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ORIGINAL ARTICLE

A STUDY OF SCIENTIFIC TEMPERAMENT AMONG SCIENCE STUDENTS AT HIGHER SECONDARY LEVEL

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Abstract:

TScientific temperament a spirit of inquiry and involves the process of logical reasoning. It tries to find out the cause and the rational justification of an event objectively. The attitude of questioning is the first significant expression of scientific temperament. The scientific temperament is the human nature which starts with the cognition of once own self in the reality and correlates the same with all that is conceived and perceived in the ecology through the pursuit of observation, analysis, and synthesis. Scientific temperament attempts to explain the cause effect relationship between two or more events. Thus a man with scientific temperament would not like to take for granted and believe in such irrational beliefs and superstitions. The use and application of scientific temperament is concerned not only, with the use of scientific instruments and techniques are the laboratories but it is a commitment to rational and objective methods of inquiry.

INTRODUCTION

This education is influenced by Macaulay's attempt to create "a class of persons, Indian in blood and colour but English in taste, in opinion, in morals and in intellect. To that class we may leave it to refine the vernacular dialects of the country, to enrich those dialects with terms of science borrowed form the western nomenclature."

Thus it is by nurturing this scientific temperament that human individuals can liberated from irrational beliefs and superstition and they are able to build up an impressive, intellect and rationale infrastructure in order to solve the various type of problems.

The question arises that at higher secondary level the students who an studying Science. Have they any scientific temperament does the environment of school. Status of Teacher, Background of students are responsible to develop scientific temperament among students.

Shine (1982) studied scientific attitude to secondary school students, Ghosh (1986) found Boys and Girls have not difference in scientific attitude. Shukla & Sharma (1988) studied on sex differences in scientific creativity. Shrivastava (1992) studied creativity in relation to scientific attitude among Higher Secondary students. Rawat Ruchi (1996) studied scientific temperament among science and social science students. Shaik Liyakath Ali (2009) studied scientific attitude of Class VIII students of Urdu & Telgu Medium of Instruction.

Going through the Studies and to find out the answer of above question researcher identified the following research problem.

STATEMENT OF RESEARCH PROBLEM

"A study of Scientific Temperament among Science students of higher secondary level."

Title : A STUDY OF SCIENTIFIC TEMPERAMENT AMONG SCIENCE STUDENTS AT HIGHER SECONDARY LEVEL
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OBJECTIVE OF THE STUDY –

Objectives of the study an as follow -

To study the scientific temperament among science students of higher secondary level
To study the scientific temperament of science student at higher secondary level in reference to sex.

HYPOTHESIS

There is no significant difference in the scientific temperament of Boys and Girls.

OPERATIONAL DEFINITION OF TERM USED

(a) Scientific temperament – In the present study it connotes an individual mental disposition related to six means of Human behaviour as - Scientific attitude, Scientific habit, Scientific thinking, Scientific perception , Scientific literacy, Scientific method.

(b) Higher Secondary level - In present study higher secondary level means the students of XII class.

METHOD OF STUDY

Method of study is survey method.

TOOL

In present study scientific temperament inventory developed by Dr. Anita Singh and Dr. Hari Koon Singh is adopted.

There are 70 items in the inventory. The tools has content and cross validity and reliability of tool is .97
Categorization of the items based on the six aspects of temperament are follows –

Items No.	Aspects of Scientific Temperament
1-12	Scientific Attitude
13-23	Scientific Literacy
24-35	Scientific Thinking
36-42	Scientific Habit
43-53	Scientific Method
54-70	Scientific Perception

The method adopted for scoring is as follows -

1.Favourable items marking 'often' score - 2
2.Favourable items marking 'Sometime' score - 1
3.Favourable items marking 'Never' score - 0
4.Unfavourable items marking 'Never' score - 2
5.Unfavourable items marking 'Sometime' score - 1
6.Unfavourable items marking 'often' score - 0

The scores of Scientific Temperament (in all aspects) are categorized as follows

S.No.	Scientific Temperament Scores	Category
1	125 and above	Very high
2	110-125	High
3	90-110	Average
4	75-90	Low average
5	50-75	Low
6	Below 50	Very low

POPULATION AND SAMPLE

The students of Class XII who had adopted science in their XI class are considered as population and 200 students of Class XII are selected randomly.

STATISTIC USED IN STUDY

Level of scientific temperament of higher secondary level was examined through descriptive statistic, Histogram, Polygon, Men, D and 't' test is used to find out significant difference.

