

A COMPARATIVE STUDY OF SCIENTIFIC TEMPER OF ADOLESCENT BOYS AND GIRLS IN KASHMIR

Dr. Shazia Siraj Zargar
Govt. College of Education
Srinagar

ABSTRACT

The present study was carried to make a comparative study of Scientific Temper of Adolescent boys and girls in Kashmir. Objectives: 1) To study Scientific Temper of male and female adolescents on scientific temper. 2) To study Scientific Temper of Rural and Urban adolescents on Scientific Temper. 3) To compare Scientific Temper of male and female adolescents on scientific temper. 4) To compare Scientific Temper of Rural and Urban adolescents on scientific temper. Hypotheses: 1) Male and Female adolescents will differ on Scientific Temper. 2) Rural and Urban adolescents will differ significantly on Scientific Temper. Sample: The sample for the present study consist of 240 students 120 rural (60 male and 60 female) urban students (60 male 60 female) of 11th and 12th classes selected randomly from eight Government higher secondary schools of District Anantnag and Srinagar. Procedure: The investigator visited 8 identified Government Higher Secondary Schools of District Anantnag and Srinagar. Random sampling technique was used to collect the data. Tool: The tool for the present study included Showkat's Scientific Scale (SSTS), which assesses Scientific Temper on Five dimensions. The data collected was subjected to various statistical techniques like mean, S.D. and t-test. Findings: 1) A Significant difference was found between male and female adolescent's on Curiosity, open mindedness, objectivity and aversion to Superstition and no significant difference was found between two groups on rationality. 2) A Significant difference was found between rural and urban adolescent's on Curiosity, open mindedness, objectivity and rationality and no significant difference was found between two groups on aversion to superstition.

Keywords: Scientific Temper, Adolescents, Rural and Urban

Introduction

Scientific temper is prima facie the concern of the scientists, students. It is a frame of mind which a person carries with him when he enters the laboratory for scientific experience. On the other hand, citizenship is a question of status determined by the provisions of Part II of the Constitution of India and the Citizenship Act, 1955. No doubt a citizen may be a scientist. A scientist may also be a citizen. It is a common belief that the age in which we are living is a scientific age. The basis of this belief is the great scientific achievements of the present age. Man has landed on the moon. Several satellites are orbiting around the earth. Man has in fact become a tourist in space. Great strides have been made in the fields of medicine, physics and chemistry. The progress made during the last 50 years is greater than the progress made since the infancy of mankind. It has been estimated that eighty per cent of the scientists born since the dawn of civilization are actually living today. One may justifiably be proud that India has the third largest number of scientists in the world today. Yet in my opinion it is a mistake to call this age or for that matter any age as a scientific age. Only on the basis of

the mass of scientific knowledge an age does not deserve to be called a scientific age. Probably when it is said that we live in a scientific age, it is meant that in our age there has been an intensification of inquiry and an acceleration of discoveries and inventions. One can also say that the present age is an age of high technology. Nor is a particular society entitled to be called a scientific society to the exclusion of others. As archaeology, ethnology, history and sociology have demonstrated, man in every society has a certain amount of scientific knowledge. The amount, of course, varies a great deal among societies. In other words, science is a matter of degree, with some societies having only a small amount and others having a great deal more. Viewed in the long perspective, one can always discern a history of continuity and accumulation from the earliest pre-history of man to the present, though that history has been marked by different rates of development in different times and I would call that age scientific age in which the problems of the society are faced and handled by men with scientific temper. I would call that society a scientific society which is composed of

