CHAPTER - VI
CHAPTER-VI
ANALYSIS OF DATA
AND DISCUSSION OF RESULTS

The details of analysis of data have been presented in this chapter, in order to test the various hypotheses. Various kinds of analysis and their discussion have been given in two sections. Section I deals with the nature of correlation of the independent variables of personality (Factors E,M,Q1), intelligence, achievement in science, achievement motivation, interest in science, attitude towards education, parent child relationship with the dependent of scientific attitude.

Section II has been devoted to locate the significant differences if any in the scientific attitude of students due to sex differences, differences due to medium of instruction and difference due to type of management.

SECTION – I
COEFFICIENT OF CORRELATION

In order to find the values of coefficient of correlation, product moment correlation between dependent variable of scientific attitude and independent variables i.e. cognitive variables (intelligence, achievement in science and achievement motivation), the affective variables (interest in science, attitude towards education, parent child relationship) were found in order to know the analytical picture of the relationship.
In the present section values of coefficient of correlation have been used to measure and describe the relationship in order to test the hypothesis 1, 2 and 3 which are presented below for ready reference.

1. There will be a significant relationship between scientific attitude and personality traits E (humble vs. assertive), M (practical vs. imaginative) and Q1 (conservative vs. experimenting).
   This can be tested as:
   (a) There will be a significant relationship between scientific attitude and personality trait E (humble vs. assertive).
   (b) There will be a significant relationship between scientific attitude and personality trait M (practical vs. imaginative).
   (c) There will be a significant relationship between scientific attitude and personality trait Q1 (conservative vs. experimenting).

2. (a) Variable of intelligence correlates significantly with the scientific attitude of the students.
   (b) Variable of achievement in science correlates significantly with the scientific attitude of the students.
   (c) Variable of achievement motivation correlates significantly with the scientific attitude of the students.

3. (a) Variable of interest in science correlates significantly with the scientific attitude of the students.
   (b) Variable of attitude towards education correlates significantly with the scientific attitude of the students.
   (c) Variable of parent child relationship correlates significantly with the scientific attitude of the students.

The values of coefficient of correlation between dependent and independent variables have been presented in Table 6.1
Table 6.1

Values of coefficient of correlation between independent variables of personality traits (Factor E, M, Qi) intelligence, achievement in science, achievement motivation, interest in science, attitude towards education, parent child relationship and dependent variable of scientific attitude. (N=789)

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Variable</th>
<th>r</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Personality</td>
<td></td>
</tr>
<tr>
<td>(a)</td>
<td>Factor E</td>
<td>.055</td>
</tr>
<tr>
<td>(b)</td>
<td>Factor M</td>
<td>.090*</td>
</tr>
<tr>
<td>(c)</td>
<td>Factor Qi</td>
<td>.085*</td>
</tr>
<tr>
<td>(d)</td>
<td>Intelligence</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Achievement in science</td>
<td>.133*</td>
</tr>
<tr>
<td>3.</td>
<td>Achievement motivation</td>
<td>.061</td>
</tr>
<tr>
<td>4.</td>
<td>Interest in science</td>
<td>.180*</td>
</tr>
<tr>
<td>5.</td>
<td>Attitude towards education</td>
<td>-.002</td>
</tr>
<tr>
<td>6.</td>
<td>Parent child relationship</td>
<td>.150*</td>
</tr>
</tbody>
</table>

* significant

Critical value of r at 5% = .070

(N=789)
1. PERSONALITY AND SCIENTIFIC ATTITUDE

(a) Personality Factor E and Scientific attitude

Dependent variable of scientific attitude was found to be insignificantly correlated with the independent variable of personality Factor E due to its insignificant value of coefficient of correlation ($r = .055$, vide table 6.1). In other words, variable of personality Factor E (humble vs. assertive) does not contribute in the development of scientific attitude.

Scientific attitude requires scientific temper, rational approach, practicality in thought and action, keen observation and critical thinking without being affected by assertion or modesty in personality. As per the present study, the factor E of personality has no direct contribution towards the development of scientific attitude.

