International Journal of Advanced Research and Development
ISSN: 2455-4030
Impact Factor: RJIF 5.24
www.advancedjournal.com
Volume 2; Issue 6; November 2017; Page No. 624-628

Attitude towards science of secondary school students in Chittoor district of Andhra Pradesh

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Abstract
In this article scores on attitude towards science of secondary school students in relation to 9 variables derived from Gender, Locality, Management and Type of school status these were tested on significance of difference. There is no significant difference in attitude towards science of gender, locality, Medium of Instruction. Significant difference was found in the scientific scores of high school students between the following pairs of sub sample group's boys and girl students. Rural and urban students and Private and Government school students. The Critical Ratio variables are also calculated the some variables like Religion, Caste, Nativity and income status.

Keywords: gender, locality, management

Introduction
Education is most effective instrument to acquire knowledge, to nature moral and social values and to make citizens socially sensitive, responsible and forward looking. The resolution and National Policy of Education (1968) lays down the following principles in respect of science educational and research, "with a view accounting the growth of National economy, science educational and research should receive high priority, science and mathematics should be an integral part of general educational tills the end of the school stages.
Science education is important to the society for its all-round progress. It provides the public with sufficient knowledge for a success for living and develops attitude towards science and provides scientific method. Science has played an outstanding role in our life in recent years and is now changing our entire living in such important aspects such as health, transportation, communication, power and so on.. Science helps us to provided food, clothing, shelter and recreational facilities. Scientific attitudes are the most important outcomes of science teaching.

Objectives
To survey the attitude towards science of secondary school students between:
1. Boys and Girls students
2. Rural and Urban students
3. Private and Government students
4. Residential and Non-Residential students
5. Telugu and English Medium students
6. Hindu and Non-Hindu students
7. Reserved and Non-reserved students
8. Native and Non-native place students
9. Income status of Parents

The corresponding eight hypotheses were that there is no significant difference between the attitude scores of these sets it among sub sample groups which forward attitude towards science of secondary school students.

Limitations of the Study
1. The area of the study is limited to Chittoor District in A.P.
2. Only 800 high school students were selected for the present study.

Methodology
A sample of 800 students 400 boys and 400 girls students, 400 urban and 400 rural students, 400 private and 400 government students, 262 residential and 538 non-residential students, 400 Hindu and 400 non-Hindu students, 400 reserved and 400 unreserved students, 400 native and 400 non-native students and parental income 236 above 1,00,00 and 564 below income.

Tool
Attitude towards Science Scale (Science Attitude Scale) developed by Avinash Grewal (1990) was used to measure the attitude towards science of secondary school students. The scale has 20 statements and each statement has 5 alternative responses namely strongly agree, agree, undecided, disagree and strongly disagree. The maximum score 99 and minimum score 25.

Data Collection
The researcher personally visited the various high schools situated in the urban and rural areas in Chittoor District, A.P, interacted with the secondary school students and explained the purpose of the study and they were requested to respond to the statements in the "attitude towards science" scale. The completed attitude towards science scale was collected on the next day.

Analysis and Interpretation of Data

Hypothesis 1A: *There is no significant difference in the attitude towards science of rural and urban secondary school students*

A comparison of the attitude towards science scores of rural and urban secondary school students was made to find out the difference in their attitude towards science.

Table 1: Comparison of Attitude towards Science of Rural and Urban Secondary School Students

Variable	*Sample size*	*Mean*	*S.D.*	*Mean Difference*	*S.E.D.*	*C.R.*
Rural	400	48.307	9.511	2.748	0.664	4.139*
Urban	400	51.055	9.265			

** Significant at 0.05 level*

As per table 1, the rural and urban secondary school students were with an average level of attitude towards science with a significant difference between them. The urban secondary school students possessed higher attitude towards science than their counterparts. The standard deviation values indicated that the scores in the sub-samples were distributed widely.

Hypothesis 1B: There is no significant difference in the attitude towards science of rural and urban secondary school students

A comparison of the attitude towards science scores of rural and urban secondary school students was made to find out the difference in their attitude towards science.