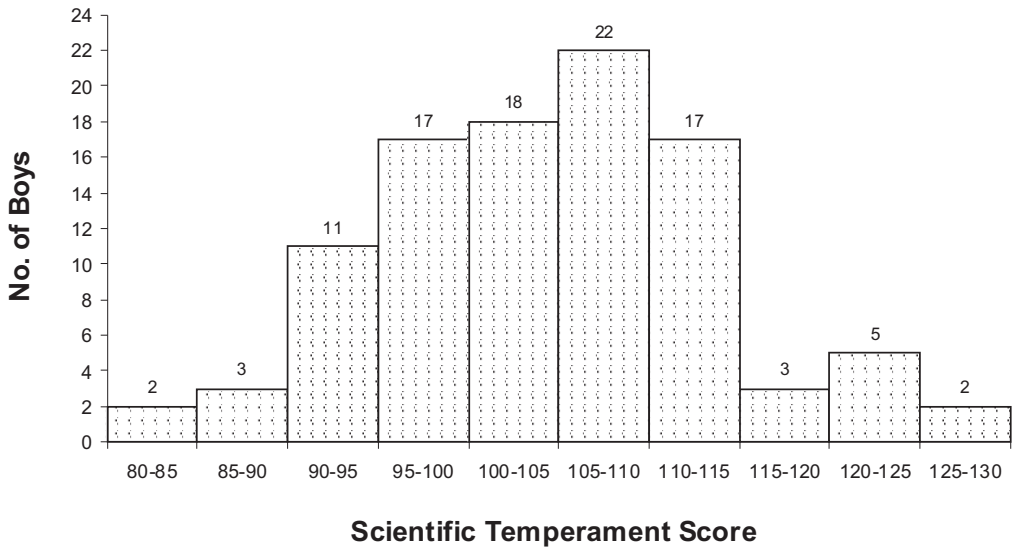
ANALYSIS AND INTERPRETATION

The tool was administrated on selected sample and collected data was analyzed and interpreted as follows -

Table 1 : Scientific Temperament Scores (In class interval) of boys

S.No.	Scientific temperament scores in Class Interval	No. of Boys
1	125-130	2
2	120-125	5
3	115-120	3
4	110-115	17
5	105-110	22
6	100-105	18
7	95-100	17
8	90-95	11
9	85-90	3
10	80-85	2

From the table no. 1 it is clear that no. of boys having scientific temperament scores from 105-110 is 22 which is maximum. It can be said that maximum boys have scientific temperament of average and higher level. 5 boys have scientific temperament of low average level. It is shown in a form of histogram. (Graph 1)

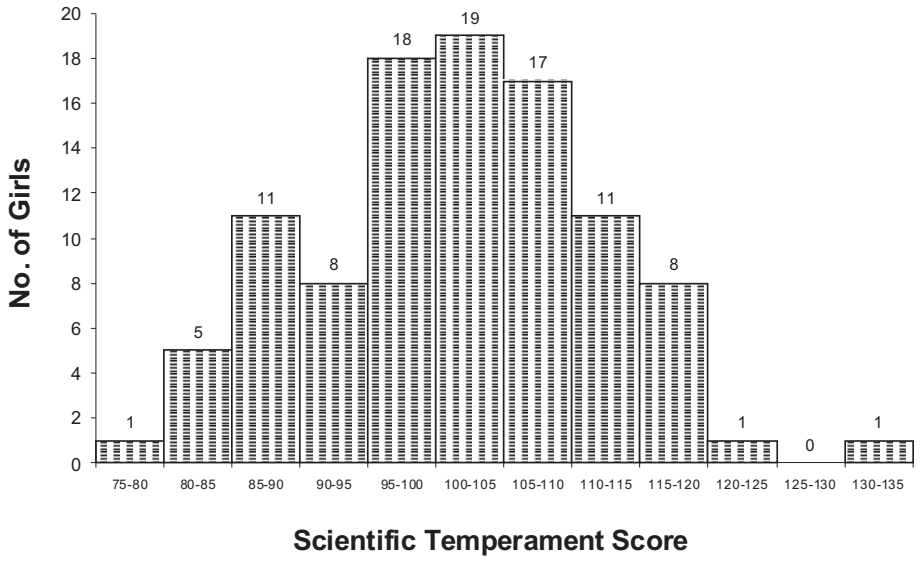


Graph 1 Histogram of Scientific Temperament Scores of Boys

Table 2 : Scientific Temperament Scores (In class interval) of girls

S.No.	Scientific temperament scores in Class Interval	No. of girls
1	130-135	1
2	125-130	0
3	120-125	1
4	115-120	8
5	110-115	11
6	105-110	17
7	100-105	19
8	95-100	18
9	90-95	8
10	85-90	11
11	80-85	5
12	75-80	1