In the light of above results, hypothesis 1 (a) that there will be significant relationship between scientific attitude and personality traits E (humble vs. assertive) was not retained.

Above results are in line with the study conducted by Rao (1997)

(b) Personality Factor M and Scientific attitude

Dependent variable of scientific attitude was found to have a significant positive correlation with the independent variable of personality Factor M ($r = .090$, vide Table 6.1).

Factor M depicts practical vs. imaginative traits of the personality. The reason for a significant positive correlation between Factor M and scientific attitude may be due to the fact that since scientific bent of mind requires a practical approach, ability to perform and conduct
experiments, recording and verification of known facts and obtained results, that is why there exists a positive correlation between the two.

Thus the hypothesis 1 (b) that there will be a significant relationship between scientific attitude and personality trait M (practical vs. imaginative) was retained.

(c) Personality Factor Q₁ and Scientific attitude

A significant positive correlation was obtained at .05 level between the independent variable of personality Factor Q₁ and dependent variable of scientific attitude (r=.085, vide Table 6.1). In other words, the above results suggests that Factor Q₁ (conservative vs. experimenting) contributes towards the development of scientific attitude.

The reason for a significant positive correlation may be attributed to the fact that an experimenting mind which can think freely, deal with new situations with a critical approach, and has an ability to test given problems lead to the development of scientific attitude.

In the light of the above results hypothesis 1(c) that there will be significant relationship between scientific attitude and personality trait Q₁ (conservative vs. experimenting) was retained in the present study.

2. Intelligence and Scientific attitude

Significant positive correlation was obtained at .05 level between the independent variable of intelligence and dependent variable of scientific attitude (r=.133, vide Table 6.1)

The reason for the positive and significant relationship between the variable of intelligence and scientific attitude may be due to the fact that many aspects of scientific attitude like objectivity, critical
thinking, rational outlook, use of scientific method, logical inquiry, reasoning ability develop only out of the intellectual activity.

In the light of above results, hypothesis 2(a) that variable of intelligence correlates significantly with the scientific attitude of the students was retained. Similar results were found by Alexander (1990) and Kaur (2002).

3. Achievement in science and Scientific attitude

Dependent variable of scientific attitude was found to be insignificantly correlated with the independent variable of achievement in science due to its insignificant value of coefficient of correlation (r=.061, vide Table 6.1). Thus the variable of achievement in science and scientific attitude are independent of each other.

This may be attributed to the reason that whereas scientific attitude involves scientific temper, open mindedness, critical thinking, rational approach but achievement in science may involve just recapitulating the known facts, memory, retaining the gained knowledge and hard work.

On the basis of the above results, hypothesis 2 (b) that variable of achievement in science correlates significantly with the scientific attitude of the students was not accepted.

The results of the present study were not in line with the studies conducted by Sood (1974), Shinde (1982), Sarah (1983) and Bhattacharya (1997).
4. Achievement motivation and Scientific attitude

Dependent variable of scientific attitude was found to be insignificantly correlated with the independent variable of achievement motivation due to its insignificant value of coefficient of correlation ($r=.056$, vide Table 6.1). Thus the variable of achievement motivation and scientific attitude are independent of each other.

The reason for this may be that the students may be motivated by external factors to achieve in the examination or in the tests but such motivation may not be able to develop keen observation power, critical and open-mindedness and scientific temper which are pre-requisites for developing scientific attitude.

In the light of the above results, hypothesis 2 (c) that variable of achievement motivation correlates significantly with the scientific attitude of the students was not retained in the present study.

These results were not in line with the study conducted by Mandila (1988).

5. Interest in science and Scientific attitude

Significant positive correlation was obtained at .05 level between the independent variable of interest in science and dependent variable of scientific attitude ($r=.180$, vide Table 6.1). In other words the above results suggests that interest in science contributes towards development of scientific attitude.

Interest in general may be defined as a liking towards a particular thing. Since likings of an individual directs his behaviour and attitude, it means one’s interest in scientific activities contribute towards
the development of scientific attitude. That is why there is a positive relationship between the two.

