

CHAPTER - IV

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ANALYSIS OF THE DATA

4.0 INTRODUCTION

In this chapter findings of the study have been discussed. The hypothesis will be taken one by one and the results which follow from them will be highlighted through discussion of the findings. The conclusions in regard to the study as derived from the findings will be outlined.

4.1 RESULTS AND HYPOTHESES

Hypothesis I: "There is no significant relationship between achievement in science and scientific creativity."

To test this hypothesis co – efficient of correlation was calculated.

Table 4.1 Correlation Between Achievement in Science and Scientific Creativity.

	Calculated r- value
Achievement in Science and Scientific Creativity	0.43 *

* < .05

Co-efficient of correlation between achievement in science and scientific creativity has been found to be 0.43. The table r-value of correlation for a sample of 40 students at 0.05 level is 0.325, is lower than the calculated

value. Hence the calculated value is significant. Null hypothesis "There is no significant relationship between achievement in science and scientific creativity" is rejected. The findings of the study are similar to the results arrived at by Raina (1986): Psycho – Social Correlates of Scientific Creativity Among High School Students. His results concluded that achievement in science was significantly related with scientific creativity. The results of the present study are also in accordance with Bhawalkar's study – Prediction of Scientific Creativity Through Cognitive and Affective Variables Among High School Students.

Hypothesis II: "There is no significant relationship between interest in science and scientific creativity."

To test the hypothesis co – efficient of correlation was calculated.

Table 4.2 Correlation Between Interest in Science and Scientific Creativity.

	Calculated r-value
Interest in Science and Scientific Creativity	0.12 NS

NS – not significant

The co-efficient of correlation between interest in science and scientific creativity has been found to be 0.12. The table r-value at 0.05 is 0.325, is higher than calculated value. Hence calculated value is not significant. Null hypothesis – "There is no significant relationship between interest in science and scientific creativity" is accepted. The investigator did not come across any study related to interest in science and scientific creativity. Further investigations are needed.

Hypothesis III : “There are no significant differences in the scores of scientific creativity of boys and girls”.

To test the hypothesis t – value was calculated.

Table 4.3 t – values for the Mean Scores of Boys and Girls on Scientific Creativity.

Sub Sample	Scientific Creativity			Calculated t – value
	N	M	SD	
Boys	25	150.57	27.04	0.39 NS
Girls	15	153.95	28.71	

NS – not significant.

t- value for mean scores of boys and girls on scientific creativity has been found to be 0.39. Table t-value at .05 level is 2.03 Calculated value is less than table value. Hence calculated value is not significant. Null hypothesis – “There are no significant differences in the scores of scientific creativity of boys and girls” is accepted. The results go with the findings of Raina (1986) study entitled Psycho-Social Correlates of Scientific Creativity Among High School Students. Boys and girls do not differ on scores of scientific creativity because they are provided with same instructional materials and same school environment.

Hypothesis IV : “There are no significant differences in the fluency scores of high and low achievers in science”.

To test the hypothesis, t – value was calculated

Table 4.4 : t -value for the Mean Scores of Fluency of High and Low Achievers in Science.

Scientific Creativity (FLUENCY)				
Sub – sample	N	M	SD	Calculated t – Value
High Achievers in Science	20	52.09	9.37	1.13 NS
Low Achievers in Science	20	46.78	18.18	

NS – not significant

The calculated t – value for mean scores on fluency of high and low achievers in science was 1.13. Table t – value is 2.03 at 0.05 level. Calculated value is less than table value. Hence calculated value is not significant therefore the hypothesis – “There are no significant differences in the fluency scores of high and low achievers in science” is accepted. The investigator did not come across any study related to differences in fluency scores of high and low achievers in science. Further investigations are needed.

Hypothesis V : “There are no significant differences in the flexibility scores of high and low achievers in science”.

To test the hypothesis t – value was calculated

Table 4.5 : t – value for the Mean Scores of Flexibility of High and Low Achievers in Science.

Scientific Creativity (FLEXIBILITY)				
Sub – sample	N	M	SD.	Calculated t – value
High Achievers in Science	20	52.56	8.69	0.68 NS
Low Achievers in Science	20	50.38	11.03	

NS – not significant

The calculated t – value for mean scores on flexibility of high and low achievers in science was 0.68. Table t – value is 2.03 at 0.05 level. Calculated value is less than table value. Hence calculated value is not significant therefore the hypothesis – “There are no significant differences in the flexibility scores of high and low achievers in science” is accepted. The investigator did not come across any study related to differences in flexibility scores of high and low achievers in science. Further investigations are needed.

Hypothesis VI : ‘There are no significant differences in the originality scores of high and low achievers in science’.

To test the hypothesis t – value was calculated.

Table 4.6 : t – value for the Mean Scores of Originality of High and Low Achievers in Science.

Sub – sample	Scientific Creativity (ORIGINALITY)			
	N	M	SD	Calculated t – Value
High Achievers in Science	20	51.41	10.03	0.33 NS
Low Achievers in Science	20	50.18	11.15	

NS – not significant

The calculated t – value for mean scores on originality of high and low achievers in science was 0.35. Table t – value is 2.03 at 0.05 level. Calculated value is less than table value. Hence calculated value is not significant therefore the hypothesis – “There are no significant differences in the originality scores of high and low achievers in science” is accepted. The investigator did not come across any study related to differences in originality scores of high and low achievers in science. Further investigations are needed.

