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A Study Of Scientific Attitude Of Primary School Students In The Context Of Type Of Schools And Achievement Of Students Of Ahmedabad District In Gujarat

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Abstract
Scientific attitude is generally associated with the mental process of scientists. These habits are important not only for the scientist but for everyone in everyday life and thinking. In present research, the researcher studied scientific attitude of upper primary school students in the context of type of schools and students' academic achievement. For present study, the researcher also used descriptive survey research method. The researcher selected 3170 upper primary school students from Ahmedabad district. The researcher visited the principals of each selected school and gave Scientific Attitude Scale. The research revealed that the students of self-finance schools have more scientific attitude than students of grant-in-aid schools. The research also revealed that the having high academic achievement have more scientific attitude than students having low academic achievement.

Key words: *scientific attitude, scientific attitude scale, upper primary school, Ahmedabad district.*

INTRODUCTION

Scientific approach is the most important outcome of science education. A scientific attitude is actually a combination of a number of mental habits or tendencies to consistently react in certain ways to novel or problematic situations. These habits or tendencies include accuracy, intellectual honesty, open-mindedness, suspended judgment, criticism, and the habit of finding cause and effect relationships. It is a cognitive concept. Scientific attitude is a complex behavioral aspect of science that has many characteristics and can be attributed to many conditions. Scientific attitude is generally associated with the mental process of scientists. These habits are important not only for the scientist but for everyone in everyday life and thinking. In present research, the researcher studied scientific attitude of upper primary school students in the context of type of schools and students' academic achievement.

OBJECTIVES OF THE STUDY

Objectives of present study are as follow:

1. To study scientific attitude of upper primary school students of Ahmedabad district.
2. To study scientific attitude of upper primary school students in the context of type of schools.
3. To study scientific attitude of upper primary school students in the context of their academic achievement.

HYPOTHESES OF THE STUDY

Hypotheses of present study are as mentioned below.

$H0_1$ There is no significant difference between mean scores of Scientific Attitude Scale obtained by students of grant-in-aid and self-finance schools.

$H0_2$ There is no significant difference between mean scores of Scientific Attitude Scale obtained by students having high and low academic achievement.

$H0_3$ There is no significant difference between mean scores of Scientific Attitude Scale obtained by students having high and low academic achievement of grant-in-aid schools.

$H0_4$ There is no significant difference between mean scores of Scientific Attitude Scale obtained by students having high and low academic achievement of self-finance schools.

VARIABLES OF THE STUDY

The researcher defined independent and dependent variables as mentioned below.

1. Independent Variables

1) Type of School

- Grant-in-aid
- Self-finance

2) Academic Achievement of Students

- High
- Low

2. Dependent Variables

The scientific attitude of students is dependent variable.

MEANING OF SCIENTIFIC ATTITUDE

A scientific attitude is a disposition to act in a certain way or a display of feelings and/or thoughts. The methods and skills used by scientists are closely linked to a set of general attitudes in the practice of science. Studies of the actions of scientists have led to a list of scientific attitudes. Some attitudes, such as conscientiousness, are expected in any human endeavour, but other attitudes, such as tolerance of uncertainty, are more characteristic of scientists.

A person with scientific attitude will have following characteristics:

1. Open mindedness
2. Objectivity
3. Freedom from belief in superstitions
4. Up-to-datedness
5. Suspended judgement
6. Critical in observation and thought
7. Methodical way of solving problem
8. Belief in cause-effect relationship
9. Respect for other opinions
10. Accuracy and truthfulness in reporting observations

LIMITATIONS OF THE STUDY

Following are the limitations of present study.

1. The researcher selected Grade 8 students for present study.
2. Upper primary schools were selected from urban and rural area of Ahmedabad district.
3. Only Gujarati medium students were selected as a sample.

RESEARCH PROCEDURE

Research is defined as a carefully considered study of a particular concern or problem using scientific methods. When information or data from a large sample is required, the survey method is used. A survey is a data collection tool used to collect information about individuals. Surveys are commonly used in psychology research to collect self-report data from study participants. A survey may focus on factual information about individuals or it may aim to elicit the opinions of survey takers. For present study, the researcher also used descriptive survey research method.

