

SECONDARY SCHOOL STUDENTS' INTEREST IN SCIENCE

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Abstract

The researcher is anticipated to study the secondary school students' interest in science. The objectives proposed were to measure secondary school students' interest in science, to compare science interest of boys and girl students, to compare science interest of students from middle and lower Socio-Economic Status and to compare science interest of students from private aided and Municipal Corporation schools.

The null hypotheses were there is no significant difference between science interest of boys and girl students, there is no significant difference between science interest of students from middle and lower Socio-Economic Status and there is no significant difference between science interest of students from private aided and municipal corporation school.

Descriptive survey method of research was used. The population includes all the students from secondary school in Pune city. The sample consists of 1454 students in 29 Secondary schools in Pune city. Random sampling method was adopted for the selection of the schools, while purposive cum incidental sampling method was used for the selection of divisions and students.

Dubey and Dubey's Science Interest Test (SIT) was used for the collection of data. It was adopted by the researcher in Marathi. Mean, standard deviation and t- test has been used as statistical tool. The conclusions of the study are the secondary school students have above average interest in science, Girls are more interested in science compared to boys, but this difference is not significant, Students from middle Socio-economic status group having more interest in science when compared with the students from lower Socio-economic status group, but this difference is also not significant. Student from private aided school having more interest in science when compared with the students from Municipal Corporation School, but this difference is too not significant.

Keywords: *Secondary school students, Interest in science*

Introduction: The scientific and technological advancement of today is a long journey from the stone-age to the space-age. The discoveries in the field of information technology, space, biotechnology, genetic engineering, atomic energy, medicine, automobile, entertainment, education, communication, agriculture, defence, transport opened up many possibilities for further advancement. There is an explosion of information available to man leading to the bang of knowledge on all fronts. The pace of research and development is accelerated due to modern equipments, computers and internet for the welfare and betterment of human life. Science has shrunk the world as a global village and has contributed in changing the human life. Infact science now has all pervading influence on every sphere of human activity; further modern science is no longer confined to the surface of this globe. It has reached beyond the

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earth, on moon, mars and other planets in the solar system. Science has helped the man to acquire supremacy over the nature. This has made science more important than ever before.

Science also plays a vital role in the development of many qualities in the individual thereby helping him to be a good citizen in the society. Scientifically and technologically literate citizenry required in an increasingly democratic society. In this context relevant quality science education is a key tool to develop basic knowledge, life skills and critical thinking in people to participate meaningfully in the rapidly evolving world society.

Science is the effort to discover and increase human understanding of how the physical world works. Through controlled methods, scientists use observable physical evidence of natural phenomena to collect data, and analyze this information to explain what and how things work. Such methods include experimentation that tries to simulate natural phenomena under controlled conditions and thought experiments. Knowledge in science is gained through research.

As everyday dawns with scientific invention, this explosive expansion of scientific knowledge has penetrating influence on nation's economy. Today in our life we enjoy as a result of scientific inventions only.

Science content informed by a historical perspective enables the learner to appreciate how the concepts of science evolve over time. It also helps the learner to view science as a social enterprise and to understand how social factors influence the development of science. As science placed in the wider context of the learner's environment, local and global enable him to appreciate the issues at the interface of science, technology and society, and equipping him with the requisite knowledge and skills to enter the world of work. Science plays a vital role in the economic and social development of a country. Science is considered as the backbone of civilization.

The scientific Policy Resolution of the Government of India, (1958), Indian Education Commission (1964-66), UNESCO's International Education Commission (1972) underlines the importance of science.

Science Education: Science education occupies a very eminent place in curriculum both at school and university stages of education. Today's children are tomorrow's citizens. It is therefore essential to develop proper interests, abilities and appropriate skills in younger generations to prepare them for the use science and technology.

The Science Policy Resolution (1958), National Curriculum for Primary and Secondary Education, (1985), The National Policy on Education (1986), recognised science and

technology as a key factor for economic development and for inculcating the basic human values.

Science education engages the learner in acquiring the methods and processes that lead to the generation and validation of scientific knowledge and nurtures the natural curiosity and creativity of the child in science. Thus, it helps the student in 'learning to learn' science.

