ATTITUDE TOWARDS SCIENCE EDUCATION AMONG SECONDARY SCHOOL STUDENTS

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ABSTRACT

Science education plays a pivot role in making man rational and develops independent thinking. Therefore, Science education gets an important and compulsory place in curriculum of primary and secondary school education. The purpose of the present study was to assess the attitude of secondary school students towards science education with respect to their gender, residential status and type of school and to achieve this objective Descriptive survey method was used. The secondary schools students of Yamunanagar serves as the population from which a sample of 200 students were drawn across 4 secondary schools chosen by random sampling technique. The attitude of students was assessed by using Attitude towards Science Scale by Anuradha Agnihotri. The results indicated that students have positive attitude towards Science education but there is no significant difference between the attitude of secondary school students with respect to their gender, residential status and type of school.

KEY WORDS: Science Education, Attitude towards Science, Secondary school students.

INTRODUCTION

Science education plays a pivot role in making man rational and develops independent and critical thinking. Therefore science education gets an important and compulsory place in curriculum of primary and secondary school education. There is a close interaction between science and the economic, political, social and educational issue of society; therefore there is hardly a need to justify the place of science in the scheme of general education for school students. Attitude towards science can be defined as the feeling, faith, and values held about anything that may be the venture of science, school science, the effect of science and technology on society, or scientists.

An attitude is an articulation of favour or disfavour towards a person, place or thing (attitude object).

An attitude can be as a positive or negative judgement of people, objects, events, activities, and ideas.

It could be concrete, abstract or just about anything in your surroundings.

The main attitude dualities are the following.

- Consciousness and the unconsciousness

- Extraversion and introversion

- Rational and irrational attitudes

- Individual and social attitude

Allport (1935) has defined "Attitude as a mental or neural state of readiness to response, organized through experiences exerting directive and dynamic influence upon behavior". The term attitude towards science is used to point out all possibilities that an individual feels and thinks about science and scientists.

Attitudes towards science, scientists, and learning science have always been a concern for science teachers. Attitude is much broadly used in discussing issues in science education and is often used in various contexts. Two broad categories are distinguishable. The first one is attitude toward science (e.g., interest in science, attitude toward scientists, or attitudes toward social responsibility in science). Attitude towards science can be defined as the feelings, beliefs and values held to an object that may be the part of science, school science, and the effect of science and technology on society. The second one is scientific attitude (i.e., open-mindedness, honesty, or skepticism). Scientific attitude is the desire to know and understand, questioning to all statements, search for data and their meaning, verification, and consideration of consequences.

Research studies that indicate positive correlations between achievement in science courses and positive attitudes toward science, attitude and certain characteristics of the classroom environments that include personal support, use of a variety of teaching strategies, innovative learning activities. Attitudes towards science and scientists influence views about science, future career cognizance and classroom participation. Students who have positive attitudes show increased concentration in the classroom instruction and participate more in scientific activities.

In the present social set up, science is more important for the common man. A little reflection will show what predominant role science play in our daily life. This is the subject which undisputed forms the basis of whole world commercial system. There is no mathematics, no art and no profession where science does not hold a main position. The accuracy and exactness of a thing is determined to

a greater extent by the amount of science utilized in it. Even Social Science like Economics, Psychology, and Geography etc. makes abundant use of Science. Even in medical area Science is used to measure the doses, blood pressure, pulse rate, the body temperature etc.

The attitude of students towards science was examined by **Crettaz (2004)**. Results of the study showed that men have more positive attitude towards science and greater levels of scientific knowledge than women. Scientific knowledge and education have an independent effect on attitude towards science but interaction between gender and scientific knowledge is significant. **Sethi (2015)** conducted a study on attitude of the students towards science in relation to certain non-school factors comprising a sample of 100 students. The main findings of the study show significant difference between urban and rural students but no significant difference was found on the basis of gender and socio-economic status**. Hacieminoglu (2016)** studied Elementary School Students' Attitude toward Science and Related Variables. The correlation results revealed the positive relationship between attitude toward science and the other variables. Multiple regression analysis indicated that while students' meaningful learning, self-efficacy, and nature of science views have a positive contribution. The results also showed that parents' income and education level had a significant effect on students' attitude toward science. **Sofiani (2017)** examined Gender Differences in Students' Attitude towards Science which indicated students' positive attitude towards science at medium level and there was no significant difference in attitude towards science between the female and male students.