So the hypothesis 3 (a) that the variable of interest in science correlates significantly with the scientific attitude of the student was retained.

Above results were in agreement with the studies of Malviya (1991), Nellaippam (1992) and Kaur (2002).

6. Attitude towards education and Scientific attitude

The dependent variable of scientific attitude was found to be insignificantly correlated with the independent variable of attitude towards education due to its insignificant value of coefficient of correlation ($r = -0.002$, vide Table 6.1)

The reason for the insignificant relationship may be due to the fact that scientific attitude involves critical thinking, open-mindedness, curiosity and reasoning etc; but on the other side attitude towards education may be governed only by the will to learn, gain knowledge or the societal set up which encourages one to receive education.

On the basis of the above results, hypothesis 3 (b) that variable of attitude towards education correlates significantly with the scientific attitude of the students was not accepted.

7. Parent child relationship and Scientific attitude

A significant and positive correlation was obtained at .05 level between the independent variable of parent child relationship and dependent variable of scientific attitude ($r = 0.150$, vide Table 6.1).
The reason for this significant positive correlation may be explained on the basis that in a congenial home environment parents are open-minded and provide opportunities to their children to interact and communicate freely, help to develop keen observation and can foster critical thinking in their children by holding discussions & by providing experience to the children through routine activities.

On the basis of the above results hypothesis 3 (c) that variable of parent-child relationship correlates significantly with the scientific attitude of the students was retained in the present investigation.

Above results were line with the studies conducted by Haseen (1999).

**SECTION -II**

**t-ratio**

t-statistics is a simple solution to the problem of using the sample means of two samples and their standard deviation. The formula for t-statistics is:

\[
t = \frac{M_1 - M_2}{\text{Estimated standard error}}
\]

Assumptions for t-test

1. For a t-test, it is assumed that the sample has been randomly drawn. This assumption is fulfilled in the present study as sample was randomly chosen.

2. Another assumption for t-test is that the population distribution of score is normally distributed.
Both the important assumptions for the t-test were fulfilled before using the t-statistics (as already discussed in Chapter V) to test the following hypothesis for the present study. The hypothesis 4(a), 4(b), 4(c) given earlier in Chapter-III are reproduced below in order to have a quick glance.

4(a) There will be no significant difference in the scientific attitude of girls and boys.

4(b) There will be no significant difference in the scientific attitude of students on the basis of medium of instruction i.e. Hindi, English and Punjabi. This can be tested as:

4(b)1 There will be no significant difference in the scientific attitude of students studying in Hindi and English medium.

4(b)11 There will be no significant difference in the scientific attitude of students studying in English and Punjabi medium.

4(b)111 There will be no significant difference in the scientific attitude of students studying in Hindi and Punjabi medium.

4(c) There will be no significant difference in the scientific attitude of students studying in government, government –aided, private schools and navodaya vidyalayas. This can be tested as:

4(c)1 There will be no significant difference in the scientific attitude of students studying in government and government –aided schools.

4(c)11 There will be no significant difference in the scientific attitude of students studying in government and private schools.

4(c)111 There will be no significant difference in the scientific attitude of students studying in government schools and navodaya vidyalayas.
4(c) There will be no significant difference in the scientific attitude of students studying in government–aided and private schools.

4(c) There will be no significant difference in the scientific attitude of students studying in government–aided schools and Navodaya Vidyalayas.

4(c) There will be no significant difference in the scientific attitude of students studying in private schools and Navodaya Vidyalayas.

Value of mean, standard deviation and t-ratio have been given from Table 6.2 to 6.13.

**Table 6.2**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>S.D</th>
<th>t-value</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Boys</td>
<td>418</td>
<td>973.63</td>
<td>99.96</td>
<td>1.54</td>
<td>Not-significant</td>
</tr>
<tr>
<td>2.</td>
<td>Girls</td>
<td>371</td>
<td>962.19</td>
<td>106.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. **Scientific attitude and sex-differences**

The result of Table 6.2 revealed that there was insignificant difference in the scientific attitude of boys and girls at 0.05 level of significance (t=1.54). The mean scores of scientific attitude in case of boys were higher (M=973.19) as compared to that of girls (M=962.19), yet the sex of the students did not affect their scientific attitude.