In this era of Science and Technology, lot of information is generated; there is an explosion of information. Students have to pick up this information quickly in a very short period. We know that knowledge without understanding is not only useless but also harmful. Therefore grasping of information (knowledge) can be done only when they have interest and the abilities to learn science content.

The study of science gives pupils a better understanding of the things around them. It gives experience with the scientific method in solving problems. It also helps them better to adjust their methods of living to changes in the Science and Information Technology age. The science curriculum will be designed according to the objectives of the course. Many commissions and individuals have proposed different objectives of science teaching. In general the objectives of science education are:

Functional information of habits, Functional concepts, Functional understanding of principles, Instrumental skills, Problem solving skills, Attitudes, Appreciations, Interests

All the aims and objectives of science education directly or indirectly stress the importance of science abilities, scientific attitudes, scientific aptitudes, skills and interest in science.

Interest in Science: One of the major aims of teaching science is to create an interest in the subject. According to Tyron Edwards, to awaken interest and kindle enthusiasm is the sure way to teach easy and successfully.

Interest in Science is the liking of the students to learn science content and participate in science activities of school level. It is indicated by reading, collecting, studying or becoming involved in scientific activity as a leisure time pursuit.

A science teacher should know the interest of the students towards the science as a subject. Instructions should begin at the point of interest of the students and this cannot be accomplished unless the interest is known. To test the students' interest in science the Science Interest Inventories are very useful. Students become involved in science content or activities that enable them to pursue and develop their interests. Sometimes, the interest in science is derived from the developed abilities of students in science.

Need and Importance of the study: Science teaching should be effective through which interest in Science should be created among the students. The students in whom the interest in science is created and developed, they pay attention toward science teaching. They select and perform the activities related to science, read the books on science, write about the science, listen and watch the programs related to science in this way, their knowledge about the science content increases. They get motivated for deep study; their involvement in science related activities increases.

After their school education many students want to select science side as a field of career. We require many scientists, doctors, engineers, technicians and skilled workers. Most of the jobs are related to the science base so these students get proper jobs in the field of science and some of them become tomorrow's scientists. The others who do not take science as a field of career, after standard X, the knowledge of science and attitude towards science will be less in them. But they should become science literate, which is a need of the day. In our daily life we interact with or use various scientific instruments which also require little bit knowledge of science. The future society will be the learning society; Most of the content in this lifelong learning will be related to science. If the student has interest in science, he will be able to learn throughout the life easily and interestingly. Therefore researcher decided to study the secondary school students' interest in science.

Statement of the problem: To study the secondary school students' interest in science

Operational Definitions of Terms

Interest in science: It is the liking of the students to learn science content and participate in science activities of school level, which is indicated by reading, collecting, studying or becoming involved in scientific activity as a leisure time pursuit.

Secondary school students: The students studying in secondary classes (standard IX and standard X) of secondary school are the secondary school students.

Objectives of the study: The objectives proposed for the present study were -

1. To measure secondary school students' interest in science.
2. To compare science interest of boys and girl students.
3. To compare science interest of students from middle and lower Socio-Economic Status
4. To compare science interest of students from private aided and Municipal Corporation schools

Assumptions: The present study was based on the following assumptions:

1. Interest plays a vital role in the learning of science content.

2. Interest in science is affective in nature.
3. Science teaching process leads to the development of interest in science among the students.
4. Science interest can be measured by the tests.

Hypotheses: Following null hypotheses have been formulated and subsequently tested in this study-

1. There is no significant difference between science interest of boys and girl students.
2. There is no significant difference between science interest of students from middle and lower Socio-Economic Status.
3. There is no significant difference between science interest of students from private aided and municipal corporation school.

Research Methodology

Method of Research: In the present work, to study the interest in science, descriptive survey method of research was used.

Population and Sample: The population includes all the students from secondary school in Pune city.

The sample consists of 1454 students in 29 Secondary schools in Pune city. Random sampling method was adopted for the selection of the schools, while purposive cum incidental sampling method was used for the selection of divisions and students from IX standard. Students from Higher socio-economic status were excluded from the study, since enough number was not available.