JUSTIFICATION OF THE STUDY

It argues that the continuous decrease in number of students choosing science at the point of choice requires a research focus on students' attitudes towards science if the nature of the problem is to be understood and remediated. Starting from a consideration of what is meant by attitudes to science, it considers the problems relative to their measurement, what is known about students' attitudes towards science and the factors of influence such as gender, teachers, curriculum, cultural and other variables.

Science education has been considered as an important area of education. This field is important because it could improve science and technology education and increase the scientific attitude in higher education and other related fields. Therefore concerning the science education curriculum and the content of science books is so important. One of the fields to achieving the desired

curriculum is concerning the favorites, needs and attitudes of students towards science and technology, science that is taught in schools and environmental issues. Knowledge and cognizance of these areas would enable science curriculum planners to develop better and appropriate curricula. Present education system is learner centered. Learner is the elements that many believe have most important position in structure curriculum.

The investigation of students' attitudes towards science has been a substantive feature of the work of the science education research community for the past 40 years. Students' increasing reluctance to choose science courses, and physical science courses in particular, in their final years of secondary education has important implications not only for the continuity of scientific endeavor but also for the scientific literacy of future generations. As a result, development of positive attitudes towards science, scientists, and learning science, which has always been a constituent of science education, is increasingly a subject of concern. Hence keeping all these factors in view the investigator attempt an action to study the attitude of secondary school students towards science education.

STATEMENT OF THE STUDY

Attitude towards Science Education among Secondary School Students

OBJECTIVES OF THE STUDY

1. To assess the attitude of secondary school students towards science education.

2. To assess the difference in attitude of male and female secondary school students towards science education.

3. To assess the difference in attitude of rural and urban secondary school students towards science education.

4. To assess the difference in attitude of private and government secondary school students towards science education.

HYPOTHESES OF THE STUDY

1. There was no significant difference in attitude of secondary school students towards science education with respect to gender.

2. There was no significant difference in attitude of secondary school students towards science education with respect to residential area(Rural/Urban)

3. There was no significant difference in attitude of private and government secondary school students towards science education.

DELIMITATIONS OF THE STUDY

The present study was delimited to:

1. District Yamunanagar only.

2. A sample of 200 students only.

3. Secondary school students only.

RESEARCH METHODOLOGY

The first task of the investigation is to select appropriate methodology of research. There are several methods of collecting the data; choice of the method of research is determined by the nature of the problem. The present investigation attempts to study the attitude towards science education among secondary school students and to achieve this objective descriptive survey method was used.

POPULATION AND SAMPLE

The term "population" in statistics includes all members of a defined group that we are studying or collecting information on for data driven decisions. A part of the population is called a sample. A sample is a scientifically drawn group that actually possesses the same characteristics as the population if it is drawn randomly.

In present study, the secondary schools students of Yamunanagar serves as the population from which sample of 200 students were drawn across 4 secondary schools chosen by random sampling technique.

List of selected schools for data collection

Sr. no.	Name of school	Number of students
1	Arya kanya sen. sec. school, Jagadhri	50
2	Guru Nanak Khalsa sen. sec. school, Yamunanagar	50
3	Govt. girls sen. sec. school, Yamunanagar	50
4	Govt. model sen. sec. school, Jagadhri	50

TOOL USED

Attitude towards Science Scale by Agnihotri was used for the present study.

