

ACHIEVEMENT IN SCIENCE OF THE
HIGHER SECONDARY SCHOOL STUDENTS OF
SABARKANTHA DISTRICT

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1. INTRODUCTION :

Aptitude an aptitude is an innate or learned or developed component (the other being knowledge, understanding and attitude) to do a certain kind of work at a certain level. Aptitudes may be Physical or mental. The ability to learn, a broad term with a wide variety of meaning aptitude may be genetic or acquired or both. Because of the developmental nature of various acquired aptitude, they may change radically from year to year. Aptitude may be general or specific, mental or Physical, scholastic or vocational and may or may not reflect intelligence or accurately predict future performance. Aptitude, which reflects a student's ability to perform in school, is made up of a wide variety of specific component such as mathematical, verbal comprehension, verbal expression, language, abstract reasoning, numerical and science information.

Aptitudes of the students to decide future education and varies from individual to individual that indicates individual's interests and learning ability, the specific ability needed to facilitate learning a job, aptness, suitability, readiness, tendency, or natural or acquired disposition or capacity for a particular activity, degree of readiness to learn and perform well in a particular situation or in a fixed domain. Aptitude is, traditionally, described as a set of characteristics that relate to an individual's ability to acquire knowledge or skills, individual differences that are related to subsequent learning during a fixed time frame, aptitude is another name for potential or ability.

Dixit, Mithilesh kumari., (1985). The investigation was designed as a comparative study of the academic achievement and intelligence of adolescent boys and girls studying in classes IX and XI. The sample for the study consisted of 800 students studying in classes IX and XI. Half of them were boys and half were girls Jalotas Group General Mental Ability Test was administered to the subjects to get an idea about their mental ability and marks obtained by them in the annual examination were taken as the criterion of academic achievement. Main findings of the study were: 1. At all other intellectual levels the academic achievement of the girls was superior to that of the boys. 2. In the case of girls there was an average correlation between intelligence test scored and academic achievement.

Madhu Gupta, Mamta Devi and Pooja Pasrija (2012) The present study was planned to find the effect of achievement motivation on the academic achievement of adolescents in relation to some demographic variables viz. gender, locality and type of schools. In the present study, descriptive method was used. 320 adolescent students selected by the method of random sampling from the target population constituted the sample for the present investigation. However, academic achievement of the students was determined on the basis of marks obtained in 10th class of Board Examination.

Dayoung Bae and K.A.S. Wickrama (2014). This study examined pathways through which family socioeconomic status may influence adolescents' academic achievement. We focused on parental monitoring and adolescent' after-school time-use patterns as linking mechanisms. Participants were 441 twelve-to fourteen-year-old Korean adolescents who participated in the Korean welfare panel study. Higher family economic pressure was linked with lower parental monitoring through elevated levels of parental depression. Parental monitoring was associated with more time spent in structured learning-oriented activities and less time spent in unstructured nonacademic activities.

Nataraj and G. Manjula (2012) in the present study the researcher has attempted to study the Scientific Aptitude of high school students in relation to their achievement in science. The investigation was carried out on 650, 9th standard students using the Scientific Aptitude Battery by Dr. K.K. Agarwal, and achievement test in science constructed and standardized by investigator. Descriptive Statistics Differential Analysis and Correlation were used to analyse the data. The findings of the study on Scientific Aptitude and achievement in science shows that male and female, Hindu, Christian and Muslim do not differ significantly.

Siddi Raju (2013) investigated the relationship between gender and locality on academic achievement of secondary school students. A sample of 120 boys and girls was collected from rural and urban schools in Putturmandal, Chittoor district, A.p. The collected data was statistically analyzed; for this purpose t test was calculated. Based on the findings of the study revealed that gender and locality has significant influence on academic achievement of 7th class students in social studies.

2. STATEMENT OF PROBLEMS :

In present research researcher has tried to study achievement in science of the higher secondary school students in relation to gender and area of residence. The exact problem of the present research is “Achievement in science of the higher secondary school students of Sabarkantha District”.

