

A Study on Scientific Interest Among Secondary School Students in Darrang District of Assam.

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Abstract

The present study aims to investigate scientific interest among secondary students in the Darrang district of Assam. Scientific Interest, more specifically, is the interest in conducting scientific activities and experiments for seeking new knowledge and implementing new ideas. It is the predisposition of an individual to engage with the domain of science driven by curiosity and a desire for understanding. However, scientific interest is more than liking the subject of science; it is a complex trait that combines curiosity, observation, logical reasoning, experimentation, and the ability to apply knowledge to real-life problems. There are some studies done on scientific interest among secondary students at the national level. But no research has been conducted for the state of Assam. That is why the investigator intends to investigate scientific interest among the secondary school students of Darrang District of Assam. For this study, a sample of 504 students (266 males and 238 females) was selected from various Government and Private secondary schools, consisting of both Assamese medium schools and English medium schools of Darrang district, by using a stratified random sampling technique. The tool used in the present study was Scientific Interest Scale, developed and standardized by K.S. Misra. The investigator found that the majority of students showed a low level of scientific interest. There was no significant difference in the scientific interest of secondary school students based on gender, type of management or the medium of instruction.

Keywords - Science, Interest, Scientific Interest, Secondary Students

Introduction

The present study is an investigation of Scientific Interest among Secondary school students of Darrang District. Interest is a powerful motivator in learning. In a general psychological sense, it is a disposition that directs behaviour and causes an individual to seek out particular objects, activities, or experiences. Scientific interest, more specifically, is "concerned with interest in conducting scientific activities for

seeking accurate knowledge to conduct experiments to implement new ideas". It is an individual's predisposition to engage with the domain of science, driven by curiosity and a desire for understanding.

Scientific interest can be defined as a person's curiosity to understand things logically and systematically. It is not limited to studying science as a subject in school. Rather, it is the habit of asking questions, observing carefully, and trying to find reasons behind everyday events (Hidi & Renninger, 2006; Schiefele, 1991).

From an educational point of view, scientific interest is very important for meaningful learning. A student who has scientific interest does not study only to pass examinations. Instead, the student tries to connect classroom learning with real situations. This connection between theory and real life makes learning more practical and deeper (Schiefele, 1991). A student with scientific interest does not stop only at memorising facts, but seeks to understand why something happens. They generally demonstrate qualities like curiosity, creativity, problem-solving and logical thinking.

Scientific interest is closely related to research orientation. Research begins with simple curiosity. When a learner notices that some classmates perform better in the morning than in the afternoon and starts thinking about possible reasons, it shows the beginning of research thinking (Kumar 2015). Asking questions, collecting small pieces of information, and trying to analyse them are early signs of research aptitude. Thus, scientific interest forms the base for developing a research mindset.

The role of teachers is very important in developing scientific interest. When teachers encourage students to ask questions rather than remain silent, students feel confident thinking independently. Simple classroom activities can make students more engaged.

Scientific interest also helps in developing rational thinking. In today's world, people often receive many messages through social media, including health tips or miracle remedies. A student with scientific interest does not accept such information blindly but tries to verify it through reliable sources. This habit of checking facts before believing them reflects scientific temper and responsible behaviour (Hidi & Renninger, 2006).

Moreover, scientific interest makes learning enjoyable. When students discover something on their own, they feel excited and confident. This excitement reduces fear of difficult subjects and increases motivation. Learning becomes a process of discovery rather than pressure. In the present age of rapid technological development, scientific interest is necessary for every individual, regardless of academic background. It prepares students to think logically, solve problems, and make informed decisions in daily life. Therefore, developing scientific interest should be an important objective of education.

Scientific interest is not only beneficial at the individual level but also at the societal level. A society that encourages scientific interest among its citizens is more likely to progress in areas such as health, technology, agriculture, and environmental protection. Innovations and discoveries are the result of curious minds who question existing methods and try to improve them. For example, advancements made by scientists were rooted in deep scientific curiosity and research orientation. When young learners develop scientific interest, they are better prepared to contribute creatively to national development. Thus, promoting scientific interest is essential not only for academic success but also for building a progressive and innovative society.

In conclusion, scientific interest is not just about science experiments or laboratory work. It is a way of thinking that encourages curiosity, observation, evidence-based reasoning, and independent inquiry. By nurturing scientific interest, education can help learners become thoughtful, analytical, and responsible members of society (Hidi & Renninger, 2006; Schiefele, 1991).

Review of Related Literature

Saini (2023) conducted a study on 600 secondary students, and it showed that those with high aspirations scored much higher in scientific interest compared to low- aspiration students. Similarly, students with strong study habits scored well above those with average habits. In urban areas, girls outperformed boys, while rural gender differences were minimal. Government school students also showed slightly higher scientific interest than private school students. Overall, aspiration, study habits, gender in urban settings, and school type were key predictors of scientific interest.

