ORIGINAL RESEARCH PAPER

Education

KEY WORDS: Scientific Terms, Scientific Attitude, Science Interest, Behavioural Change.

A STUDY OF SCIENTIFIC ATTITUDE AND SCIENCE INTEREST OF SECONDARY SCHOOL STUDENTS IN PRAKASAM DISTRICT, ANDHRA PRADESH

Dr. Y. Chakradhara Singh Asst Professor, Faculty of Education, ICFAI University, TRIPURA.

C. Arundhathi Bai Asst Professor, Faculty of Education, ICFAI University, TRIPURA.

ABSTRACT

Science has brought about a change in our life style and also tremendous changes in our way of thinking, attitudes, outlook, etc. Science is part of our daily lives: all day, every day, and also where ever we go. It is playing a major role in the present age to satisfy the needs and desires of the people and has also become one of the human activities. Study of science develops our ability to generate many questions, collect information, organize and test our ideas, problem solving and apply what we learn. Not only these but also built a platform for building confidence, developing communication skills, and making science of the world around. Therefore, science has now become a compulsory subject in every system of school education right from the elementary stage. The study of science brings behavioural change in the learner and enriches his character and personality. It also gives opportunity for creative thinking and constructive imagination. Further, science as a subject has some very important virtues peculiar to it which imparts training of scientific method and develops scientific attitude and science interest in the learners. In this context "A Study of Scientific Attitude and Science Interest of Secondary School Students in Prakasam District, Andhra Pradesh" was conducted to identify the association of scientific attitude and science interest. For this purpose Descriptive survey method of research was used. A sample of 120 secondary school students were selected randomly from nine schools located in Prakasam District. The methodology includes chi- square (2) test.

INTRODUCTION

Science has become an integral part of our daily life and living. The thinking, feeling and actions of modern man are practically guided by the effects of science. Our habits and attitudes have also been affected by science. There is an involvement of science, direct or indirect, in all works as well as leisure of a modern man. The wonderful achievements of science has also glorified the modern world and transformed the modern civilization into a scientific civilization, and illuminated the human creative potential. Science has, in fact, radically transformed the material environment of the citizens of the modern society. In addition to its contribution to material benefits, science has also contributed a lot to the culture. It also specifies new natural laws through experimental work and using chain of evidence. And all these can be learned in a systematic, logical, thought oriented process through study of science.

Study of Science brings behavioural change in the learner and enriches his character and personality. It also develops our ability to generate many questions, collect information, organize and test our ideas, problem solving and apply what we learn. Not only these but also built a platform for building confidence, developing communication skills, and making science of the world around. Considering children for the future responsibilities of citizens, we will probably agree that helping children to become more co-operative, more responsible, more open-minded, and at the same time, more critical minded is certainly worth the effort by adopting scientific attitudes and transferring these to situations in everyday life. And therefore students can be expected to be more tolerant of other points of view and to be more successful in living and working along with other people.

Further, science as a subject has some very important virtues peculiar to it which imparts training of scientific method and develops scientific attitude and science interest in the learners. These qualities, viz., scientific attitude and science interest, are the major aspects to qualify an individual to live as truly efficient citizen in the present day scientific society. Scientific attitude is the most important outcome of science teaching, which is really a composite of a number of mental habits or of tendencies to react consistently in certain ways to a novel or problematic situations. These habits or tendencies include accuracy, intellectual honesty, open-mindedness, suspended judgment, criticalness and a habit of looking for the cause and effect relationship. And science interest is very essential for a successful person. Hence, it can be said that the study on these two aspects of secondary school students will trace out the problems concerned with its possession and ultimately helps in the development of such an important psychological trait.

With these aspects in mind, there is a felt need to study scientific attitude and science interest of secondary school students. The present study is limited to these two aspects of secondary school students who will be in the age group of 14+ and 15+ and to find out their inter-relationship. Importance is given to gender, locality of the school, type of management, and medium of instruction. The present work, "A Study of Scientific Attitude and Science Interest of Secondary School Students" was intended to identify whether there exists any association among scientific attitude and science interest.

OBJECTIVES

1. To identify the association of scientific attitude and science interest at secondary school level.
2. To compare the influence of following variables on scientific attitude and science interest of secondary school.

a) Gender b) Type of school c) Residence d) Medium of instruction

HYPOTHESIS

1. There is no significant positive association among scientific attitude and science interest of secondary school students.
2. There is no significant positive association among scientific attitude and science interest of boys and girls of secondary schools.
3. There is no significant positive association among scientific attitude and science interest of private and government secondary school students.
4. There is no significant positive association among scientific attitude and science interest of urban and rural secondary school students.
5. There is no significant positive association among scientific attitude and science interest of Telugu medium and English medium secondary school students.