Tool for data collection: For the present study the researcher used Dubey and Dubey's Science Interest Test (SIT) for the collection of data. It was adopted by the researcher in Marathi and used for evaluating students' interest in science. As the test is in Hindi, it was adopted in Marathi by the researcher and then subjected to pre-testing, for the final study.

There are 64 statements in the test. 31 statements show liking for science subject while 33 statements indicate disliking for the subject. Statement showing liking with response 'Yes' should be awarded one mark and for response, 'No' award zero mark. Statement showing disliking with 'No' response should be awarded one mark and for response 'Yes', award zero mark. All the mark should be added up.

The scores obtained with the help of the Science Interest Test are interpreted as given in the following table.

Table No. 1: Interpretation of Scores - Science Interest Test

Sr. No.	Scores	Interpretation
1	54 and above	Very High Interest
2	48-53	High Interest
3	42-47	Above Average Interest
4	36-41	Average Interest
5	30-35	Below Average Interest
6	24-29	Low Interest
7	23 and below	Very Low Interest

Statistical techniques

The data collected by the tools was analyzed with the help of the various statistical techniques. To study the interest and ability in science, mean and standard deviation has been used. To test the significant difference between mean scores of different variables, t- test has been used.

Scope and limitations and delimitations of the study

Scope: In this study researcher intends to find the interest of students in science. The scope of this study was the science interest of secondary school students.

Limitations: The conclusions of this research work are dependent on the responses given by the students to the Science Interest test.

Delimitations: The study has been delimited to the following aspects only-

1. The schools following the syllabus of Maharashtra State Board of Secondary and Higher Secondary Education, Pune were considered for this study.
2. This study was also limited to the students studying in Marathi medium schools only.
3. The study was limited to the schools in Pune city only.
4. The private aided schools and the schools run by the Pune Municipal Corporation were taken for this study.
5. This study was related to interest in science only.
6. The content coverage of Science Ability Test is based on the IX standard science subject.

Data analysis and Interpretation: To study the secondary school students' interest in science the researcher collected data from the students with the help of Science Interest Test (SIT). It gives the raw scores of student's interest in science. These scores were arranged in a frequency distribution mean of science interest score was calculated. This data was further

grouped according to their Sex, Socio- Economic Status and the type of school. The means of the SIT scores of the secondary school students were compared for the comparison of Interest in science between two groups. The means of their SIT scores are given below.

Table No. 2: Comparison between Means of SIT Scores of Boys and Girls

Sr.No.	Students	N	Mean	Science Interest
1	All Students	1454	45.77	Above average
2	Boys	697	44.65	Above average
3	Girls	757	46.80	Above average
4	Middle SES	575	46.70	Above average
5	Lower SES	879	45.14	Above average
6	Private aided schools	1205	46.06	Above Average
7	Municipal Corporation schools	249	44.37	Above Average

Testing the Hypotheses

The researcher had decided to study the secondary school students' interest in science. Accordingly three null hypotheses for interest were stated. t- test was used to test the significance difference between two means and test these hypotheses. The means Standard deviations, calculated t- value is given in the table.

Table No. 3 : Mean Standard deviation and t-value of Science Interest Scores

Hy. No.	Students	N	Mean	SD	t-value (calculated)	Hypothesis
1	Boys	697	46.65	10.87	0.00012	Accepted
	Girls	757	46.80	10.38		
2	Middle SES	575	46.70	10.20	0.00624	Accepted
	Lower SES	879	45.14	10.92		
3	Private aided school	1205	46.06	10.36	0.0228	Accepted
	Municipal Corporation school	249	44.37	11.21		

*t- value from Table at 0.01 level is 2.576

Conclusions

On the basis of obtained data, analysis, interpretation and findings the following are the major conclusions of the study:

1. The secondary school students have above average interest in science.

2. Girls are more interested in science compared to boys, but this difference is not significant.
3. Students from middle Socio-economic status group having more interest in science when compared with the students from lower Socio-economic status group, but this difference is not significant.
4. Student from private aided school having more interest in science when compared with the students from Municipal Corporation School, but this difference is not significant.

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