ANALYSIS AND INTERPRETATION

Analysis means the categorizing, ordering, manipulating and summarizing of data to obtain answer to research questions. The purpose of analysis is to reduce data to intelligible and interpretable form. So that relations of research problems can be studied and tested. Interpretation calls for a critical examination of the result of one's analysis in the light of all the limitation of gathered data. After collecting the data, it was analyzed and interpreted as follows:

SIGNIFICANCE OF DIFFERENCE IN THE MEAN SCORE OF MALE AND FEMALE STUDENTS' ATTITUDE TOWARDS SCIENCE EDUCATION

Table 1

Gender	Sample	Mean	Std. dev.	T value	Level of significance
Male	116	149.72	21.25	0.007	P<0.01=2.60
Female	84	157.29	17.11		

* Not significant at 0.01 level of significance with df/198

Table 1 reveals that the mean scores of male and female students are 149.72 and 157.29 and the standard deviation are 21.25 and 17.11 respectively. The table value at degree of freedom 198 for level of significance 0.05 and 0.01 is 1.97 and 2.60 respectively. The calculated value of 't' is 0.007 which is less than the table value of 't' at 0.01 level of significance, so the difference in mean of male and female students is **not significant**. Further this reveals that females have better attitude towards Science than males but the difference is not significant.

Thus the hypothesis i.e. "There is no significant difference in attitude of secondary school students towards science education with respect to gender" is retained.

SIGNIFICANCE OF DIFFERENCE IN THE MEAN SCORE OF URBAN AND RURAL SCHOOL STUDENTS'

ATTITUDE TOWARDS SCIENCE EDUCATION

Table 2

Area	Sample	Mean	Std. dev.	T value	Level of significance
Urban	109	154.03	20.67	0.380	P<0.01=2.60
Rural	91	151.54	19.02		

* Not significant at 0.01 level of significance with df/198

Table 2 reveals that the mean scores of urban and rural students are 154.03 and 151.54 and the standard deviation are 20.67 and 19.02 respectively. The table value at degree of freedom 198 for level of significance 0.05 and 0.01 is 1.97 and 2.60 respectively. The calculated value of 't' is 0.380 which is less than the table value of 't' at 0.01 level of significance, so the difference in mean of urban and rural students is **not significant**. Further this reveals that there is no significant difference in attitude towards science education among urban and rural students.

Thus the hypothesis i.e. "There is no significant difference in attitude of secondary school students towards science education with respect to residential area (**urban/rural**)" is retained.

SIGNIFICANCE OF DIFFERENCE IN THE MEAN SCORE OF PRIVATE AND GOVT. SCHOOL STUDENTS'

ATTITUDE TOWARDS SCIENCE EDUCATION

Table 3

Type of school	Sample	Mean	Std. dev.	T value	Level of significance
Private	72	155.61	20.79	0.150	P<0.01=2.60
Govt.	128	151.38	19.34		

* Not significant at 0.01 level of significance with df/198

Table 3 reveals that the mean scores of private and government school students are 155.61 and 151.38 and the standard deviation are 20.79 and 19.34 respectively. The table value at degree of freedom 198 for level of significance 0.05 and 0.01 is 1.97 and 2.60 respectively. The calculated value of 't' is 0.150 which is less than the table value of 't' at 0.01 level of significance, so the difference in

mean of private and govt. school students is **not significant**. Further this reveals that there is no significant difference in attitude towards science education among private and government secondary school students.

Thus the hypothesis i.e. "There is no significant difference in attitude of private and government secondary school students towards science education" is retained.

MAIN FINDINGS AND DISCUSSION

After interpretation and comparison of the views the main findings drawn are as follows:

1. There is no significant difference in attitude of secondary school students towards science education in relation to their gender. Hence the gender does not influence the attitude. This was in conformity with the study done by Sofiani (2017) examined Gender Differences in Students' Attitude towards Science which indicated students' positive attitude towards science at medium level and there was no significant difference in attitude towards science between the female and male students. The study is of great importance to science teachers in order not to discriminate on gender when teaching science.

2. There is no significant difference in attitude of secondary school students towards science education in relation to their residential background. Hence the residential background does not affect the attitude of secondary school students towards Science education.

3. There is no significant difference in attitude of government and private secondary school students towards science education. Hence the type of school does not affect the attitude of secondary school students towards Science education.

CONCLUSION

Science education is the need of the hour. To develop reflective thinking, the teachers, parents and educationists should help the students to develop a favourable attitude towards science. The science education is important from practical point of view. By developing a positive attitude towards science, students can meet the challenges of technological developments and can distinguish between right and wrong as these get developed through science. The results of present study indicates no significant difference in attitude of secondary school students towards Science education with respect to gender, residential status and type of school.

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