men and women who display scientific attitude in their day-to-day lives. In order to understand what scientific attitude or scientific temper is, one must necessarily understand what science is. Science is a system of knowledge, a body of knowledge, held together by a group of propositions which have been tested and found to be valid in the light of evidence gathered. It has been said that science is the eternal interrogation of nature by man. It is a quest for knowledge. It is “dnyana” which is the result of “jidyasa”, the desire to know. In the heyday of the Greek intellectual activity, the Greeks called the manner of studying the universe “philosophia”, which meant love of knowledge. More simply it meant desire to know. The word “science” came into use very much later. The Aristotelian system of acquiring knowledge, known as the philosophy, dominated the western intellectual tradition till after the renaissance. The age of reason, the age of modern science, in fact of science, can be said to have begun with Francis Bacon who saw and demonstrated that Aristotelian system of predominant deduction hampered the, progress of science. He established the importance of induction in the acquisition of knowledge. This necessarily required observation, experience and then experiment, if necessary. But before this the Greeks had fallen so much in love with the system of deduction, necessarily involving a set of axioms that they were bound to and did fall in two errors. First, they came to consider deduction as the only respectable means of attaining knowledge. Though they were aware that for some kinds of knowledge deduction was inadequate, they undervalued the earthly knowledge so that in the long run, the major premises of their syllogisms started becoming unreal. Secondly the Greeks came to think of axioms as absolute truths and to suppose that other branches of knowledge could be developed from similar absolute truths. It has been an illuminating and rewarding experience to travel through the glimpses of world History and Discovery of India, and deriving rich inputs about scientific temper. Jawaharlal Nehru feels that scientific approach, the adventurous and yet critical temper of science. In the face of the new evidences, the reliance on observed facts and not on pre conceived theory, the hard discipline of the mind are only the attributes necessary for application of science but for human application over life and its problem.

Scientific temper means a value frame, an outlook for the world an approach to one’s world of deeds and action. Scientific temper is a value as well as method of attaining human rights under humanism as the only value work striving for in the trouble torn social formations from domestic to international levels. The term of reference of the national commission on teacher I included an item on inculcation of scientific temper amongst the teachers during Pre-Service training program me. National Policy on Education 1986 while considering reorientation of the content and process of education, spells out the need for re-adjustments. In our culturally plural society education should foster universal and eternal values, oriented towards the unity and integration of our people. Such education should eliminate obscurantism, religious fanaticism, violence superstition and fatalism. Inculcation of scientific through the National core curriculum, need being spelt out in terms. 1) What 2) How 3) When 4) Through what content

Since the regaining of the present century science educators have included, the general aims of science education. Some writers label this temper as scientific mindedness (Burnett 1994) that habits of scientific thinking (Null) or the spirit of science (educational policies commission 1966) attitude (vaidya, the impact science teaching, and siddiqi and Siddiqi, teaching of science today and tomorrow) scientific temper is most often characterized by objectivity, open-mindedness, rationally and willingness to suspend judgment if there is insufficient evidence. Evidence techniques and procedures used and information obtained and so it is curious concerning the things he observes. There is general agreement among investigators about a person who has scientific temper.

1. Looks for the natural cause of events.
2. Is open-mindedness towards the work and opinion of the others and towards the information related to his problem.
3. Bases opinions and conclusions on adequate evidence.

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We have now entered the twenty first century with a strong background of scientific and technological advancement. The twenty century saw several revolutions taking place in human civilization.

The agricultural revolution which made us sufficient in food was followed by industrial revolution. Now we are heading towards the information technology revolution. But another root of all this has been the knowledge of science, which is so essential for everybody in the modern age. Education commission to 1964 to 1966 has rightly remarked a basic distinction between traditional and modern societies in the development and use by the latter of science based technology, which helps modernization of agriculture and development of the industries. In traditional society, prediction is based on empirical processes, experiences and trial and error rather than on science. In a modern society it is basically rooted in science.

If we are to keep pace with the development countries in all fields, we have to strengthen our base in scientific and technological knowledge and skills. But we have to start it from school stage. It is at the school stage that the foundation for advance learning in all fields is laid. We have to improve the quality of science teaching at school stage by upgrading curricular, developing proper infrastructure and equipping teachers with the latest skills in teaching. The teaching of science at school at age should promote and ever deepening understanding of basic principles, develop problem solving, analytical skills and then ability to apply them to the problems of the material environment, and promote the spirit of enquiry and experimentation.

Need and Importance:

Man is primarily distinguished from the lower animals because of his educable ability. He is endowed with intelligence which is needed by him to reason, plan, solve problems, think abstractly, comprehend complex ideas learn quickly and learn from experience. An intelligent individual reflects a broader and deeper capability of comprehending the surroundings "catching on, "making sense" of things or "figuring out" what to do. The unique quality of human beings, to design or to give a concrete shape of his imagination, helps him to come out from his primitive stage to a position where he dominates over his surroundings. It is science education which really means to make a person to identify the problem around, to observe, to analyze, to make hypothesis, to experiment, to infer, to generalize and to apply the

acquired knowledge and skills were required. Rapid advancement in science and technology has increased the need for further innovation, challenge to inventions, psychological discoveries of nature of individual differences and emphasis on actualization. It is envisaged in the national policy on Education (1986), and in the Kothari Commission Report (1966), that science education should be for all up to secondary level in order to develop scientific temper amongst the masses. Science education provides field to a person to create something new, for the society and nation.