DESIGN AND METHODOLOGY

Descriptive survey method of research is been employed for the present study. A sample of 120 students of IX standard was selected randomly from nine schools of Prakasam district, Andhra

Pradesh. Sample was collected from government, and private schools consisting of boys and girls of rural and urban areas.

TOOLS

Among the tools developed in India, the Scientific Attitude Scale developed by J.K. Sood And R.P.Sandhya was finalized for the final administration to measure the scientific attitude of secondary school students. Scientific Attitude Scale contained 36 statements of which 18 were of positive polarity and 18 were of negative polarity.

Science Interest Test standardized by L.N. Dubey and Archana Dubey was employed to measure the Science Interest of secondary school students. There are 64 statements in the test. 32 statements show liking for science subject while 32 statements indicate disliking for the subject.

STATISTICAL ANALYSIS

The data was analyzed using chi- square (X^2) test of independence.

ANALYSIS AND INTERPRETATION

Hypothesis -1

There is no significant positive association among scientific attitude and science interest of secondary school students.

To test the validity of hypothesis, the chi-square values are computed.

Table -1: Association in the Whole Sample (X^2 values)

Sample	*Scientific Attitude with Science Interest*
120	*29.02$*

d_f=4 P at 0.01 level is 13.28 *# Not Significant*

It can be seen from the above table -1, that there is a significant positive association among secondary school students of Prakasam district, Andhra Pradesh at 0.01 level.

The hypothesis that *there is no significant positive association among scientific attitude and science interest of secondary school students* can be rejected.

Hypothesis -2

There is no significant positive association among scientific attitude and science interest of boys and girls of secondary schools. To test the validity of the above hypothesis 2, chi-square values are computed and given below.

Table – 2: Association in Boys and Girls (X^2 values)

Variable	*Sample Size*	*Scientific Attitude with Science Interest*
Boys	*60*	14.44$
Girls	*60*	14.85$

$ Significant at 0.01 level

Equal positive association is seen in boys and girls among *their* scientific attitude and science interest.

The hypothesis that *there is no significant positive association among scientific attitude and science interest of boys and girls of secondary schools* can be rejected.

Hypothesis - 3

There is no significant positive association among scientific attitude and science interest in private and government secondary school students.

The hypothesis-3 is tested for its validity by applying the chi-square test. The results are as follows:

Table – 3: Association in the Students of Private and Government Schools (X^2 values)

Variable	*Sample Size*	*Scientific Attitude with Science Interest*
Private	60	24.67$
Government	60	11.96#

$ Significant at 0.01 level # Not Significant at 0.01 level

From the above table- 3, it is clear that there is a significant positive association of scientific attitude and science interest and high association is seen among the students studying in private schools. But no association is seen among scientific attitude and science interest in students of government schools.

The hypothesis that *there is no significant positive association among scientific attitude and science interest in private and government secondary school students* can be rejected.

Hypothesis - 4

There is no significant positive association among scientific attitude and science interest of urban and rural secondary school students.

To test the validity of the hypothesis- 4, the chi-square values are computed.

Table – 4: Association in the Students of Urban and Rural Schools (X^2 values)

Variable	*Sample Size*	*Scientific Attitude with Science Interest*
Urban	60	17.89$
Rural	60	15.27$

$ Significant at 0.01 level

It is evident from table-4 that more association of scientific attitude and science interest is found among the students studying in urban schools when compared to that of rural schools.

The hypothesis that *there is no significant positive association among scientific attitude and science interest of urban and rural school students of secondary schools* can be rejected.

Hypothesis - 5

There is no significant positive association among scientific attitude and science interest of Telugu medium and English medium secondary school students.

The association among scientific attitude and science interest in the students of Telugu and English medium schools is tried in the following way.

Table -5: Association in the Students Studying in Telugu Medium and English Medium Schools (X^2 values)

Variable	*Sample Size*	*Scientific Attitude with Science Interest*
Telugu	78	16.35$
English	42	12.99#

$ Significant at 0.01 level # Not Significant at 0.01 level

From the above table-5, it is clear that there is positive association between scientific attitude and science interest in Telugu medium students and no association is seen in English medium students.

The hypothesis that *there is no significant positive association among scientific attitude and science interest in the students of Telugu medium and English medium secondary school students* can be rejected.

