

Scientific Thinking and Value Education

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ABSTRACT: The progress of human civilization is the result of scientific thinking. It brings continuous enhancement in the quality of life. It is an established fact that quality of life depends on the quality of thought. Quality of thought refines human life and living and enhances excellence in performance. But life without values is of no use and a society without values is a society of savage people. Scientific thinking and value education seem to be moving in two divergent directions but they converge at one point giving life a purposeful meaning. Scientific thinking facilitates the mental well being of an individual and values strengthen the social and emotional aspects of behavior. Values make the life valuable, useful and respectable. Both are equally important for the holistic development of the personality of a man.

Keywords: Scientific thinking; quality of life; value education; holistic development

INTRODUCTION

Scientific thinking is a way of careful and logical thinking. It is the process by which knowledge and understanding are developed in the mind. It is generated by cognitives. Man, as we know, is a social animal. But in fact he is a rational animal. Man is social no doubt; but he is social because he is rational. Had he not been rational, he would not have been social. His rationality consists in his ability to think and reason. He is able to think clearly and make decisions based on reason. Man is the only being endowed with higher power of memory. It is this higher power of memory that helps him to take part in thinking, reasoning and imagination. It is because of these faculties that he is superior to and different from other animals. That is why he is called the crown of creation. Man is called the crown of creation. He is the highest workmanship of God. Man got this honour because of certain qualities in him. These qualities are called human values. Truthfulness, purity, honesty, love, character compassion, patience, perseverance, service and sacrifice are numerous such qualities as are worthy of human values. These human values separate human beings from other animals. These are of great importance in human life. If these do not appear in human beings, he is placed in the category of animals. Man is a man, not because of his appearance or countenance but because of his behavior that makes him a man and bestows on him the epithet of manhood or grant him manhood. These values are generated by feelings. They are moral judgments and are the moral aspects of a culture. Our country needs both men of character and men of intellectual abilities and skills. Persons with scientific thinking are asset to the nation. The progress of human civilization is the result of scientific thinking. It is the result of human urge to do something new. Had it not been so, the human race would have remained in its uncivilized state.

Scientific thinking ensures a continuous enhancement in the quality of life. But at the same time values are equally important. Because a valueless society is a society of savage people. Precarious imbalance in these two aspects of human life may lead to hazardous consequences in all walks of life. We have to create awareness where scientific thinking and value education coexist. Degeneration of value system with respect to social, moral and cultural aspects of modern society has led to spurt in crime and violence everywhere.

Let us figure out scientific thinking first. Thinking, as we know, is a human prerogative. Thinking is a mental activity in its cognitive aspect. It is connected with mental processes of understanding. Thinking starts with a problem and concludes with a solution. Every human being has the ability to think. It is his nature to do so. But much of his thinking is biased, distorted, partial uninformed or down-right prejudiced. But it is certain that quality of our life and that of what we do depends precisely on the quality of our thought.

Definition: Scientific thinking is that mode of thinking in which the thinker improves the quality of his thinking by skilfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them.

Process: A scientific thinker raises some problem, gathers and assesses relevant data and information, uses abstract ideas to interpret them, tests them against relevant standards and comes to well reasoned scientific conclusions and solutions. He thinks open-mindedly within convergent system of scientific thought and communicates effectively with others in proposing solutions to complex scientific problems. In short, it is self-directed, self-disciplined, self-monitored and self corrective. It presupposes assent to rigorous standards of excellence and mindful com-

mand of their use. It entails effective communication and problem solving abilities as well as a commitment to developing scientific skills, abilities and dispositions.

A CHECKLIST FOR SCIENTIFIC REASONING

1. Purpose: All scientific reasoning has a purpose. It should be stated clearly and distinguished from related purposes. It should be a scientific one. It should be periodically checked to be sure that you are still on target.

2. Scientific question or problem: Figure out some scientific problem and state it clearly. Its meaning and scope should be clearly expressed. The question should be broken in sub-questions. Questions with definite answer must be separated from those that are a matter of opinion and from those that require multiple view points.

3. Assumptions: Assumptions must be identified and determined whether they are justifiable. They must be considered how they are shaping your point of view.