Table 2: Comparison of Attitude towards Science of Rural and Urban Secondary School Students

Variable	Sample size	Mean	S.D.	Mean Difference	S.E.D.	C.R.
Rural	400	48.307	9.511	2.748	0.664	4.139*
Urban	400	51.055	9.265			

* Significant at 0.05 level

As per table 2, the rural and urban secondary school students were with an average level of attitude towards science with a significant difference between them. The urban secondary school students possessed higher attitude towards science than their counterparts. The standard deviation values indicated that the scores in the sub-samples were distributed widely.

Hypothesis 1C: There is no significant difference in the attitude towards science of government and private secondary school students.

A comparison of the attitude towards science scores of government and private secondary school students was made to find out the difference in their level of attitude towards science.

Table 3: Comparison of Attitude towards Science of Government and Private Secondary School Students

Variable	Samplesize	Mean	S.D.	Mean Difference	S.E.D.	C.R.
Government	400	47.139	9.901	4.548	0.651	6.986*
Private	400	51.687	8.467			

* Significant at 0.05 level

As per table 3, both government and private secondary school students were possessing an average level of attitude towards science with a significant difference between them. The private secondary school students hold higher attitude towards science than their counterparts. The attitude towards science dispersed widely in government and private secondary school students.

Hypothesis 1D: There is no significant difference in the attitude towards science of Telugu and English medium secondary school students

A comparison of the attitude towards science scores of Telugu medium and English medium secondary school students was made to find out the difference in their attitude towards science.

Table 4: Comparison of Attitude towards Science of English Medium and Telugu Medium Secondary School Students

Variable	Sample Size	Mean	S.D.	Mean Difference	S.E.D.	C.R.
Telugu	223	50.021	10.000	0.744	0.748	0.995#
English	577	49.277	9.276			

Not Significant at 0.05 level

As per table 4, both Telugu medium and English medium secondary school students were possessing an average level of attitude towards science with no significant difference between them. The attitude towards science was dispersed widely in Telugu medium and English medium secondary school students.

Hypothesis 1E: There is no significant difference in the attitude towards science of residential and non-residential secondary school students.

A comparison of the attitude scores of residential and non-residential secondary school students was made to find out the difference in their attitude towards science.

Table 5: Comparison of Attitude towards Science of Residential and Non-residential Secondary School Students

Variable	Sample size	Mean	S.D.	Mean Difference	S.E.D.	C.R.
Residential	262	48.465	8.868	1.636	0.713	2.295*
Non Residential	538	50.101	9.732			

* Significant at 0.05 level

As per table 5, both residential and non-residential secondary school students were possessing an average level of attitude towards science. The non-residential secondary school students were possessing higher attitude towards science than residential secondary school students. The attitude towards science was dispersed widely in residential and non-residential secondary school students.

Hypothesis 1F: There is no significant difference in the attitude towards science of Hindu and non-Hindu secondary school students.

A comparison of the attitude towards science of Hindu and non-Hindu secondary school students was made to test the validity of the above hypothesis.

Table 6: Comparison of Attitude towards Science of Hindu and Non-Hindu Secondary School Students

Variable	Sample size	Mean	S.D.	Mean Difference	S.E.D.	C.R.
Hindu	651	48.388	9.307	1.799	0.859	2.094*
Non-Hindu	149	50.187	10.121			

* Significant at 0.05 level

As per the mean values, the Hindu and non-Hindu secondary school students possessed an average level of attitude towards science with a significant difference between them. The non-Hindu of secondary school students possessed higher attitude towards than their counterparts. The scores in both the samples were distributed moderately.

Hypothesis 1G: There is no significant difference in the attitude towards science of reserved and non-reserved caste secondary school students.

A comparison of the attitude scores of reserved and un-reserved caste secondary school students was made to find out the difference in their attitude toward science.

Table 7: Comparison of Attitude towards Science between Reserved and Unreserved Caste Secondary School Students

Variable	*Sample size*	*Mean*	*S.D.*	*Mean Difference*	*S.E.D.*	*C.R.*
Reserved	550	48.543	9.521	2.571	0.718	3.581*
Unreserved	250	51.114	9.172			

* Significant at 0.05 level

As per table 7, both reserved and unreserved caste secondary school students were possessing an average level of attitude towards science with a significant difference between them. The unreserved caste secondary school students were possessing higher attitude towards science than students belonging to reserved caste. The attitude towards science was dispersed widely in reserved and unreserved caste secondary school students.

