



Study Of Scientific Thinking Of Secondary School Students

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Abstract: *The secondary education is the heart of all educational systems in the country. It makes a bridge between the primary and Higher Education in the nation. It aims at all round development of learner's personality and makes them future citizens of the nation. The present 21st century is the world of science and information Technology. Man has given his foot print on the surface of the moon. He has conquered time and space. He is the creator of the civilization. His abilities and performances bring a radical scientific and technological change in the society. Various commissions and committees in the country have recommended the inclusion of some psychological, relevant and learner centered subjects for the development of many-sided qualities like cognitive, affective and psychomotor aspects of the students. The present research work is based on the study of scientific thinking of secondary school students. Science education plays a significant role in the development of scientific thinking. Attitude interest of Secondary students Secondary Education commission states that science Education should be an important element in the secondary school curriculum. Our great thinkers and educationists have emphasized the inclusion of science education in the secondary school curriculum for the development of scientific experience of learners. At the present science education is a compulsory subject in the secondary level. It is expected that science education must help the student for the development of their scientific thinking. The investigator has selected the topic study the scientific thinking of secondary school students.*

Key Words: Heart, educational system, Bridge, Learner, Development, Creator, Civilization, Qualities,

The following objectives were undertaken for the present research

- 1.To study the levels of scientific thinking of secondary school students, in terms of percentage.
- 2.To study the scientific thinking of Govt. and private secondary school students.
- 3.To study the Scientific thinking of boys and girls of secondary schools.
- 4.To study the scientific thinking of rural and urban secondary school students.

HYPOTHESES OF THE STUDY

The following hypotheses were stated-

- (i)All secondary students do not belong to different levels of scientific thinking ability.
- (ii)There is no significant difference in the mean scientific thinking test scores of Govt. and private secondary school students.
- (iii)There is no significant difference in the mean

scientific thinking test scores of boys and girls.

- (iv)There is no significant difference in the mean scientific thinking test scores of rural and urban secondary school students.

SAMPLE OF THE STUDY- The sample of the study consists of 640 (six hundred forty) class X students of 12 (twelve) high schools HarDOI District (U.P.) out of 640 students of 12 High School 290 students of 6 schools belongs to government high schools and rest 350 students of 6 high school, 358 students belong to urban school and 282 students belong to rural schools. Likewise, out of total sample 640, 356 students are male and the rest students 284 are female.

Tools Used

SCIENTIFIC THINKING STYLE QUESTIONNIRE (S.T.S.Q.)

The scientific thinking, style questionnaire

(S.T.S.Q.) has been constructed and standardized by Dr. P.N. Singh and Dr. Ranjana Arora in English version was translated by the investigator in Hindi of the students in school

ANALYSIS AND INTERPRETATION

1. STUDY OF LEVELS OF SCIENTIFIC THINKING OF SECONDARY SCHOOL STUDENTS: The results are given in the table 0.1

TABLE NO. 0.1

Levels of scientific thinking of students in percentage

Levels	Range of standard scores	No. of students	Percentage (%)
High Scientific thinking	58 to 79	116	18
Average scientific thinking	45 to 57	344	54
Low scientific thinking	20 to 44	180	28

From the Table 1 it is observed that 116 students have secured Sci. thinking standard scores in between range 58 to 79. In other words, 18% students belong to the High-level scientific thinking. 344 students have secured scientific standard scores in between range 45 to 57. In other words 54% students belong to average level of scientific thinking and 180 students have secured scientific standard scores in between range 20 to 44. In other words, 28% students belong to low level of scientific thinking. So the Null hypothesis "All the students do not belong to different levels of scientific thinking" is rejected. It means 18%, 54% and 28% students belong to High, average and low levels scientific thinking respectively.

2. STUDY OF SCIENTIFIC THINKING OF GOVT. AND PRIVATE SECONDARY SCHOOL STUDENTS: The results are given in the following Table No.2

Table No.2

"t" test on mean scientific thinking test scores of Govt. and private secondary school students.

Group	Means	SD	No. of Students	t	Result
Govt.	51.2	10.15	290	0.83	Not Significant
Private	50.5	11.08	350		

INTERPRETATION- The result is not significant. It means the scientific thinking test scores of Govt. and Private school students are similar.

3. STUDY OF SCIENTIFIC THINKING OF BOYS AND GIRLS OF SECONDARY SCHOOL STUDENTS- The Results are given in the following table

TABLE-3

"t" test on mean scientific thinking test scores of Boys and girls secondary school students.

Group	Means	SD	No. of Students	"t"Value	Result
Boys	51.81	11.47	356	1.1	Not Significant
Girls	52.74	9.76	284		

INTERPRETATION- The result is not significant. It means the scientific thinking test scores of Boys and Girls are similar.

4. STUDY OF SCIENTIFIC THINKING OF RURAL AND URBAN SECONDARY SCHOOL STUDENTS- The results are given in the following table-4

TABLE NO.4

'test on mean scientific thinking test scores of rural and urban secondary school students.

Group	Means	SD	No. of Students	"t"Value	Result
Rural	48.12	10.84	282	5.76	Significant 0.01 Level
Urban	52.9-4	10.06	358		



The result is significant. It indicates that the mean scientific thinking test scores of Urban students is higher than the rural students.

FINDINGS

(i) 18%, 54% and 28% secondary school students belong to high average and Low levels of scientific thinking respectively. In other words the levels of scientific thinking of secondary school students belong to different categories.

(ii) The scientific thinking of private and Govt. students are similar.

(iii) The scientific thinking of boys and girls are similar.

(iv) The scientific thinking of urban students is higher than the rural students.

(5) **RECOMMENDATIONS-** It was found that the rural students are generally poor in the development of scientific thinking than the urban students. So necessary measures should undertake by authorities of the rural schools for the development of scientific thinking rural students. Science Exhibition, science club, science fair, should be organized by the rural area institutions for this purpose.

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