The growing concern of researchers, to understand ethnic groups, cultural diversity, has generated a demand for cross-cultural studies. The characteristic of these comparative nature i.e. they involve a comparison across two different cultures in a focal phenomena. Cross-Cultural studies help a researcher, to understand people of different ethnic groups, to identify various problems like value based education intellectual capacity etc. They help the numbers of teaching, learning community to plan on all-round curriculum that lead the students to uncover, understand and practice the processes, think independently which happens to be the ultimate goal of education.

A considerable amount of studies has been undertaken but for the present study, there is hardly any study. It is against this back front that the present investigator felt interested in selecting the problem of studying scientific temper of ethnic groups.

Statement of the Problem:

The problem for the present study reads as under:

"A comparative study of Scientific Temper of Adolescents in Kashmir".

Objectives:

1. To study Scientific Temper of male and female adolescents on scientific temper.
2. To study Scientific Temper of Rural and Urban adolescents on Scientific Temper.
3. To compare Scientific Temper of male and female adolescents on scientific temper.

- To compare Scientific Temper of Rural and Urban adolescents on scientific temper.

Hypotheses:

- Male Female adolescents will differ on Scientific Temper.
- Rural and Urban adolescents will differ significantly on Scientific Temper.

Scientific Temper:

Scientific Temper has been operationally defined as attitude of mind characterized by curiosity, rationally and aversion to superstition.

Adolescent

Adolescents for the present study meant the students falling in the age range of 17-18 years.

Urban Adolescents:

Urban adolescents i.e. male and female are the students falling in the age range of 17-18 years who belong to city.

Rural Adolescents:

Rural adolescents i.e. male and female are the students falling in the age range of 17-18 years who belong to village.

Sample:

The sample for the present study consist of 240 students 120 Rural (60 male and 60 female) Urban students (60 male 60 female) of 11th and 12th classes selected randomly from eight Government higher secondary schools of District Anantnag and Srinagar.

Procedure

The investigator visited 8 identified Government Higher Secondary Schools of District Anantnag and Srinagar. Random sampling technique was used to collect the data. The Scientific Temper Scale was administered to 240 students of 11th and 12th classes to assess their Scientific Temper status on five dimensions viz. curiosity, rationally and aversion to superstition. The tool was administered in groups and strictly in accordance with the instructions provided in the manual of the Scale.

Tool:

The tool for the present study included Showkat's Scientific Scale (SSTS), which assesses Scientific Temper on Five dimensions namely Curiosity, Open mindedness, Objectivity, Rationality and Aversion to Superstition.

Statistical Analysis

The data collected was subjected to various statistical techniques like mean, S.D. and t-test.

Table: 1 Mean comparison of male female adolescents on Scientific Temper (ST) (N= 60 in each group)

Sr. No.	Dimension	Group	Number	Mean/S.D.	t-value	Level of significance
1.	Curiosity	Male	60	10.89/2.10	4.31	Significant at 0.01 level
		Female	60	12.53/2.32		
2.	Open Mindedness	Male	60	14.02/2.34	4.92	Significant at 0.01 level
		Female	60	12.05/2.16		

3.	Objectivity	Male	60	12.59/2.15	2.18	Significant at 0.05 level
		Female	60	13.42/2.31		
4.	Rationality	Male	60	14.48/2.21	0.94	Insignificant
		Female	60	14.12/2.14		
5.	Aversion to Superstition	Male	60	10.76/2.23	3.76	Significant at 0.01 level
		Female	60	12.19/2.10		

The result of the table revealed that the two groups of students i.e. male and female differ significantly in their Scientific towards Curiosity, open mindedness, objectivity and aversion to Superstition from each other in the areas. The mean difference favor males in their Scientific Temper towards open mindedness while as

the mean difference favor the females in their Scientific Temper towards curiosity, objectivity and aversion to superstition. However, the two groups do not differ significantly in their Scientific Temper towards rationality which indicates that both male and female are similar on rationality.

