RESEARCH PAPER

A Study Of Secondary School Students' Attitude Towards Science

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Abstract

Attitude towards science is a significant determinant of students' engagement, achievement, and sustained interest in scientific learning, particularly at the secondary school stage. The present study investigates the attitude of secondary school students towards science using a self-developed attitude scale encompassing multiple dimensions. The tool was constructed based on six dimensions, namely nature of science, students' outlook towards science, psychological aspects, teacher-related aspects, parent-related aspects, and school-related aspects, consisting of 86 items. The study adopted a descriptive survey method, and data were collected from a sample of 100 secondary school students studying in classes viii and ix. The analysis examined differences in students' attitudes towards science with respect to selected socio-demographic variables such as locality, class, gender, school management, medium of instruction, parental educational status, parental professional status, and family economic status. Appropriate statistical techniques were employed to interpret the data. The findings of the study provide insights into the multidimensional nature of students' attitudes towards science and emphasize the role of home, school, and teacher factors in shaping positive scientific attitudes. The study highlights the need for holistic and supportive educational practices to foster favourable attitudes towards science among secondary school students.

Keywords: Secondary School Students, Attitude Towards Science, Science Education, Socio-Demographic Variables, Nature Of Science, Educational Environment.

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Introduction

Science education plays a vital role in developing rational thinking, problem-solving skills, and scientific temper among learners. At the secondary school level, students begin to develop stable perceptions and attitudes towards science, which significantly influence their academic performance, subject choices, and future career aspirations. Attitude towards science is a multidimensional construct encompassing students' interest, motivation, emotional responses, and beliefs about science and its relevance to everyday life. In recent years, concerns have been raised regarding declining interest and unfavourable attitudes towards science among school students. These attitudes are shaped not only by classroom experiences but also by psychological factors, teacher behaviour, parental support, school environment, and broader socio-economic conditions. Therefore, understanding students' attitudes towards science through a comprehensive and multidimensional approach is essential for improving the quality of science education. The present study attempts to assess secondary school students' attitude towards science by developing and employing a self-made tool that captures diverse influencing dimensions.

Need and Significance of the Study

The success of science education depends not only on cognitive achievement but also on the development of positive attitudes towards science. A favourable attitude encourages curiosity, active participation, and sustained interest in learning scientific concepts. However, many students perceive science as difficult, abstract, or irrelevant, leading to disinterest and poor learning outcomes.

There is a growing need to examine students' attitudes towards science by considering multiple influencing factors such as teachers, parents, school climate, and socio-economic background. The present study is significant as it employs a comprehensive, self-

developed tool covering various dimensions of attitude towards science. The findings of the study are expected to help teachers, curriculum planners, and educational administrators understand the factors influencing students' attitudes and adopt suitable strategies to enhance interest and motivation in science learning at the secondary school level.

Objectives of the Study

The present study was undertaken with the following objectives:

1. To study the attitude of secondary school students towards science.
2. To examine the attitude of secondary school students towards science with respect to locality (rural and urban).
3. To compare the attitude towards science of students studying in Classes VIII and IX.
4. To study the difference in attitude towards science based on gender.
5. To examine the attitude towards science of students with respect to type of school management (government, private, and aided).
6. To analyse the attitude towards science of students based on medium of instruction (Telugu and English).
7. To study the attitude towards science of students with respect to the educational status of father.
8. To study the attitude towards science of students with respect to the educational status of mother.
9. To examine the attitude towards science based on the professional status of father.
10. To examine the attitude towards science based on the professional status of mother.
11. To study the attitude towards science of students with respect to the economic status of the family.

Hypotheses of the Study

The following null hypotheses were formulated for the study:

1. There is no significant difference in the attitude towards science of secondary school students based on locality.
2. There is no significant difference in the attitude towards science of secondary school students based on class.
3. There is no significant difference in the attitude towards science of secondary school students based on gender.
4. There is no significant difference in the attitude towards science of secondary school students based on school management.
5. There is no significant difference in the attitude towards science of secondary school students based on medium of instruction.
6. There is no significant difference in the attitude towards science of secondary school students based on the educational status of father.
7. There is no significant difference in the attitude towards science of secondary school students based on the educational status of mother.
8. There is no significant difference in the attitude towards science of secondary school students based on the professional status of father.
9. There is no significant difference in the attitude towards science of secondary school students based on the professional status of mother.
10. There is no significant difference in the attitude towards science of secondary school students based on the economic status of the family.

Scope and Delimitations of the Study

The scope of the present study is limited to the assessment of attitude towards science among secondary school students studying in Classes VIII and IX. The study focuses only on selected socio-demographic variables and does not include academic achievement or aptitude in science.

The delimitations of the study are as follows:

- The study is confined to a sample of 100 secondary school students.
- Only Classes VIII and IX students were included.
- The study considers attitude towards science as measured by a self-developed tool.
- The findings are limited to the schools and students selected for the study.

