ATTITUDE OF STUDENTS TOWARDS SCIENCE AT SECONDARY LEVEL IN RURAL AND URBAN SCHOOLS OF JAMMU

Dr. Monika Bajaj[*]

ABSTRACT

This study investigates the attitude of secondary-level students towards science in both rural and urban schools in Jammu, aiming to assess the influence of gender and geographic location on students' perspectives. A sample of 200 students was selected from four rural and four urban schools in Jammu. The research utilized a standardized "Attitude Towards Science" scale developed by Dr. Savita Mishra. The findings suggest that students in both rural and urban areas have a generally positive attitude towards science, but urban students display more favorable attitudes in specific domains such as scientific inquiry and career aspirations. Gender differences were also significant, with female students showing more interest in adopting a scientific attitude. The implications of the study provide insights for policymakers and educators to enhance science education, particularly by addressing the specific needs of rural students.

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***Keywords:** Attitude Towards Science, Secondary Education, Rural and Urban Schools.*

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Introduction

Science plays a pivotal role in understanding the world and solving critical issues like environmental pollution, health crises, and technological advancement. The ability to think scientifically is a critical skill that students need to develop early in life. The attitude of students towards science, particularly at the secondary level, significantly influences their academic performance and career choices. This research focuses on the attitude of secondary-level students in rural and urban schools of Jammu towards science and investigates how gender and geographic location affect their outlook on the subject.

Literature Review

Attitudes towards science have been a subject of extensive research globally. Studies have demonstrated that students' attitudes are influenced by several factors, including teaching methods, parental support, peer influence, and cultural factors (Anwer & Iqbal, 2012). Gender differences in science attitudes have been consistently reported, with girls often showing more positive attitudes towards adopting a scientific approach, while boys lean towards career interest in science-related fields (Singh & Singh, 2016). Toma, Grecian, and Gomez (2019) conducted a study to investigate attitudes towards science and views of Nature of Science among Spanish secondary school students. The study stressed the need to address the steady decline in positive attitude toward Science and to improve students' views towards science and to use gender and culturally inclusive science teaching strategies. Ananda, Suhandi and Rehman (2019) experimented to improve students' attitude toward science in one of the junior high school at Bandung City after follow science learning used ILD model assisted science magic. The results showed that implemented ILD model assisted science magic can improve students' attitude toward science in junior high school. Binwal (2020) examined that Adolescent students belonging to urban areas were found to have a more positive attitude towards science than rural students.

Research Objectives

The research objectives of the research study were:

- To assess students' overall attitude towards science at the secondary level.
- To compare students' attitudes towards science between rural and urban schools.
- To investigate gender differences in attitudes towards science among secondary school students.

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[*] Associate Professor, MIER College of Education (Autonomous), Jammu, India.

Research Hypotheses

The hypotheses of the research study were:

- There is positive student attitude towards science at secondary level.
- There is no significant difference exists in the attitude of students at secondary level in rural and urban of Jammu.
- There is no significant gender differences exist in students attitudes towards Science.

Methodology

Research Design

This study employed a comparative, quantitative research design. A random sampling method was used to select a total of 200 students from eight schools in Jammu: four rural and four urban schools, with an equal representation of male and female students.

Research Instrument

The "Attitude Towards Science" scale, developed by Dr. Savita Mishra, was utilized to measure the students' attitudes. The scale consists of five domains: social implications of science, scientific inquiry, adoption of scientific attitude, enjoyment of science lessons, and career interest in science. Responses were recorded on a Likert scale, ranging from strongly agree to strongly disagree.

Data Collection

Data were collected from secondary school students (grades 9-10) through a structured questionnaire. The study sample consisted of 100 boys and 100 girls, equally divided between rural and urban schools

Data Analysis

The collected data were analyzed using SPSS software. Descriptive statistics, such as means and standard deviations, were calculated. t-tests were conducted to identify significant differences in attitudes based on gender and geographic location.

Results and Discussion

- **Objective 1: To assess the students' attitude towards science at the secondary level**

For studying the overall attitude of secondary school students towards science, the percentage was calculated. The result is presented in Table 1.

The analysis revealed that 81% of the students had a favorable attitude towards science, with urban students showing slightly more positive attitudes across all domains. The majority of students expressed interest in pursuing science as a career (Table 1).

Table 1: Overall Attitude of Students towards Science

Sr. No.	Range of Raw Score	Range of Z-Score	Level of Attitude Towards Science	No. of Students	Percentage of Students
1	311 and above	+2.01 & above	Extremely Favourable	41	20.5
2	295 to 310	+1.26 to +2.00	Highly Favourable	41	20.5
3	279 to 294	+0.51 to +1.25	Above Average Favourable	80	40
4	258 to 278	-0.50 to +0.50	Moderately Favourable	11	5.5
5	243 to 257	-1.25 to -0.51	Unfavourable	19	9.5
6	227 to242	-2.00 to -1.26	Highly Unfavourable	8	4
7	226 and less	-2.01 & below	Extremely Unfavourable	0	0

- **Objective 2: To investigate whether gender differences occur in students' attitude towards science**

To investigate whether gender difference exists in student's attitudes towards science, the mean and standard deviation for each of the male and female groups were computed followed by a t-test. The results are presented in Table 2. The mean score of female students is higher than of male students. Thus, it can be inferred that there exists a significant difference in the attitude of secondary school students towards science in relation to their gender.

Table 2: Mean, Standard Deviation, and t-Value of Male and Female Students

Gender	N	Mean	Std. Deviation	Std. Error Mean	df	t	Level of significance
Male	100	260.71	20.14	2.01	198	3.09	Significant at 0.01 level
Female	100	269.77	21.33	2.13			

This finding aligns with prior research suggesting that girls are more inclined towards adopting scientific attitudes (Shirazi, 2017).

- **Objective 3: To compare the students attitude towards science at the secondary level in rural and urban schools of Jammu**

Table 3: Mean, Standard Deviation and t-Value of rural and urban school students

Area of school	N	Mean	Std. Deviation	Std. Error Mean	df	t	Level of significance
Rural	100	262.58	19.93	1.99	198	3.22	Significant at 0.01 level
Urban	100	266.90	22.39	2.24			

Table 3 indicates the comparison between rural and urban school students attitude towards science. The mean score of urban schools' student is higher than rural school students. Thus, it can be inferred that urban school students have a favourable attitude towards science as compared to rural school students

Conclusion

The findings of this study indicate that secondary school students in Jammu generally have a positive attitude towards science, with urban students exhibiting slightly more favorable attitudes. Gender differences were evident, with female students showing more interest in adopting a scientific attitude. However, rural students lag behind their urban counterparts in several areas, particularly in scientific inquiry and career interest in science. These findings suggest the need for targeted interventions to improve science education in rural areas and to bridge the gender gap in science-related career aspirations.

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