Table: 2 Mean comparison of Rural and Urban adolescents on Scientific Temper (ST) (N= 120 in each group)

Sr. No.	Dimension	Group	Number	Mean/S.D.	t-value	Level of significance
1.	Curiosity	<i>Rural</i>	60	17.56/2.34	5.05	Significant at 0.01 level
		<i>Urban</i>	60	18.76/2.09		
2.	Open Mindedness	<i>Rural</i>	60	10.90/2.46	3.04	Significant at 0.01 level
		<i>Urban</i>	60	12.15/2.13		
3.	Objectivity	<i>Rural</i>	60	12.09/2.18	4.38	Significant at 0.01 level
		<i>Urban</i>	60	11.01/2.03		
4.	Rationality	<i>Rural</i>	60	10.75/2.05	4.69	Significant at 0.01 level
		<i>Urban</i>	60	11.35/2.02		
5.	Aversion to Superstition	<i>Rural</i>	60	10.88/2.06	0.46	Insignificant
		<i>Urban</i>	60	10.76/2.03		

The result of the table revealed that the two groups of students i.e. rural and urban differ significantly in their Scientific towards Curiosity, open mindedness, objectivity and rationality from each other. The mean

difference favor rural students in their Scientific Temper towards objectivity while as mean difference favor urban students in their Scientific Temper towards curiosity, open mindedness and rationality. However,

the two groups do not differ significantly in the area of aversion to superstition which indicates that both rural

Findings:

1. A Significant difference was found between male and female adolescent's students on Curiosity, open mindedness, objectivity and

aversion to Superstition. Mean difference favored female adolescent students. However no significant difference was found between two groups on rationality.

2. A Significant difference was found between rural and urban adolescent's students on Curiosity, open mindedness, objectivity and rationality. Mean difference favored urban adolescent students. However no significant difference was found between two groups on aversion to superstition.

Suggestions:

1. Studies on a larger sample may be initiated for further evidence in order to confirm the findings of present study.
2. The same study may be replicated on the other districts of Kashmir.
3. The same study may be conducted on the backward area of the society i.e. Scheduled castes and scheduled tribes.

References:

B. D. Rao (2003) Achievements in Science; Discover Publishing House, New Delhi, pp1-61

B. Mishra (2003) Issues and approaches to science teaching Akansha Publishing House, New Delhi.

B. D. Rao (2000) Attitude towards science Discovery Publishing House New Delhi

Chauhan (1992) Relative contribution of some socio-cultural and familial variables over and under achievements in science at eight level; Journal of Applied Research in Education Vol.1 No. (89-90)

Dubey, K. K. (1992) A study of the Scientific Temper and its measurements Fifth Survey of Education Research p. no. 1240

and urban students are similar on aversion to superstition.

Udaia, Sam (1991) The teaching of general science and in the development scientific attitude in secondary school students in relation achievement in general science; Fifth Survey of Educational Research NCERT.

Shasikala G. (1991) Effect of Intelligence, Achievement and Extravert on the questioning ability of Standard 9th Fifth Survey of Educational Research NCERT.

Ledermann N. G. (1992) Students and teachers conception of the nature science review of the research journal of Research in science teaching, 29 (4) 331-359

Malhotra V. K. (1988) A critical study of the existing facilities of science teaching and construction of evaluation instruments for its supervision in different types of secondary schools in Delhi Fifth Survey of Educational Research NCERT.

Poonam Chauhan (2002) Helping the Under Achievers in science; Insight Journal of Applied Research in Educational Vol. 1 No. 8-85

R.A. Jahagirdar (1927-2011) Collected Works of Justice Scientific Temper (Retd) Rationalist Foundation

Reid Norman (2006) Thoughts on Attitude Measurement), Journal of Research in Science and Technological Education, Vol. 24 No. 1 pp 3

Sidiqi and Sidiqi (1998) Teaching of Science today and tomorrow, Himalaya Publishers New Delhi, pp. 11-13

N. Vaidya (1957) The impact of science teaching. Oxford and IBH publishing, New Delhi P 7071

M. S. Yadav (1998) Teaching of Science. Anmol Publishers, New Delhi, pp. 16-47

N. Vaidya (2003) Science Teachings for the 21st century Deep and Deep Publishers Pvt. Ltd. New Delhi