Gundeep Kaur (2019) conducted a study on science interest of secondary school students in Ludhiana District with respect to demographic variables. Findings showed: (i) Urban students scored higher in science interest compared to rural students, though both groups were above average; (ii) Boys scored higher in science interest compared to girls, but again, both groups were above average.

Chakradhara Singh (2017) studied the science interest of 110 secondary school students. Findings indicated an average level of science interest among students. Gender and residence (urban vs rural) did not significantly affect science interest, suggesting equal parental expectations across groups. However, the medium of instruction and type of school influenced science interest, with urban and English- medium students showing higher levels.

Meena Laad (2011) investigated declining interest in physics at higher levels. Reported that poor middle school preparation leads to weak performance at the higher secondary level, discouraging students from pursuing physics further. Poor teaching practices and inadequate teacher training were also identified as factors reducing

student interest. The study recommended improved teacher preparation and stronger foundational teaching to revive physics interest.

Vasillia Christidou (2011) studied student interest, attitude, and images of science and scientists. Using comparative approaches, she found that gender, culture, and socio-economic status significantly influenced interest. These differences not only shaped achievement but also affected science-related career aspirations. She recommended designing curricula that account for student voices and cultural context.

Rationale of The Study

The need to cultivate scientific talents is a matter of national importance. Economic growth, technological development, and the psychological and social well-being of our country depend on the ability to identify, develop and utilise the scientific potential of its people.

The significance of this study is manifold. First and foremost, the study aims to bring to light the level of scientific interest among secondary school students of Darrang District of Assam. The performance of Assam in the latest National Achievement Survey (NAS) for science at the middle stage (Class 9) has been below the national average, which is significantly behind states like Punjab, Kerala, and New Delhi. Moreover, subsequent new reports (Guwahati Plus, 2024; Times of India, 2022) have highlighted to a steep decline in the number of students opting for science at the higher secondary level in Assam, reflecting a worrying lack of interest and confidence in pursuing science as a career. Thus, there is an urgent need to evaluate the level of scientific interest among secondary school students of Assam.

Also, the study is regionally significant. While national data is helpful, sometimes it can mask local and regional variations. There are some studies done on scientific interest among secondary students at the national level or in other states. But no research as such has been conducted for the state of Assam. In essence, this study seeks to provide baseline data for Assam so that necessary steps can be taken to amplify scientific interest among students and enhance the quality of science education at the grassroots level, thereby contributing to the larger national goal of building a scientifically literate and innovative society. and adjustment.

Operational Definition

Scientific Interest

Scientific interest can be defined as a person's curiosity to understand things logically and systematically. It is not limited to only the subject science, but it is a complex trait that combines curiosity, observation, logical reasoning, experimentation, and the ability to apply knowledge to real-life problems.

Secondary Students

The adolescent students studying in Classes IX and X are the secondary students.

Objective of the Study

- To assess the overall level of Scientific Interest of Class X students.
- To compare the Scientific Interest of Male and Female Class X students.
- To compare the Scientific Interest of Class X students of Government and Private secondary schools.
- To compare the Scientific Interest of Class X students of Assamese and English medium secondary schools.

Hypotheses of the Study

- **H₀₁:** There is no significant difference in the Scientific Interest of males and female Class X students.
- **H₀₂:** There is no significant difference in the Scientific Interest of Class X students of Government and Private secondary schools.
- **H₀₃:** There is no significant difference in the Scientific Interest of Class X students of Assamese and English medium secondary schools.

Delimitation

Only Class X students of secondary school are selected as samples.

Sample and Sampling Technique

Descriptive survey method is used to study the present problem. The sample consists of 504 secondary school students from Darrang District. Details of the samples taken for the study are given below.

Table-1
Sample selected for the study

Sl.No	Sample	Number
1	Entire sample	504
2	Male Students	266
3	Female Students	238
4	Government School Students	319
5	Private School Students	185
6	English Medium School Students	178
7	Assamese Medium School Students	326

Tools

The tool used for the study was Scientific Interest Scale, developed and standardized by K.S. Misra

Statistical Techniques

- Basic statistical techniques such as mean, median and standard deviation
- Significance of difference between means

Data Analysis

Objective 1. To assess the level of Scientific Interest of Class X students.