3. OBJECTIVES :

1. To study and compare achievement and science of urban and rural higher secondary school students.
2. To study and compare achievement and science of male and female higher secondary school students.
3. To study and compare achievement and science of urban male and urban female higher secondary school students.
4. To study and compare achievement and science of rural male and rural female higher secondary school students.

4. HYPOTHESIS :

1. There is no significant difference between urban and rural higher secondary school students with regards to their achievement in science.
2. There is no significant difference between male and female higher secondary school students with regards to their achievement in science.
3. There is no significant difference between urban male and urban female higher secondary school students with regards to their achievement in science.
4. There is no significant difference between rural male and rural female higher secondary school students with regards to their achievement in science.

5. VARIABLES:

In present research gender and areas of residence were taken as independent variable and scores of achievement in science was taken as depended variable.

6. SAMPLE :

In present research sample was randomly selected from various higher secondary school of urban and rural area of Sabarkantha District. Total sample was categorized as under :

	Urban	Rural	Total
Male	30	30	60
Female	30	30	60
Total	60	60	120

7. TOOLS :

- **Achievement test in Science by K.S Anil kumar and N.P Shahapur**

This test consists 107 items in Four Areas of science.

- **Reliability :**

(1) Co-efficient of Stability

The coefficient of stability of the achievement test in science was determined by the test-retest method. For this purpose the achievement test was re-administered to a random sample of 100 students involved in the first try out two weeks after the first administration. Then correlation between the test and retest scores was computed. The coefficient of correlation between the two sets of scores on the science achievement test was found to be 0.79 which is significant at 0.05 level. This implies that the achievement test in science has high reliability.

(2) Co-efficient of Consistency

The Coefficient of the achievement test in science was determined by the split-half method. For this purpose scores obtained on the achievement test of the 176 students involved. The total scores were divided into two halves-one relating to odd numbered items and the other to even numbered items. The obtained coefficient of correlation between the scores on the halves was corrected for full length of achievement test by means of Spearman Brown prophecy formula (Garrett, 1966, p.339). The coefficient of consistency of the achievement test in science was found to be 0.59 for full length of the scale, which is significant at 0.05 level. This implies that the science achievement test has consistency reliability.

- **Validity :**

(1) Intrinsic Validity

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Intrinsic validity of the science achievement test was computed from its reliability coefficients (Guilford, 1954, p.399). The range of validity coefficient was between 0.87 and 0.94 which indicates the intrinsic validity of the test.

(2) Content Validity

Three teachers of secondary schools teaching science acted as judges and collected opinion from the three B.Ed. college lectures of physics in establishing content validity of the science achievement test. The judges were fully satisfied with the relevance of the test items and the scoring procedures. They were also satisfied with the adequate coverage of content of science at X standard. This implies that the achievement test in science is comprehensive and relevant.

(3) Concurrent Validity

Concurrent validity of the achievement test was computed by taking relationship between classroom test scores and science achievement test scores and the concurrent validity of the test was found to be 0.67 which is found to be significant at 0.05 level. Please refer Appendix-F2 for computation of concurrent validity.

• **Scoring :**

All the score sheet will be scored referring to the scoring keys. Each correct answer is assigned 'One' score and wrong answer a 'zero' score. The scores of the subject is found out and entered in the space provided in the answer sheet.

8. DATA COLLECTION :

With prior permission of principals of selected higher secondary schools of Sabarkantha District achievement test in science was administered in small manageable group of higher secondary school students of science stream. After completion data collection scoring was done by the scoring key of achievement in science test. Data was arrange in tabulated form for data analysis.

9. DATA ANALYSIS :

To analyzed data Mean, SD and 't' test was used. Each hypothesis was tested at 0.05 and 0.01 level of significant. Data analysis was done by latest version of SPSS.