Hypothesis VII : "There are no significant differences in the total scientific creativity scores of high and low achievers in science".

To test the hypothesis t – value was calculated.

Table 4.7 : t- value for the Mean Scores of Total Scientific Creativity of High and Low Achievers in Science.

Sub – sample	Total Scientific Creativity			
	N	M	SD	Calculated t - Value
High Achievers in Science	20	153.90	16.61	0.61 NS
Low Achievers in Science	20	149.40	27.43	

NS – not significant

The calculated t – value for the mean scores on total scientific creativity of high and low achievers in science was 0.61. Table t – value is 2.03 at 0.05 level. Calculated value is less than-table value. Hence calculated value is not significant therefore the hypothesis – "There are no significant differences in the total scientific creativity scores of high and low achievers in science" is accepted. The results of the study are not in accordance with Raina's (1986) study-Psycho –Social Correlates of Scientific Creativity Among High School Students. His result was - The mean scientific creativity scores of high achievers in science was more than that of middle and low achievers. Further, the middle achievers were more creative than low achievers in science. Further investigations are needed.

Hypothesis VIII "There are significant differences in the fluency scores of students scoring high and low on interest in science."

To test the hypothesis, t – value was calculated.

Table 4.8 : t-value for the Mean Scores of Fluency of Students Scoring High and Low on Interest in Science.

Sub sample	Scientific Creativity (FLUENCY)			
	N	M	SD	Calculated t-value
High Interest in Science	20	51.01	11.56	0.44 NS
Low Interest in Science	20	48.99	8.03	

NS – not significant

The calculated t – value for mean scores on fluency of students scoring high and low on interest in science was 0.44. Table t-value is 1.69 at 0.05 level. Calculated value is less than table value. Hence calculated value is not significant therefore the hypothesis – “There are significant differences in the fluency scores of students scoring high and low on interest in science” is accepted. It was assumed that students interested in science will give more number of responses because of better understanding of concepts of science and therefore score high on fluency. The results were found to be in accordance with the assumption made.

Hypothesis IX : “There are significant differences in the flexibility scores of students scoring high and low on interest in science.”

To test the hypothesis t-value was calculated.

Table 4.9 t-value for the Mean Scores of Flexibility of Students Scoring High and Low on Interest in Science.

Sub sample	Scientific Creativity (FLEXIBILITY)			
	N	M	SD	Calculated t-value
High Interest in Science	20	53.01	9.5	1.82 *
Low Interest in Science	20	49.39	3.09	

* < 0.05

The calculated t-value for mean scores on flexibility of students scoring high and low on interest in science was 1.82. Table t-value is 1.69 at 0.05 level. Calculated value is more than table value. Hence calculated value is significant therefore the hypothesis – "There are significant differences in the flexibility scores of students scoring high and low on interest in science" is rejected. But it was assumed that students having high interest in science will give varied and unique responses because they have more knowledge and understanding of the concepts of science. The results were found not to be in accordance with the assumption made. Students scoring high on interest should have scored high on flexibility.

Hypothesis X : "There are significant differences in the originality scores of students scoring high and low on interest in science."

To test the hypothesis t-value was calculated.

Table 4.10 t- value for the Mean Scores of Originality of Students Scoring High and Low on Interest in Science.

Sub sample	Scientific Creativity (ORIGINALITY)			Calculated t-value
	N	M	SD	
High Interest in Science	20	51.80	4.52	1.62 NS
Low Interest in Science	20	48.94	7.82	

NS – not significant.

The calculated t – value for mean scores on originality of students scoring high and low on interest in science was 1.62. Table t – value is 1.69 at 0.05 level. Calculated value is not significant therefore the hypothesis – "There are significant differences in the originality scores of students scoring high and low on interest in science.", is accepted. It was assumed that

students having high interest in science will give more unusual, new, novel responses and score high on originality. The results were found to be in accordance with the assumption made.

Hypothesis XI : "There are significant differences in the total scientific creativity scores of students scoring high and low on interest in science."

To test the hypothesis t-value was calculated.

Table 4.11 t-value for the Mean Scores of Total Scientific Creativity of Students Scoring High and Low on Interest in Science.

Sub sample	Total Scientific Creativity			
	N	M	SD	Calculated t-value
High Interest in Science	20	156.49	29.43	1.09 NS
Low Interest in Science	20	146.81	25.02	

NS – not significant.

The calculated t-value for mean scores on total scientific creativity of students scoring high and low on interest in science was 1.09. Table t-value is 1.69 at 0.05 level. Calculated value is not significant therefore the hypothesis – "There are significant differences in the total scientific creativity scores of students scoring high and low on interest in science", is accepted. It was assumed that students having interest in science will show high scientific creativity because interest results in more readability, in depth knowledge, better understanding of the concepts of science. The results were found to be in accordance with the assumption made.

4.2 SUMMARY

In this chapter the hypotheses of the study were discussed.