Table -2
Descriptive Statistics (Norm vs Observed)

	N	Mean	Standard Deviation	Skewness	Kurtosis
Norm	100	184.36	23.00	-0.215	-0.01
Observed	504	171.20	24.84	+0.157	+0.127

Interpretation: The analysis reveals that the mean score of Scientific Interest in the dataset ($M = 171.05$) is lower than the norm mean ($M = 184.36$), indicating that students in this sample have comparatively lower scientific interest. The standard deviation of the dataset ($SD = 24.74$) is slightly higher than that of the norm ($SD = 23.00$), showing that the dataset scores are more dispersed. In terms of distribution, the skewness for the dataset (0.157) is positive, while the norm skewness (-0.215) is negative, which means the dataset distribution is slightly right-skewed, whereas the norm shows a mild left skew. Similarly, the kurtosis for the dataset (0.127) is higher than the norm value (-0.01), suggesting the dataset is somewhat more peaked

Table-3
Level of Scientific Interest

Level	N	Percentage (%)
High	108	21.43
Average	62	12.3
Low	334	66.27

Interpretation: A majority of students (66.27%) fall in the Low level, indicating comparatively weak scientific interest among most of the sample. Only 21.43% of students are in the High Level, while a small group, 12.3%, falls within the average range. The results suggest that, overall, Class X students demonstrate lower levels of Scientific Interest, with only a limited proportion showing high engagement in science.

Objective 2. To compare the Scientific Interest of male and female Class X students.

Table-4

Variation of Scientific Interest with respect to Gender (Male vs Female)

Gender	N	M	SD	CR (t)	p value	Significance at 0.05 level	Cohen's d
Male	266	169.48	26.22	-1.51	0.131 ($p > 0.05$)	Not significant	-0.13
Female	238	172.79	22.90				

Interpretation: There is no statistically significant difference in the Scientific Interest of male and female Class X students at the 0.05 level. Although females scored slightly higher, the difference is very small in magnitude (Cohen's $d \approx 0.13$) and not statistically meaningful. Therefore, the null hypothesis in this case is accepted.

Objective 3. To compare the Scientific Interest of Class X students of Government and Private secondary schools.

Table-5

Variation of Scientific Interest with respect to Type of School (Govt. vs Private)

Type of Schools	N	M	SD	CR (t)	p value	Significance at 0.05 level	Cohen's d
Govt.	319	169.69	25.43	-1.65	0.100 ($p > 0.05$)	Not significant	-0.15
Private	185	173.38	23.39				

Interpretation: There is no statistically significant difference in the Scientific Interest of Government and Private secondary school students at the 0.05 level. Private students scored slightly higher, but the difference is small in magnitude (Cohen's $d = -0.15$) and not statistically meaningful. Therefore, the null hypothesis is accepted.

Objective 4. To compare the Scientific Interest of Class X students of Government and Private secondary schools.

Table-6
Variation of Scientific Interest with respect to Medium (English vs Assamese)

Medium	N	M	SD	CR (t)	p value	Significance at 0.05 level	Cohen's d
Assamese	326	170.71	24.75	-0.41	0.685 ($p > 0.05$)	Not significant	-0.04
English	178	171.65	24.78				

Interpretation: There is no statistically significant difference in the Scientific Interest of Assamese and English medium secondary school students at the 0.05 level. English medium students scored slightly higher, but the difference is negligible (Cohen's $d = -0.04$) and not meaningful. Hence, the null hypothesis is accepted.

Major Findings

- A majority of students showed a low level of scientific interest.
- There is no significant difference in the Scientific Interest of male and female Class X students.
- There is no significant difference in the Scientific Interest of Government and Private secondary school students.
- There is no significant difference in the Scientific Interest of Assamese and English medium secondary school students

Conclusion

The study was designed in order to investigate the scientific interest among the secondary school students in Darrang district of Assam. Based on the analysis of the study, it can be concluded that the level of scientific interest among secondary school students is significantly low. Based on the t-test results, there is no significant difference in the scientific interest of students with respect to gender, type of school management, or medium of instruction.

Educational Implication

The Educational Implications that emerge from the findings of the Study are discussed.

1. Implications for Curriculum Developers

Science textbooks should go beyond heavy text and focus on what, why and how aspects of concepts. Adequate practical works, experiments and activities should

support each topic, which will increase interest in science among students.

2.Implications for schools

Schools should work towards building a science-supportive institutional climate with functional laboratories, conducting regular science-related activities, science clubs and exposure visits. Strengthening the library and ICT resources will help nurture scientific interest among students.

3.Implications for teachers

Teachers can enhance scientific interest among students by adopting an activity-based and inquiry-driven approach to teaching, linking scientific concepts with real life. Using experimentation, projects, and ICT tools and continuous assessment based on understanding rather than rote learning will stimulate students' curiosity and engagement in science.

4.Implication for students

Students can improve their scientific interest by going beyond rote memorization and actively engaging in experiments, projects, and science activities, and by asking questions and exploring concepts beyond textbooks.

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