.
4. There is no significant difference in the attitude of girls toward science in relation to type of school.

### Delimitations of the study

1. The study was restricted to Government and Private Secondary School Students.
2. The sample for the present study was confined to 270 students only.
3. The study was confined to Kathua district only.
4. The study was confined to the use of t-Test as technique for analysis and interpretation of data.

### Methodology

#### Sample

The present study was conducted on sample of 270 students of 9<sup>th</sup> and 10<sup>th</sup> standard of Secondary school from Kathua district.

#### Tool used for the study

The present study was aimed to discover the Attitude of Secondary School students towards Science in relation to Gender and type of school.

For the present research, the standardized tool i.e. Attitude towards science developed by Dr. Savita Mishra in 2017 have been employed for the collection of the requisite data.

### Results and interpretation

#### Testing of Hypothesis 1: There is no significant difference in the attitude of secondary school students towards science with respect to their gender (Male and Female)

**Table 1:** Showing the difference between male and female attitude of secondary school students towards science

Gender	N	Mean	S.D	S.E.M	t-value	Level of significance
Male	130	251.7	18.41	1.62	1.15	Not Significant at 0.05 level
Female	140	254.01	14.61	1.24		

Table 1 showed that the score of mean, standard deviation and t-value of attitude of secondary school students towards science with respect to their gender. From the above table it can be interpreted that the obtain t-value is 1.15 which is less than the table value i.e. 1.96 which is not statistically significant at 0.05 level. Thus, the hypothesis stating that, "There is no significant difference in the attitude of male and female students of secondary school students towards science is accepted at 0.05 level of significance. Therefore, it can be revealed that there exists no significant difference in the Attitude of secondary school students towards science in relation to their gender. The finding of the present study found to be similar with the finding of the studies conducted by Maulida (2017) students' positive attitudes toward science were moderate, with no significant difference between male and female pupils.

#### Testing of Hypothesis 2: There is no significant difference in the Attitude of Secondary School Students towards Science with respect to type of School (Govt/Private)

**Table 2:** Showing the difference between attitude of government and private secondary school students towards science

Type of School	N	Mean	S.D	S.E.M	t-value	Level of Significant
Govt	143	252.01	16.73	1.39	0.981	Not significant At 0.05 level
	127	253.93	15.28	1.36		
Private						

**From the above table 2:** It can be interpreted that the obtain t-value is 0.981 which is less than the table value of 1.96 that is not statistically significant at 0.05 level. Hence the Hypothesis 2 stating that "There is no significant difference in the attitude between Government and Private Secondary school students towards science" is accepted at 0.05 level of significance. Therefore, it can be revealed that there exists no significant difference in the Attitude of secondary school students towards science in relation to type of school. This finding of the present study found to be similar with the findings of the study conducted by Ali (2013) scientific attitude of secondary school students view that no significant difference in the scientific attitude of male and female secondary school students from the government and private institution as well as those from rural areas, urban areas showed appreciable differences in their attitudes towards science.

#### Testing of Hypothesis 3: There is no significant difference in the attitude of boys towards science in relation to type of school.

**Table 3:** Showing the difference between attitude in the Attitude of boys toward science in relation to type of school

Govt/Private boys	N	Mean	S.D	S.EM	t-value	Level of Significant
Boys	66	250.43	19.2	2.36	0.81	Not significant
Govt			5			At 0.05 level and 0.01 level
Boys	63	253.05	17.1	2.16		
Private			6			

From the above table 3, it can be interpreted that the obtain t-value is 0.81 which is less than the table value i.e. 1.96, that is not statistically significant at 0.05 level. Hence the Hypothesis 3 stating that "There is no significant difference in the attitude of boys towards Science in relation to the type of school" is accepted at 0.05 level of significance. Therefore, it can be revealed that there is no significant difference in the Attitude of boys toward science in relation to type of school.

**Testing of Hypothesis 4:** There is no significant in the attitude of girls towards science in relation to type of school.

**Table 4:** Showing the difference between attitude in the Attitude of girls toward science in relation to type of school

Govt/Private girls	N	Mean	S.D	S.EM	Critical ratio	Level of Significant
Girls Govt	77	255.06	15.28	1.74	0.753	Not significant at 0.05 and 0.01 level
Girls private	64	253.18	14.05	1.75		

From the above table 4, it can be interpreted that the obtain t-value is 0.753 which is less than the table value i.e. 1.96 that not statistically significant at 0.05 level. Hence the Hypothesis 3 stating that "there is no significant difference in the Attitude of girls toward Science is accepted at 0.05 level of significance. Therefore, it can be revealed that there exists no significant difference in the Attitude of girls toward science in relation to type of school.

### Educational implications of the study

The study was undertaken to study the attitude of secondary school students towards science. It found that most of the students have average positive attitude towards science. The finding of the study indicated that the schools should encourage and train the teacher to improve their style of teaching by explaining the topics practically and according to the level of the students. The schools should also organize extension lectures for the teachers and establish science laboratories in the schools. All these things would help in developing have positive attitude among the secondary school students towards science. The teachers should encourage the students to foster positive attitude towards science. The finding of the study also helpful for the students, teachers and parents to think on various strategies for developing a positive attitude towards science. Further, the present study helpful for the policymakers and administrators to develop the science curriculum accordingly to develop the interest of students choose the science subject. Last but not the least, the study also helps the parents to know about the attitude of their children towards science so that accordingly they can provide some appropriate measures to improve the same.

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