The researcher visited the principals of each school and obtained permission regarding data collection. The researcher then visited those schools on the date and time given by the principals. Students were given about one hour to fill the given scale. All the information about how to fill the scale was given to the students before giving the scale. The researcher has supported the students whenever they faced any problem while filling the scale. Finally, the researcher collected all the scales and packed them securely for further processing of scale examination and data analysis.

RESEARCH TOOL

The researcher constructed Scientific Attitude Scale for students of Grade 8 of upper primary schools of Ahmedabad district. In final scale, total 48 items were comprised. Each item has five responses: 1) Totally Agree, 2) Agree, 3) Neutral, 4) Disagree and 5) Totally Disagree.

SAMPLE OF THE STUDY

The researcher selected 3170 upper primary school students from Ahmedabad district. The final sample of study is given as below.

Table 1.0 Sample of the Study

Type of School/Academic Achievement	Grant-in-aid	Self-finance	Total
High	757	755	1512
Low	831	827	1658
Total	1588	1582	**3170**

DATA ANALYSIS

The researcher constructed three hypotheses to check effect of independent variables on scientific attitude. These hypotheses were checked using t-tests. The results of t-tests are mentioned below.

$H0_1$ There is no significant difference between mean scores of Scientific Attitude Scale obtained by students of grant-in-aid and self-finance schools.

Table 2.0 t-test between mean scores of students of grant-in-aid and self-finance schools

Type	N	M	SD	SED	t	Significance
Grant-in-aid	1588	87.18	20.86	0.75	4.83	0.01
Self-finance	1582	90.82	21.51			

df	0.05	0.01
3168	1.96	2.58

Above table shows result of t-test between mean scores of students of grant-in-aid and self-finance schools. Here, calculated t-value is 4.83. For df=3168, calculated t-values are 1.96 at 0.05 level and 2.58 at 0.01 level. Calculated t-value is more than table t-values at both levels. Therefore, hypothesis $H0_1$ is rejected and there is a significant difference between mean scores of Scientific Attitude Scale obtained by students of grant-in-aid and self-finance schools. Furthermore, mean score of students of self-finance school is more than mean score of students of grant-in-aid schools. This revealed that students of self-finance schools have more scientific attitude than students of grant-in-aid schools.

$H0_2$ There is no significant difference between mean scores of Scientific Attitude Scale obtained by students having high and low academic achievement.

Table 3.0 t-test between mean scores of students having high and low academic achievement

Achievement	N	M	SD	SED	t	Significance
High	1512	99.905	21.555	0.75	28.93	0.01
Low	1658	78.09	20.81			

df	0.05	0.01
3168	1.96	2.58

Above table shows result of t-test between mean scores of students having high and low academic achievement. Here, calculated t-value is 28.93. For df=3168, calculated t-values are 1.96 at 0.05 level and 2.58 at 0.01 level. Calculated t-value is more than table t-values at both levels. Therefore, hypothesis $H0_2$ is rejected and there is a significant difference between mean scores of Scientific Attitude Scale obtained by students having high and low academic achievement. Furthermore, mean score of students having high academic achievement is more than mean score of students having low academic achievement. This revealed that students of having high academic achievement have more scientific attitude than students having low academic achievement.

$H0_3$ There is no significant difference between mean scores of Scientific Attitude Scale obtained by students having high and low academic achievement of grant-in-aid schools.

Table 4.0 t-test between mean scores of students having high and low academic achievement of grant-in-aid schools

Grant-in-aid	N	M	SD	SED	t	Significance
High	757	97.54	21.63	1.05	19.73	0.01
Low	831	76.82	20.08			

df	0.05	0.01
1586	1.96	2.58

Above table shows result of t-test between mean scores of students having high and low academic achievement of grant-in-aid schools. Here, calculated t-value is 19.73. For df=1586, calculated t-values are 1.96 at 0.05 level and 2.58 at 0.01 level. Calculated t-value is more than table t-values at both levels. Therefore, hypothesis $H0_3$ is rejected and there is a significant difference between mean scores of Scientific Attitude Scale obtained by students having high and low academic achievement of grant-in-aid schools. Furthermore, mean score of students having high academic achievement of grant-in-aid schools is more than mean score of students having low academic achievement of grant-in-aid schools. This revealed that students of having high academic achievement of grant-in-aid schools have more scientific attitude than students having low academic achievement of grant-in-aid schools.

