



A STUDY ON SCIENTIFIC ATTITUDE OF SECONDARY SCHOOL STUDENTS.

¹**Kantharaju D**, Research Scholar, DOS in Education, University of Mysore, Mysuru.

²**Dr. Ningamma C. Betsur**, Professor, DOS in Education, University of Mysore, Mysuru.

Abstract:

The scientific attitude is a mindset that promotes critical thinking, curiosity, and a willingness to question and explore new ideas. A positive scientific attitude is crucial for children's learning, problem-solving, and future interest in science. The aim of the present study is to study the scientific attitude of secondary school students. The present study dealt with to assess the level of scientific attitude of secondary school students and also find out whether there is a significant difference in scientific attitude of secondary school students based on gender, type of school and locality.

Keywords: Scientific Attitude, Secondary School Students.

Introduction:

Science is a universal subject that spans the branch of knowledge that examines the structure and behavior of the physical and natural world through observation and experiment. Learning about science is an essential component of our lives. We cannot envisage a world without science at this time. Because science is so advanced. Science has extended its reach in every field. The world has been blessed by amazing scientific breakthroughs, and science has influenced every element of human life. This is because we live in a science-driven culture.

Science is taught as an important subject in today's educational system. Learning about the physical world alone does not constitute science. Science education has values that aim to socialize students. Science is an important subject in today's society and knowledge of science facts & rules is essential for everyone. Science develops a scientifically minded mind along with training in the scientific method in the learner. Science learning has its own significance because of the causal activities in the individual. Hence science has its own important place in the curriculum of schools and colleges.

According to National Society for the Study of Education (NSSE), “Scientific attitudes can be defined as open-mindedness, desire for accurate knowledge, confidence in procedures for seeking knowledge and the expectation that the solution of the problem will come through the use of verified knowledge”.

Scientific attitude is one of scientific learning which is important to be cultivated since early childhood. It is crucial point to be considered to pursuit knowledge in various fields, especially in science. The children with good scientific attitude will grow with great rational thinking method. This, in turn, helps children to have strong mind, ready to learn with others, and take responsible to their society (Halim et al., 2018). It's crucial to foster positive attitudes in children from an early age. A scientific mindset will foster positive traits in early children.

Scientific attitude is the desire to know and understand, questioning to all statements, search for data and their meaning, search for verification, and consideration of consequences (Gardner, 1975; Osborne, Simon & Collins, 2003). "Scientific Attitude" refers to the ability to make sense of the various processes occurring around us in a systematic, tangible, and practical manner.

A student with a scientific attitude is always devoid of superstitions, unproven assumptions, and popular beliefs that lack factual support. Every science teacher should accept responsibility for developing scientific attitudes in their students through scheduled activities.

Significance of the study:

The science teaching and learning method encourages children's engagement and offers activities. Science fosters and enhances pupils' thinking skills. All of the things we see and utilize in our daily lives are the result of scientific investigation. Students will establish the habit of writing reports through science-related practical projects. It promotes intellectual honesty among students. Proper teaching of science helps to develop scientific attitude in students.

The scientific attitude is a mindset that promotes critical thinking, curiosity, and a willingness to question and explore new ideas. A scientific mindset includes curiosity, open-mindedness, faith in scientific methods, cause-and-effect relationships, realism, and opposition to superstitions. Such attributes are known to help with country growth and the process of social change. A positive scientific attitude is crucial for children's learning, problem-solving, and future interest in science.

Scientific attitude is developed among the students for the benefit of the individual and to the existence of nature. It will help to study in bringing a typical change in the scientific attitude of students. This research aims to investigate scientific attitude of secondary school students. The study helps to understand the influence of gender, locality and type of school on scientific attitude of secondary school students.

Objectives of the study:

1. To study the level of scientific attitude of secondary school students.
2. To study the influence of gender on scientific attitude of secondary school students.
3. To study the effect of type of school on scientific attitude of secondary school students.
4. To find out the influence of locality of school on scientific attitude of secondary school students.

Hypotheses of the study:

1. There is no significant difference in scientific attitude between boys and girls secondary school students.
2. There is no significant difference in scientific attitude between government and private secondary school students.
3. There is no significant difference in scientific attitude between urban and rural secondary school students.

Methodology of the study:

Descriptive Survey method was used to find out the scientific attitude of secondary school students.

Population and Sample of the study:

The population consisted of all secondary school pupils from the Mysuru district. The sample consisted of 160 pupils from class IX chosen at random.

Tool used for the study:

Scientific Attitude Scale developed by Gakhar, S.C., and Amandeep Kaur (1985).

Statistical Techniques:

Percentage analysis and t-test statistical technique were used to analyse the data.

Data Analysis and Interpretation

Objective-1: To assess the level of Scientific Attitude of secondary school students.

Table-1: Level of Scientific Attitude of secondary school students

Scientific Attitude	Frequency	Percent
Above Average	31	19.37%
Average	75	46.87%
Below Average	54	33.75%

Graph-1: Level of Scientific Attitude of secondary school students

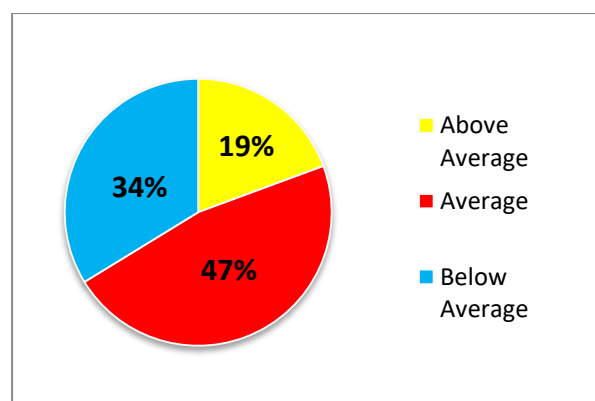


Table-1 and Graph-1 show that, 19.37% of students have above-average levels of scientific attitude, 46.87% average levels of scientific attitude, and 33.75% below-average scientific attitudes. It is obvious that the majority of students have an average level of Scientific Attitude.