Methodology

The present study adopted a **descriptive survey method** to assess the attitude of secondary school students towards science. This method was considered appropriate as it enables the systematic collection and analysis of data related to students' attitudes across different dimensions and demographic variables.

Tools and Statistical Techniques Used in the Study

Tool Used

A self-made **Attitude towards Science Scale** was developed by the investigator for the purpose of the study. The tool consists of **86 items** covering the following six dimensions:

1. Nature of Science

2. Students' Outlook towards Science
3. Psychological Aspects
4. Teacher-Related Aspects
5. Parent-Related Aspects
6. School-Related Aspects

The tool was validated and administered to the selected sample for data collection.

Statistical Techniques

The following statistical techniques were used for data analysis:

- Mean and Standard Deviation
- *t*-test for comparing two groups

ANALYSIS AND INTERPRETATION OF DATA

Hypothesis:1

1. There is no significant difference in the attitude towards science of secondary school students based on locality.

Locality of School

Group	Mean	S. D	S. Ed	t-value
Locality 1	273.9	14.32	2.56	-1.31
Locality 2	277.26	11.07		

Interpretation: The obtained t-value (-1.31) is less than the critical value 1.96 at 0.05 level of significance. Hence, the difference between the two groups is not statistically significant.

Conclusion: The null hypothesis is accepted. There is no significant difference between the compared groups.

Hypothesis:2

There is no significant difference in the attitude towards science of secondary school students based on class.

Class Studying

Group	Mean	S.D	S.Ed	t-value
Class 1	274.4	11.34	2.72	-1.71
Class 2	279.04	15.49		

Interpretation: The obtained t-value (-1.71) is less than the critical value 1.96 at 0.05 level of significance. Hence, the difference between the two groups is not statistically significant.

Conclusion: The null hypothesis is accepted. There is no significant difference between the compared groups.

HYPOTHESIS:3

There is no significant difference in the attitude towards science of secondary school students based on gender.

Gender

Group	Mean	S. D	S. Ed	t-value
Boys	277.14	13.28	2.63	0.76
Girls	275.14	13.01		

Interpretation: The obtained t-value (0.76) is less than the critical value 1.96 at 0.05 level of significance. Hence, the difference between the two groups is not statistically significant.

Conclusion: The null hypothesis is accepted. There is no significant difference between the compared groups.

Hypothesis:4

There is no significant difference in the attitude towards science of secondary school students based on school management.

School Management

Group	Mean	S. D	S. Ed	t-value
Management 1	274.22	12.11	2.44	-0.85
Management 2	276.3	12.3		

Interpretation: The obtained t-value (-0.85) is less than the critical value 1.96 at 0.05 level of significance. Hence, the difference between the two groups is not statistically significant.

Conclusion: The null hypothesis is accepted. There is no significant difference between the compared groups.

Hypothesis:5

There is no significant difference in the attitude towards science of secondary school students based on medium of instruction.

Medium of Instruction

Group	Mean	S. D	S. Ed	t-value
Medium 1	276.7	12.31	2.69	0.17
Medium 2	276.24	14.47		

Interpretation: The obtained t-value (0.17) is less than the critical value 1.96 at 0.05 level of significance. Hence, the difference between the two groups is not statistically significant.

Conclusion: The null hypothesis is accepted. There is no significant difference between the compared groups.

Hypothesis:6

There is no significant difference in the attitude towards science of secondary school students based on the educational status of father.

Educational Status of Father

Group	Mean	S. D	S. Ed	t-value
Status 3	275.1	14.83	2.63	-0.38
Status 4	276.1	11.25		

I**nterpretation**: The obtained t-value (-0.38) is less than the critical value 1.96 at 0.05 level of significance. Hence, the difference between the two groups is not statistically significant.

Conclusion: The null hypothesis is accepted. There is no significant difference between the compared groups.

Hypothesis:7

There is no significant difference in the attitude towards science of secondary school students based on the educational status of mother.

Educational Status of Mother

Group	Mean	S. D	S. Ed	t-value
Status 3	275.5	13.94	2.69	-0.27
Status 4	276.22	12.9		

Interpretation: The obtained t-value (-0.27) is less than the critical value 1.96 at 0.05 level of significance. Hence, the difference between the two groups is not statistically significant.

Conclusion: The null hypothesis is accepted. There is no significant difference between the compared groups.

Hypothesis:8

There is no significant difference in the attitude towards science of secondary school students based on the professional status of father.

Professional Status of Father

Group	Mean	S. D	S. Ed	t-value
Status 1	277.44	11.86	2.6	0.42
Status 2	276.34	14.04		

Interpretation: The obtained t-value (0.42) is less than the critical value 1.96 at 0.05 level of significance. Hence, the difference between the two groups is not statistically significant.

Conclusion: The null hypothesis is accepted. There is no significant difference between the compared groups.

Hypothesis:9

There is no significant difference in the attitude towards science of secondary school students based on the professional status of mother.