10. RESULTS AND DISCUSSIONS :

Table 1

Mean, SD and t Value of Achievement in Science of Urban and Rural Higher Secondary school students

Group	N	Mean	SD	T	Level of Significance
Urban	60	70.56	13.16	3.42	0.01
Rural	60	61.78	14.93		

Table No.1 shows the mean, SD and t value of Urban and Rural higher secondary school students. The t ratio of Urban and Rural higher secondary school students was found 3.42 which is significant at 0.01 level. It means the null hypothesis "There is no significant difference between urban and rural higher secondary school students with regards to their achievement in science" is rejected. It indicates that significant difference was found between Urban and Rural higher secondary school students with regards to their achievement in science. The mean scores of achievement in science of Urban higher secondary school students was 70.56 and Rural higher secondary school students was 61.78 with SD 13.16 and 14.93 respectively. Here Urban students obtained the higher score in achievement in science than the rural students.

Table 2

Mean, SD and t Value of Achievement in Science of Male and Female Higher Secondary school students

Group	N	Mean	SD	T	Level of Significance
Male	60	70.33	13.30	3.25	0.01
Female	60	62.00	14.87		

Table No.2 shows the mean, SD and t value of Male and Female higher secondary school students. The t ratio of Male and Female higher secondary school students was found 3.25 which is significant at 0.01 level. It means the null hypothesis "There is no significant difference between male and female higher secondary school students with regards to their achievement in science." is rejected. It indicates that significant difference was found between Male and Female higher secondary school students with regards to their achievement in science. The mean scores of achievement in science of Male higher secondary school students were 70.33 and Female

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higher secondary school students were 62.00 with SD 13.30 and 14.87 respectively. Here Male students obtained the higher score in achievement in science than the Female students.

Table 3

Mean, SD and t Value of Achievement in Science of Urban Male and Urban Female Higher Secondary school students

Group	N	Mean	SD	t	Level of Significance
Urban Male	30	70.06	13.44	1.93	NS
Urban Female	30	63.04	15.57		

Table No.3 shows the mean, SD and t value of Urban Male and Urban Female higher secondary school students. The t ratio of Urban Male and Urban Female higher secondary school students was found 1.93 which is not significant. It means the null hypothesis “There is no significant difference between urban male and urban female higher secondary school students with regards to their achievement in science” is accepted. It indicates that significant difference was not found between Urban Male and Urban Female higher secondary school students with regards to their achievement in science. The mean scores of achievement in science of Urban Male higher secondary school students was 70.06 and Urban Female higher secondary school students was 63.04 with SD 13.44 and 15.57 respectively.

Table 4

Mean, SD and t Value of Achievement in Science of Rural Male and Rural Female Higher Secondary school students

Group	N	Mean	SD	t	Level of Significance
Rural Male	30	68.93	16.44	2.66	0.05
Rural Female	30	60.01	12.77		

Table No.4 shows the mean, SD and t value of Rural Male and Rural Female higher secondary school students. The t ratio of Rural Male and Rural Female higher secondary school students was found 2.66 which is significant at 0.05 level. It means the null hypothesis “There is no significant difference between rural male and rural female higher secondary school students with regards to their achievement in science” is rejected. It indicates that significant difference was found between Rural Male and Rural Female higher secondary school students with regards to their achievement in science. The mean scores of achievement in science of Rural Male higher secondary school students was 68.93 and Rural Female higher secondary school students was 60.01 with SD 16.44 and 12.77 respectively. Here Rural Male students obtained the higher score in achievement in science than the Rural Female students.

11. CONCLUSIONS :

1. Significant difference was found between Urban and Rural higher secondary school students with regards to their achievement in science. Urban students obtained the higher score in achievement in science than the rural students.
2. Significant difference was found between Male and Female higher secondary school students with regards to their achievement in science. Male students obtained the higher score in achievement in science than the Female students.
3. Significant difference was not found between Urban Male and Urban Female higher secondary school students with regards to their achievement in science.
4. Significant difference was found between Rural Male and Rural Female higher secondary school students with regards to their achievement in science. Rural Male students obtained the higher score in achievement in science than the Rural Female students.

12. REFERENCES :

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