

Scientific Temper: Need of an Hour

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Introduction

Ultimate aim of education is for harmonious development of mankind leading to harmony in society. Students are exposed to various subjects during their academic journey. Education is a mix bag of various facts, observations, theories, process, findings, experiments, thoughts etc. Learning outcomes are not to be quantified. Marks have become the benchmark of learning outcome but that's not correct. Learning outcomes are to be observed in terms of transfer of learning. Transfer of learning can be described like attitude building, skill development, critical thinking, temperament etc. These qualities help to nurture and transform society. Curriculum is designed to nurture these qualities where content is the medium. Each subject has its own reflection and contribution in learner's development.

Concept of Scientific Temper

Scientific Temper is a thought process. It describes an attitude which involves the application of logic. Jawaharlal Nehru was the first to use the phrase "Scientific Temper" in 1946. He believed that scientific temperament is a state of mind which is free from superstitions, prejudice, rigidness, irrationality, close mindedness and other parochial tendencies. In his book *Discovery of India*, he says that Scientific Temper is "The refusal to accept anything without testing and trial, the capacity to change previous conclusions in the face of new evidences, the reliance on observed fact and not on pre-conceived theory". Scientific Temper has positive impact on social development.

Scientific Temper: The Need of Hour

Developing Scientific Temper is a constitutional duty. Constitution Article 15A (h) says “It shall be the duty of every citizen ... to develop the Scientific Temper, humanism and spirit of inquiry and reform”. India is one of the most diversified nations in terms of caste, creed, religion and demography. Scientific Temper is the element which addresses diversity on a uniform platform. It has power to change previously set notions with the help of new evidences. Scientific Temper is the spirit of free man. So Scientific Temper is much of a social tool which every citizen should possess.

Developed nations like US have realized the positive correlation between science education and GDP. So they have deep focus on science education and rigorous POA for science teaching. Post independence, lot of efforts have been put for developing Scientific Temper and make Indian culture free from superstitions, prejudices and parochial tendencies. But a lot has to be achieved yet. If one were to list few important points for country’s backwardness, lack of Scientific Temper would be in the top position (Bhargava and Chakrabarti,2010). Dream of Nehru seems to be unrealized despite of significant growth in science and technology.

Various committees, commissions and NCF2005 recommended that pedagogy of science need not be limited till the cognitive development but affective domain should be developed. It also recommends imbibing values like honesty, cooperation, humanism, preservation of science, critical thinking, scientific temper etc.

Municipal School students come from the strata where poverty, illiteracy, unhygienic condition prevails maximum. This is a big mass School teachers put lot of efforts in development of Scientific Temper. Researcher constructed a situational test to measure Scientific Temper among these students.

Objective

The main aims of present attempt are as follows:

- To study the levels of scientific temper among students of Std. VIII
- To study the effect of gender on scientific temper of student studying in Std. VIII

Research Question

- Is there a difference between scientific temper of boys and scientific temper of girls?

Research Design

The study has adopted descriptive survey method. Sample of 200 students studying in Municipal Schools of Ahmedabad City were selected by random sampling technique.

Tool information

Researcher prepared self developed tool for measuring Scientific Temper. It was a situational test comprising of 40 situations. Tool was validated by seeking expert guidance.

Analysis and Interpretation

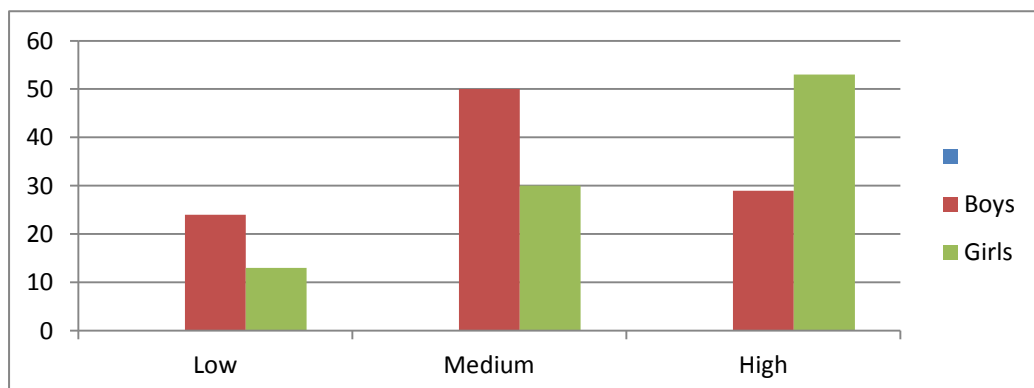
Distribution of data as per levels of scientific temper is given below.

Table-1

Genderwise distribution of students as per their level of scientific temper

Gender	Low (1% to 33.33%)	Medium (33.34% to 66.66%)	High (66.67% to 100%)	Total
Boys	24	50	29	104
Girls	13	30	53	96

Table-1 shows that numbers of boys having high scientific temper are low then number of girls having high scientific temper. A graphic representation is the geometrical image of a set of data. To get the vision of the above distribution graph was drawn and is shown as graph-1



Graph-1

Genderwise distribution of students as per their level of scientific temper

RQ-1: Is there a difference between scientific temper of boys and scientific temper of girls?

In order to know the influence of gender on scientific temper, mean difference of scores of scientific temper of boys and girls was computed. “t” test was computed to findout significance of difference. Table-2 shows the Summary of result of scientific temper with respect to gender of students.

Table-2

Summary of result of scientific temper with respect to gender of students

Gender	N	Mean	SD	Mean diff.	“t” value
Boys	104	22.92	8.11	4.79	6.47
Girls	96	27.72	6.63		

Fromtable-2 it is evident that t-value is 6.47, that is significant at0.01 level. It reflects that mean score of scientific temper of boys and girls do differ significantly. Mean scores of boys is 22.92 and girls is 27.72, which indicates that girls have high scientific temper than boys.

Suggestions

The research reveals that more number of students has average scientific temper. The result is eye opening for the society. Science education needs to be redesigned by teachers in this direction. Science teachers should share the responsibility for the development of scientific temper. Following guidelines can act as torchlight to school education:

- Science and scientific temper are not synonyms. Beyond content delivery rigorous efforts have to be put for the development of scientific temper.
- Subject content should be closely linked with daily life examples to imbibe scientific temper.
- Pedagogy should be such that students have maximum hands on experience of science, so they can relate the content with daily life.
- Today’s students are digital natives. Digital world has lot of influence on their behavior. Audio clips, video clips can be designed to give students exposure about developing scientific temper.

- STEM approach should be promoted for science education.
- School students should be a part of social survey for the beliefs and superstitions prevailing in the society. This mass movement will help students capture true image of society and motivate them to be the catalyst in developing scientific temper.

References

- Bhargava P M and Chakrabati C (2010) Angels, Devils and Science: A Collection of Articles on Scientific Temper, National Book Trust, New Delhi, India
- Mahanti S (2013) A perspective on Scientific Temper in India, Journal of Scientific Temper, 1(1&2).PP:44-62
- NCERT (2005). Position Paper of the National Focus Group on Teaching of Science, NCF- 2005, National Council of Educational Research and Training, New Delhi
- Nehru, Jawaharlal (1989). The Discovery of India (Centenary ed.). Oxford: University Press. p. 513.
- Scientific Temper Statement Revisited: The Palampur Declaration (2011). [http:// st.niscair.res.in/node/56](http://st.niscair.res.in/node/56).

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