Professional Status of Mother

Group	Mean	S. D	S. Ed	t-value
Status 2	275.08	13.38	2.74	-1.2
Status 3	278.36	13.97		

Interpretation: The obtained t-value (-1.2) is less than the critical value 1.96 at 0.05 level of significance. Hence, the difference between the two groups is not statistically significant.

Conclusion: The null hypothesis is accepted. There is no significant difference between the compared groups.

Hypothesis:10

There is no significant difference in the attitude towards science of secondary school students based on the economic status of the family.

Economic Status of Family

Group	Mean	S. D	S. Ed	t-value
Status 1	276.96	13.74	2.56	0.48
Status 2	275.72	11.82		

Interpretation: The obtained t-value (0.48) is less than the critical value 1.96 at 0.05 level of significance. Hence, the difference between the two groups is not statistically significant.

Conclusion: The null hypothesis is accepted. There is no significant difference between the compared groups.

FINDINGS OF THE STUDY

The major findings derived from the statistical analysis are presented below:

1. Locality of School

There is no significant difference in the total scores of students studying in different localities. The calculated t-value (-1.31) was not significant at the 0.05 level. Hence, locality does not influence students' scores in the present study.

2. Gender

The comparison between boys and girls revealed no significant difference in their mean scores (t = 0.76). Gender does not appear to be a determining factor in students' performance.

3. Class Studying

Students of Class 1 and Class 2 did not differ significantly in their total scores (t = -1.71). This indicates that class level has no measurable impact on the variable under study.

4. Medium of Instruction

The analysis showed no significant difference between students studying in different mediums of instruction (t = 0.17). Medium of instruction does not significantly affect students' scores.

5. School Management

There is no significant difference between students studying under different types of school management (t = -0.85). Management type does not contribute to variation in scores.

6. Educational Status of Father

Students whose fathers have different educational levels did not show significant differences in their scores (t = -0.38). Father's educational background does not significantly influence student performance in this context.

7. Educational Status of Mother

No significant difference was found between groups based on the educational status of mothers (t = -0.27). Mother's educational qualification does not create measurable differences in students' outcomes.

8. Professional Status of Father

The professional status of fathers did not produce a significant difference in student scores (t = 0.42). Occupational differences among fathers are not associated with variation in student performance.

9. Professional Status of Mother

Students did not differ significantly based on the professional status of mothers (t = -1.20). Mother's occupation does not significantly influence the variable studied.

10. Economic Status of the Family

No significant difference was observed between students belonging to different economic categories (t = 0.48). Economic background does not significantly affect students' total scores in this study.

Overall Finding

All calculated t-values were lower than the critical value (1.96 at 0.05 level of significance). Therefore, all null hypotheses were accepted.

The study indicates that demographic and socio-economic variables such as locality, gender, class, medium of instruction, school management, parental education, parental profession, and economic status do not significantly influence students' total scores in the present investigation.

EDUCATIONAL IMPLICATIONS

Based on the findings of the study, the following educational implications are drawn:

1. Equality in Educational Opportunities

Since no significant differences were observed across demographic and socio-economic variables, it suggests that students are receiving relatively uniform educational exposure. Educational planners should continue promoting equal access and balanced academic environments.

2. Focus on Classroom Practices

As background variables did not significantly influence student scores, improvement efforts should concentrate on instructional strategies, teaching methods, and classroom engagement rather than demographic factors.

3. Inclusive Teaching Strategies

Teachers can confidently adopt inclusive pedagogical approaches, as gender, locality, or economic background do not appear to create performance gaps in this sample.

4. Parental Background Consideration

Although parental education and profession did not show statistical significance, schools may still encourage parental involvement programs to strengthen home–school collaboration.

5. Policy-Level Planning

Educational policies should emphasize quality teaching, curriculum relevance, and learner-cantered approaches instead of focusing primarily on structural differences like management type or medium of instruction.

6. Strengthening School Environment

Since institutional and socio-economic variables showed no major impact, improving school climate, motivation, and scientific attitude development may yield better outcomes.

7. Scope for Further Research

Future research may explore psychological, instructional, or environmental variables that could more strongly influence student outcomes.

References

Best, J. W., & Kahn, J. V. (2016). *Research in education* (10th ed.). Pearson Education.

Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education* (8th ed.). Routledge.

Garrett, H. E. (2008). *Statistics in psychology and education*. Paragon International Publishers.

Kothari, C. R., & Garg, G. (2019). *Research methodology: Methods and techniques* (4th ed.). New Age International Publishers.

Mangal, S. K. (2013). *Statistics in psychology and education* (2nd ed.). PHI Learning.

National Education Policy 2020. (2020). *National education policy 2020*. Government of India.
Sharma, R. A. (2012). *Fundamentals of educational research*. Surjeet Publications.
Singh, Y. K. (2011). *Fundamentals of research methodology and statistics*. New Age International Publishers.