Hypothesis 1H: There is no significant difference in the attitude towards science of native and non-native place secondary school students.

A comparison of the attitude towards science of native and non-native place secondary school students was made to find out the difference in their level of attitude towards science.

Table 8: Comparison of Attitude towards Science of Native and Non-native Place Secondary School Students

Variable	Sample size	Mean	S.D.	Mean Difference	S.E.D.	C.R.
Native Place	207	47.514	9.336	3.687	0.755	4.883*
Non-Native Place	593	51.201	9.355			

* Significant at 0.05 level

As per the mean values, the secondary school students from native place and non-native place possessed an average level of attitude towards science with a significant difference between them. The non-native place secondary school students were with more attitude towards science than their counterparts. The scores in the both the samples were distributed moderately.

Hypothesis 1I: There is no significant difference in the attitude towards science of secondary school students of parents with an annual income below Rs.100, 000 and above Rs.100, 000.

A comparison of the attitude towards science scores of science of secondary school students of parents with an annual income below Rs.100, 000 and above Rs.100, 000 was made to find out the difference in their attitude towards science.

Table 9: Comparison of Attitude towards Science of Science of Secondary School Students of Parents with an Annual Income below Rs.100, 000 and above Rs.100,000

Variable	Sample size	Mean	S.D.	Mean Difference	S.E.D.	C.R.
Above Rs.100,000	236	50.241	11.240	1.730	0.733	2.360*
Below Rs.100,000	564	48.511	8.603			

* Significant at 0.05 level

As per the mean values, secondary school students of parents with an annual income above Rs.100, 000 and below Rs.100, 000 families were holding an average level of attitude towards science with a significant difference between them. The secondary school students of parents with an annual income above Rs.100, 000 had higher attitude towards science than their counterparts.

Major Findings

1. The secondary school students had an average level of attitude towards science with a significant difference. The secondary school girls hold higher attitude towards science than secondary school boys.
2. The rural and urban secondary school students had an average level of attitude towards science with a significant difference between them. The urban secondary school students had higher attitude towards science than their rural counterparts.
3. The government and private secondary school students possessed an average level of attitude towards science with a significant difference between them. The private secondary school students had higher attitude towards science than their government secondary school students.
4. The Telugu medium and English medium secondary school students possessed an average level of attitude towards science without any significant difference between them.
5. The residential and non-residential secondary school students had an average level of attitude towards science with a significant difference between them. The non-residential secondary school students possessed higher attitude towards science than their residential school counterparts.
6. The Hindu and non-Hindu secondary school students possessed an average level of attitude towards science with a significant difference. The non-Hindu secondary school students had higher attitude towards science than their counterparts.
7. The reserved and un-reserved caste secondary school students had an average level of attitude towards science with a significant difference between them. The unreserved caste secondary school students possessed higher attitude towards science than reserved caste secondary school students.
8. The secondary school students from native place and non-native place possessed an average level of attitude towards science with a significant difference. The non-native place secondary school students had higher attitude towards science than the secondary school students from the place where school is situated.
9. The secondary school students of parents whose annual income is above and below Rs.100, 000 possessed an average level of attitude towards science with a significant difference between them. The secondary school students of parents whose annual income is above Rs.100, 000 had higher attitude towards science than their counterparts.

Conclusion

Science Education is gaining more attraction throughout the world. It is believed that the development of science education is one of the most important pre-requisite for the all round development of any economy in the world, higher the quality of science education that is provided in the country, higher would be the gains in all walk of life through the development of technology. The results of present investigation revealed that girls hold higher attitude towards science than secondary school boys. This is quite interesting to note was people, in general think that boys will poor in attitude towards science. The home factors such as income factors, appeared to be significant contribution for better development of attitude towards science among the secondary school students therefore it is believed that the development of science education and there by more positive attitude towards science may be achieved over generation and not instantly. The process of science education should be strengthened and given to priority to it in our educational system.

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