4. Point of view: All scientific reasoning is done from some point of view. Identify your strengths and weaknesses and also seek other points of view. You should be fair minded in evaluating all scientific points of view.

5. Data, information and evidence: All information should be clear, accurate and relevant to the question at issue. Your claim should be restricted to those supported by the available data.

6. Concepts and Ideas: All scientific reasoning is expressed through and shaped by scientific concepts and ideas. Concepts must be explained clearly.

7. Inferences, interpretations and conclusions: Infer only what the evidence implies. Inferences must be consistent with each other.

8. Implications and consequences: Trace the results that follow from your reasoning. Negative and positive implications must be searched for.

EDUCATION FOR VALUES

Value is the most commonly used word in modern parlance. It has different shades of meaning in different contexts. It signifies the quality of being useful or important. Values may be considered as beliefs about what is right and wrong and what is important in life. If I say valued member of staff, it signifies the quality of the individual which depicts his importance, respect and usefulness. Educational values include all such qualities as are important and valuable from educational point of view. "Every reaction of a man to a situation reflects the values he upholds." Values are desirable behaviour held in high esteem in a particular society in which a person lives. Values are guiding principles in life. Value oriented education implies of a system which attempts to balance science

and technology with religion and ethics. Mahatma Gandhi and Swami Vivekanand were not toppers in education. We know that getting high scores in examination is good only for taking further admission. *It is not necessary for having a better life in future.* Topping in examination is no guarantee that the person would also top in life. We as teachers must *educate the children on the principles of life.* The virtues like patience, wisdom, adjustment, realistic approach and learning from failure etc., come to use in real life. All these virtues and values make us *important*, respectable and useful. Education without values is a dull exercise. Values of education are the same as those of life. Values matter on the stage of life, Reid says: "Education is part of life and clearly our question about values and education are inseparable from questions of values in life. Values are embodied in educational practice". *We should have a workable framework that contains a clear picture of how to carry out education for values* in schools, colleges and universities to encourage pro-social behaviours in children and youth. *Value education has to be subsumed in education for holistic development of students* in a systematic and focused way. "Teaching for values is not like teaching any other subject. *It is about teaching the learner as to how to think about something, to reflect, critically evaluate and appreciate one's own values and those of others.* Then only values can ultimately find their ways into behaviours and actions."

Man acts to satisfy his needs or wants. N.K. Dutt says: "Value is defined as an endeavour which satisfies need-system, psychological as well as physiological needs. Almost all human beings have the same physiological needs but differ in their psychological needs, hence differ in their values and style of life." Anything that satisfies human needs or wants becomes a thing of value. "Human beings are made up of three components; body, mind and spirit. Corresponding to these, there are three needs that must be satisfied for a contented life. Our physical need is health, our psychological need is knowledge and our spiritual need is inner peace. When all the three are present, there is harmony." When an individual fulfils his needs, he gets satisfaction. It is the element of satisfaction or desirability that is common to all values. From philosophical point of view, value is a set of feeling or an action. Philosophy is a set of beliefs or attitude to life that guides somebody's behaviour. Axiology, the branch of philosophy is concerned with values. Hence our behaviour to a great extent is controlled by these values. Values are certain principles in life which a man never compromises. He lives for them and is ready to make the greatest sacrifices for them. Fateh Singh and Zorawar Singh sacrificed their lives for such principles. An individual

lives in society by some system of values. Every rational being has some aim and ideal in life. Values help him to know what is right or wrong. Social values are the desirability of the society. They indicate what is important and useful for society. They are socially useful desires or goals, conceptions or standards by which things are approved or disapproved. They are also determined by the standard of right and wrong. Sometimes we value a thing that we like the most. But it is not always so. For example if you like to eat sweets you may value them but if you know that it may increase your sugar or damage your health, you will avoid them. Scientific thinking brings excellence in thought and enhances the quality of our life. It facilitates the mental well being of an individual and values strengthen the social and emotional aspects of behaviour. Values make the life valuable, useful and respectable. Both are equally important for the holistic development of the personality of a man.

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