



## Need of Scientific Temper in evolving India

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### ***Abstract***

*Indian science flourished initially in the immediate post independence era, but modern Indian science establishment is now struggling to survive in the University's Science Departments. In fact for an overall growth and development of any organization or the country as a whole, we have to foster a Scientific Temper in the citizens with absolute capacity for critical evaluation. The lack of Scientific Temper weakens our ability to take rational decisions. This may be the reason why the concept of "Scientific Temper" was built-in in our constitution. our education system has all provisions of developing scientific temper, but they are not being implemented the way they should be Though activity based teaching learning methods are talked about but are seldom practiced in our schools. The teaching-learning is mostly school-centred whereas for developing scientific attitude and scientific skills the education system should be made child centred. The principal component of education should be the development of scientific temper. The objective of school education is to develop an active and informed learner not a passive and unaware one.*

***Key Words:*** Scientific Temper, citizen of India, knowledge

### **Introduction**

Eminent scientist and Bharat Ratna awardee Dr. CNR Rao said, "scientific temper is nothing but the way of viewing life, everyday happenings in life." Spread of Scientific temper in society is much more important than the spread of science and technology. Any citizen, whether a scientist or not, or whether a student of science or not, can and should possess a scientific temper. "A Statement on Scientific Temper" prepared by a group of scholars and issued on behalf of the Nehru Centre, Bombay, in July 1981, mentions that "Scientific Temper involves the acceptance, amongst others, of the following premises:

### **Issues of Scientific Temper acceptance**

- (a) That the method of science provides a viable method of acquiring knowledge;
- (b) That the human problems can be understood and solved in terms of knowledge gained through the application of the method of science;
- (c) That the fullest use of the method of science in everyday life and in every aspect of human endeavour from ethics to politics and economics is essential for ensuring human survival and progress; and
- (d) That one should accept knowledge gained through the application of the method of science as the closest approximation of truth at that time and question what is incompatible with such knowledge; and that one should from



time to time re-examine the basic foundations of contemporary knowledge.”

approach our problems – political, economical, cultural and educational.

Though the importance of scientific temper had been generally recognised, no specific role or place was assigned to it in the Indian Constitution as originally enacted. The Fifth Parliament by the 42<sup>nd</sup> Amendment to the Constitution inserted Part IVA which consists of only one article namely Article 51A.

Article 51 (A) says that “it shall be the duty of every citizen of India to develop the scientific temper, humanism and the spirit of inquiry and reform”. A true citizen of India, a good citizen of India, anyone who swears allegiance to the Indian Constitution is duty bound to develop the scientific temper. Scientific temper is neither a collection of knowledge or facts, although it promotes such more. It is an attitude of mind, which calls for a particular pattern of behaviour.

It is the duty of every true citizen of India to acquire those attributes and to wage war on the enemies of the scientific temper. How many people in this country are aware of this fundamental duty? How many, being aware, make any effort towards its fulfilment? The answer is highly disappointing. The ongoing science education is limited on textbook only and not fostering into people ( Ronotosh Chakroborty ).

It has called upon all scientists, technologists, social scientists, educationists, teachers, media men to join hands and undertake on priority basis the task of nurturing scientific temper. It is of universal applicability and has to permeate through our society as the dominant value system powerfully influencing the way we think and

Our nation's survival and its future depend upon the upholding of the scientific temper. I quote Jawaharlal Nehru who did more than anybody else to develop scientific institutions in this country. He has stated in his 'Discovery of India' (page 452) as follows:

“Too many scientists today, who swear by Science, forget all about it outside their particular spheres. The scientific approach and temper are, or should be, a way of life, process of thinking, a method of acting and associating with our fellow-men. That is a large order and undoubtedly very few of us, if any at all, can function in this way with even partial success. But this criticism applies in equal or even greater measure to all the injunctions which philosophy and religion have laid upon us. The scientific temper points out the way along which man should travel. It is the temper of a free man. We live in a scientific age, so we are told, but there is little evidence of this temper in the people anywhere or even in their leaders”.

Indian science flourished initially in the immediate post independence era, but modern Indian

science establishment is now struggling to survive in the University's Science Departments (S. B. Kabiraj ). In fact for an overall growth and development of any organization or the country as a whole, we have to foster a Scientific Temper in the citizens with absolute capacity for critical evaluation. The lack of Scientific Temper weakens our ability to take rational decisions. This may be the reason why the concept of “Scientific Temper” was built-in in our constitution.



According to Viswanath, science education has an important role to play in the all-round cultural and societal development of human kind and for evolving a civilized society. The essence of scientific spirit is to think globally and act locally, since scientific knowledge is universal in nature while the fruit of science have some site specificity. Similarly Kalbag (1991) says that the scientific temper or scientific approach is a refinement of the process of thinking that comes naturally to every human being.

#### **Challenges and Limitations of the Existing Education System in Developing Scientific Temper**

Though a number of efforts are being made for developing scientific temper among the students through school education system, but there are several problems and challenges in achieving the objectives of providing minimum science for all. Some of such challenges are as given below:

- The traditional chalk and talk method of teaching science which hardly creates any interest among the students towards science.
- Minimum use of learning science by doing. Hardly any special effort is taken to raise the curiosity of the students. Even if any student dares to ask questions beyond the scope of class, he/she is not encouraged.
- Lack of trained teachers and science communicators in the schools. Normally the science teachers aim at completing the syllabus instead of inculcating the basic scientific skills

including the scientific attitude among the students.

- Lack of interactions between science communicators and teachers/students is another big challenge also reflects a challenging scenario before the existing education system. Trained science communicators contribute in the development of scientific temper in the society and their absence augments the hindrance in developing an informed society.
- Also science laboratories are not equally equipped and are not used for experimentation and discovery.
- The biggest challenge in developing scientific temper is the existing examination and evaluation system. Because the examination system does not allow to think out of the box, which is the basic requirement of developing scientific attitude. In fact, students are taught to answer the questions, rather than questioning the answers. Unless we develop an ability to raise questions, it may not be possible to achieve the objective of developing scientific attitude among the people.

#### **Conclusion**

Conclusively it can be said that though our education system has all provisions of developing scientific temper, but they are not being implemented the way they should be. Though activity based teaching learning methods are talked about but are seldom practiced in our schools. The teaching-learning is mostly school-centred whereas for developing scientific



attitude and scientific skills the education system should be made child centred. The principal component of education should be the development of scientific temper. The objective of school education is to develop an active and informed learner not a passive and unaware one. The curriculum must talk to the learners and enables children to examine, analyse everyday experiences. As the NCF recommendations, the spirit of 'Children's Science Congress' should be revolutionized in order to promote discovery learning across the nation. Effort should be made to encourage maximum use of innovative teaching learning aids/ instruction materials like audio-visuals aids in science learning which in turn help in developing scientific temper among the students. . The feudalistic mindset, consequent authoritarianism and no scientific temper among science people cause this decline in science.

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