Objective-2: To study the influence of gender on scientific attitude of secondary school students.

H₁: There is no significant difference in scientific attitude between boys and girls secondary school students.

Table-2: Comparison of scientific attitude of boys and girls

Variable	Gender	N	Mean	SD	t-value	Level of Significance
Scientific Attitude	Boys	80	193.18	15.595	-1.957	NS
	Girls	80	198.16	16.625		

Graph-2: Mean scores of scientific attitude of boys and girls

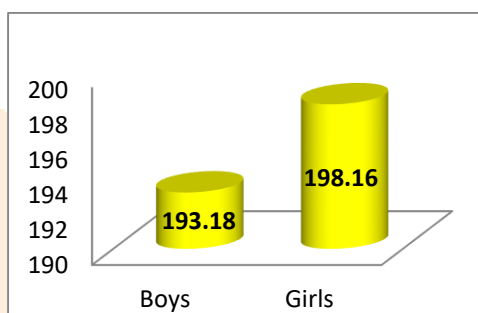


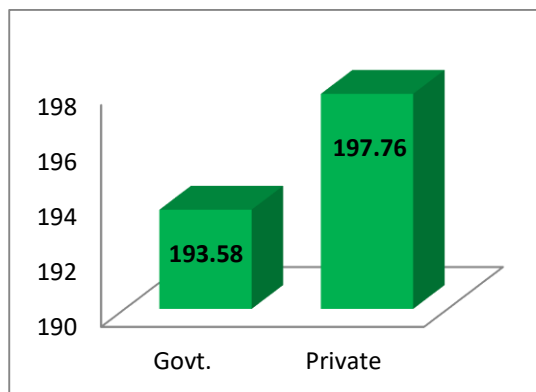
Table-2 and Graph-2 show that, the obtained t-value (-1.957) is less than the critical value (1.974) at 0.05 level of significance. Hence, null hypothesis H₁ is accepted. Therefore, boys and girls students do not differ significantly in scientific attitude. That means gender of the students does not have significant influence on their scientific attitude. This might have happened because students' interests in science, scientific approaches, attitudes toward science learning and practicing, as well as their psychological, intellectual, and behavioural aspects are same.

Objective-3: To study the effect of type of school on scientific attitude of secondary school students.

H₂: There is no significant difference in scientific attitude between govt. and private secondary school students.

Table-3: Comparison of scientific attitude of government and private secondary school students.

Variable	Type of School	N	Mean	SD	t-value	Level of Significance
Scientific Attitude	Govt.	80	193.58	16.812	-1.637	NS
	Private	80	197.76	15.513		

Graph-3: Mean scores of scientific attitude of government and private secondary school students.

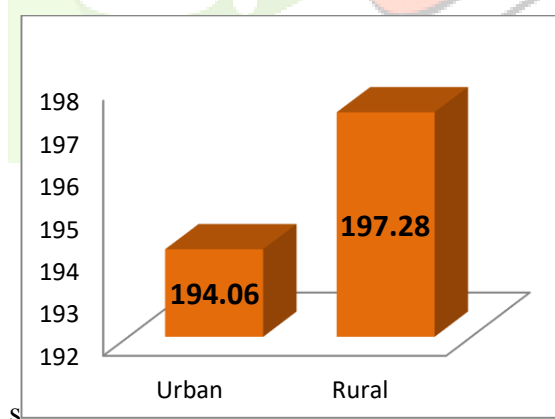
As per Table-3 and Graph-3 the obtained t-value (-1.637) is less than the critical value (1.974) at 0.05 level of significance. Hence, null hypothesis H_2 is accepted. That means type of school does not have significant effect on their student's scientific attitude. This may be because of same environment and facilities provide both private and government school.

Objective-4: To find out the influence of locality of school on scientific attitude of secondary school students.

H₃: There is no significant difference in scientific attitude between urban and rural secondary school students.

Table-4: Comparison of scientific attitude of urban and rural secondary school students.

Variable	Locality	N	Mean	SD	t-value	Level of Significance
Scientific Attitude	Urban	80	194.06	17.768	-1.252	NS
	Rural	80	197.28	14.535		

Graph-4: Mean scores of scientific attitude of urban and rural secondary school students.

When the influence of locality of school on student's scientific attitude was analysed, it was found Table-4 and Graph-4 the obtained t-value (-1.252) is less than the critical value (1.974) at 0.05 level of significance. Hence, null hypothesis H_3 is accepted. Locality of the school does not have significant influence on their student's scientific attitude. This might have happened because; now a day's students studying in both urban and rural have the same type of facilities and also to the same extent.

Summary of the findings

1. 19.37% of students had above-average levels of scientific attitude, 46.87% had average levels of scientific attitude, and 33.75% had below-average scientific attitudes.
2. Boys and girls secondary school students do not differ significantly in their scientific attitude.
3. There is no significant difference in scientific attitude of government and private secondary school students.
4. Secondary school students studying in urban and rural areas do not differ significantly in their scientific attitude.

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