From the table no. 2 it is clear that no. of girls having scientific temperament scores from 100-105 is 19 which is maximum. Therefore it can be said that maximum girls have scientific temperament of average level. 17 girls have scientific temperament of low average level. It is show in histogram. (Graph 2)



Graph 2 : Histogram of Scientific Temperament Scores of Girls

Table 3 : Scientific Temperament scores of Boys and Girls

S.No.	Scientific Temperament Scores (Class Interval)	Mid Point	No. of Boys	No. of Girls
1	129.5-134.5	132	0	1
2	124.5-129.5	127	2	0
3	119.5-124.5	122	5	1
4	114.5-119.5	117	3	8
5	109.5-114.5	112	17	11
6	104.5-109.5	107	22	17
7	99.5-104.5	102	18	19
8	94.5-99.5	97	17	18
9	89.5-94.5	92	11	8
10	84.5-89.5	87	3	11
11	79.5-84.5	82	2	5
12	74.5-79.5	77	0	1
			f = 100	f = 100

From the table 3 scientific temperament scores of boys & girls are presented in a Polygon (Graph 3)

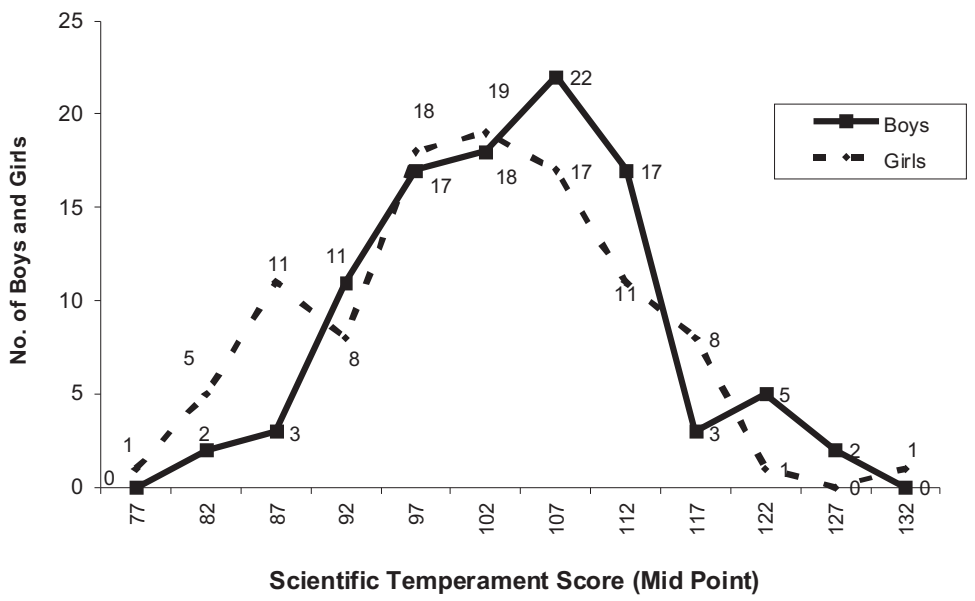


Table 4 : Scientific Temperament of Boys and Girls

Sample	N	M	S	D	D	t-value
Boys	100	M_1=103.95	S_1=9.375	1.058	1.40	0.75
Girls	100	M_2=101.05	S_2=10.433			

M=Mean;
S= Standard deviation
D= M_1-M_2
D = Standard error of difference of two mean;
df = degree of freedom
From the table value of t is .75. The table value of t at .01 level is 2.60 and at .05 leve 't' value is 1.97. Here calculated value of 't' is very low then the value of 't' at .05 & .01 level. So it can be said that there is no significant difference in the mean scores of scientific temperament of boys and girls.

CONCLUSION AND DISCUSSION

In the present study it is clear that scientific temperament vary in boys and girls. The level of scientific temperament very in boys and girls but the difference is not significant. So sex difference does metter is developing scientific temperament.

EDUCATION IMPLICATIONS

This study may be useful in developing content, curriculum for enhancing the scientific temperament among students. By evolving. Innovative teaching techniques and their application in real classroom, scientific temperament can be developed.

DELIMITATION

Their study is delimited to XII class science students
In this study only six aspects of scientific temperament are considered.

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