FINDINGS

The present study found positive and significant relationship between scientific attitude and science interest of secondary school students. This study reveals that these two factors are interrelated. If students develop their scientific attitude, this in turn leads to the development of science interest and can be successful

in their academic performance. In this study, equal positive association is found in case of gender, which shows no gender difference may be due to the parents who have similar thinking and expectations towards their sons or daughters. Same thinking must be sprouted in parents residing in different parts of the country to equalize boys and girls. As expected more association is seen in the students of urban schools when compared to that of rural school students as they have more chances of exposure to scientific experiences. Teachers and government have to realise the fact and give special focus on rural as well as government schools, to bring out and develop these factors in them. Language is a channel for communication and everybody can excel in any field with it. Mother tongue might have helped Telugu medium students to understand the phenomena better than those of English medium students. And that may be one of the reasons to see positive association in Telugu medium students than in English medium students. On the whole, scientific attitude and science interest are average in the samples. There is a significant and positive association among scientific attitude and science interest.

SUGGESTIONS

Based on the findings of the study some suggestions are worth mentioning. One of the major aims of teaching science is invariably the development of scientific attitude in the student. It can be developed among students by manipulating various situations that influence certain characteristics of scientific attitude among students. So, special focus must be given by the teachers to promote scientific attitude in students through some procedures like taking students to science exhibitions, fairs, excursions, fieldtrips, industries, etc. And, there is also a need to arrange activities in teaching that develop science interest, which may be helpful in developing science interest among students. Due steps must be taken by the government especially in rural areas for the development of students.

Science activities give the students ability to think in new dimensions. By this, scientific attitude can be enhanced in the students, and thus get interested too. Hence there is a need to develop the facilities, and teachers should try to promote quality in science instruction to develop scientific attitude and science interest, along with the medium of instruction. Teachers and parents must try to focus on establishing and promoting the relationship between ability of thinking and learning, but not just on scoring in examinations.

SUGGESTIONS FOR FURTHER RESEARCH

Based on the present study, a good number of new areas can be studied by the future researchers. The areas and variables which are not covered in this study may be put to test to enlighten the factors associated with inculcation and development of scientific attitude and science interest and other factors associated with them. Studies may be conducted to identify the relation between different academic subjects regarding the development of scientific attitude and science interest. Critical observations can also be taken up at different levels, to identify the impact of peers on scientific attitude and science interest of individuals, to identify the factors that influence science interest, students studying in state and central schools, etc... Studies can also be conducted correlating scientific attitude and science interest in achievement in science.

REFERENCES

1. Abdul Gafoor, K., & Jaithra, V.S. (2012). Influence of Out of School Experiences on Interest in Science of Secondary School Students in Kerala. Indian Educational Review.
2. Bhaskara Rao, Digumarti and E. Sreekanth Babu (2004). Educational Interests of School Students. New Delhi : Discovery Publishing House.
3. Buch, M.B., (ed.), (1991). Fourth Survey of Research in Education. New Delhi: National Council of Educational Research and Training.
4. Gardner, P.L.(1998). The development of males' and females' interest in science and technology. In L.Hoffmann, A.Krapp, K.A.Renninger & J. Baumert (Eds), Interest and Learning. Proceedings of the seeon-conference on science interest and gender, 41-57. Kiel, Germany: Institute fuer die paedogogik der Naturwissenschaften (IPN).
5. Garret, Henry E. (1979). Statistics in Psychology and Education. Bombay: Peffer and Simons Pvt. Ltd
6. Ira C. Davis (1935). The Measurement of Scientific Attitudes. Scientific Education, 19.
7. Krapp, A., Hidi, S., and Renninger, K.A. (1992). Interest, learning and development. In K.A.Renninger, S. Hidi & A.Krapp (Eds.), The role of interest in learning and development. Hillsdale, NJ: Erlbaum.
8. Malviya, D.S.(1991). A Study of attitude towards science and interest in science of school going adolescents. V Survey of Research in Education, Vol. II, 1988-92, 1250.
9. Mangal, S.K. (1989). Educational Psychology. Ludhiana: Prakash Brothers.
10. Shrivastava, N.N.(1975). A Study of the Scientific Attitude and its Measurement. Ph.D. Education, Patna University. As cited by M.B. Buch: Third Survey of Research in Education. New Delhi: NCERT.
11. Vaidya, Narendra (1967). Problems solving in Science. Delhi : S. Chand and Co.