$H0_4$ There is no significant difference between mean scores of Scientific Attitude Scale obtained by students having high and low academic achievement of self-finance schools.

Table 5.0 t-test between mean scores of students having high and low academic achievement of self-finance schools

Self-finance	N	M	SD	SED	t	Significance
High	755	102.27	21.48	1.08	21.16	0.01
Low	827	79.36	21.54			

df	0.05	0.01
1580	1.96	2.58

Above table shows result of t-test between mean scores of students having high and low academic achievement of self-finance schools. Here, calculated t-value is 21.6. For df=1580, calculated t-values are 1.96 at 0.05 level and 2.58 at 0.01 level. Calculated t-value is more than table t-values at both levels. Therefore, hypothesis $H0_4$ is rejected and there is a significant difference between mean scores of Scientific Attitude Scale obtained by students having high and low academic achievement of self-finance schools. Furthermore, mean score of students having high academic achievement of self-finance schools is more than mean score of students having low academic achievement of self-finance schools. This revealed that students of having high academic achievement of self-finance schools have more scientific attitude than students having low academic achievement of self-finance schools.

MAJOR FINDINGS OF THE STUDY

From statistical analysis, following findings could be made.

1. The students of self-finance schools have more scientific attitude than students of grant-in-aid schools.
2. The students of having high academic achievement have more scientific attitude than students having low academic achievement.
3. The students of having high academic achievement of grant-in-aid schools have more scientific attitude than students having low academic achievement of grant-in-aid schools.
4. The students of having high academic achievement of self-finance schools have more scientific attitude than students having low academic achievement of self-finance schools.

CONCLUSION

In present research, the researcher studied scientific attitude of upper primary school students of Ahmedabad district. The researcher selected 3170 Grade 8 students from grant-in-aid and self-finance schools of Ahmedabad district. The researcher constructed Scientific Attitude Scale and standardized it. The research revealed that the students of self-finance schools have more scientific attitude than students of grant-in-aid schools. The research also revealed that the having high academic achievement have more scientific attitude than students having low academic achievement.

REFERENCES

1. Babbie, E. R. (2007). *The Basics of Social Research* (4th Ed.). California: Greg Hubit Bookworks.
2. Baumeister, R. F. (Ed.) (1999). *The self in social psychology*. Philadelphia, PA: Psychology Press (Taylor & Francis).
3. Dabas, N. (2011), *A Study Of Teacher Effectiveness Among Elementary School Teachers Of Haryana In Relation To Their Attitude Towards Teaching And Self-Concept* (unpublished doctoral dissertation), Department of education, Maharshi Dayanand University, Rohtak.
4. Garrett, H. E. (1981). *Statistics in psychology and educational*. Bombay : Vakil Fetter and Simons Pvt. Ltd.
5. Jose, A. (2001), *Adolescents' Creativity, A Study With Reference To The Self-Concept And Achievement Motivation* (unpublished doctoral dissertation), Department of social work, RCSS, Kalamassery, Kerala.
6. Kerlinger, F. N. (1997). *Multiple Regression in Behavioural Research.* Belmont : Wadsworth Publishing Co. Inc.
7. McGrath (1970). *Research methods and design for education*. Seaton: International text book company.
8. Staneson, R. S. (1975), Edited By : Ghanshyam B. Parekh. *Planning and Method of Educational Research.* Ahmedabad : Bharat Prakashan.
9. Sukhia, S. P. & Mehrotra, R. N. (1966), *Elements of Educational Research*, New Delhi: Allied Publishers.
10. Vaughen, G. M. (2010), *Essentials of Social Psychology*, Harlaw: Pearson Education Limited.