The reason for an insignificant difference in the scientific attitude of boys and girls may be due to the fact that the present societal setup does not differentiate the children on the basis of sex. Also the educational system as well as the parents try to give equal opportunities to both boys and girls for their all-round development. Therefore the result
shows an insignificant difference in the scientific attitude of boys and girls.

The reason for a slightly higher mean score of boys in scientific attitude as compared to that of girls may be due the fact that the culture & societal set-up inspite of being modernized, yet somewhere restricts the freedom of the girl and thus makes them traditional and reserved.

Thus the hypotheses 4(a) that there will be no significant difference in the scientific attitude of girls and boys was retained in the present study.

Above results of the present study were in the line with the results of Taylor (1961), Shinde (1982), Ghosh (1989), Malviya (1991) and Kaur (2002).

Table 6.3
Value of S.S., M.S.E. and F-ratio to locate difference in scientific attitude of the students on the basis of medium of instruction.

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>df</th>
<th>S.S.</th>
<th>M.S.E.</th>
<th>F-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment (between medium of instructions)</td>
<td>2</td>
<td>513965.4</td>
<td>256982.7</td>
<td>25.55**</td>
</tr>
<tr>
<td>Error (within medium of instructions)</td>
<td>786</td>
<td>7903649.9</td>
<td>10055.53</td>
<td></td>
</tr>
</tbody>
</table>

Tab value $F_{2,786} = 3.84$

**Significant at .01 level
Table 6.4
Value of mean, standard deviation and t-ratio to locate difference in the scientific attitude of students due to difference in medium of instruction i.e. Hindi and English.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Medium of instruction</th>
<th>N</th>
<th>M</th>
<th>S.D</th>
<th>t-ratio</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Hindi</td>
<td>140</td>
<td>959.62</td>
<td>106.60</td>
<td>3.15</td>
<td>0.01</td>
</tr>
<tr>
<td>2.</td>
<td>English</td>
<td>395</td>
<td>992.39</td>
<td>104.94</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.5
Value of mean, standard deviation and t-ratio to locate difference in the scientific attitude of students due to difference in medium of instruction i.e. English and Punjabi.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Medium of instruction</th>
<th>N</th>
<th>M</th>
<th>S.D</th>
<th>t-ratio</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>English</td>
<td>395</td>
<td>992.39</td>
<td>104.39</td>
<td>7.43</td>
<td>0.01</td>
</tr>
<tr>
<td>2.</td>
<td>Punjabi</td>
<td>254</td>
<td>935.44</td>
<td>88.53</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 6.6

Value of mean, standard deviation and t-ratio to locate difference in the scientific attitude of students due to difference in medium of instruction i.e. Hindi and Punjabi.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Medium of instruction</th>
<th>N</th>
<th>M</th>
<th>S.D</th>
<th>t-ratio</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hindi</td>
<td>140</td>
<td>959.62</td>
<td>106.60</td>
<td>2.28</td>
<td>.05</td>
</tr>
<tr>
<td>2</td>
<td>Punjabi</td>
<td>254</td>
<td>935.44</td>
<td>88.53</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Scientific attitude and medium of instruction

When the scientific attitude of three groups on the basis of medium of instruction i.e. Hindi, English and Punjabi were compared, it was found that F-value (F=25.55 vide Table 6.3) was significant at 0.01 level. Thus the null hypotheses 4(b) that there will be no significant difference in the scientific attitude of the students on the basis of instruction i.e. Hindi, English and Punjabi was rejected and further groups were compared by finding t-ratios.

2(a) Scientific attitude and medium of instruction (Hindi and English)

When the scientific attitude of two groups i.e. Hindi and English medium students was compared, it was noticed that there was a significant difference in the scientific attitude of students studying in Hindi and English medium schools (t=3.15). The mean score of scientific attitude of students studying in English medium (M=992.39) was higher than those studying in Hindi medium (M=959.62)

The reason for significant difference in the scientific attitude of English and Hindi medium students may be due to the availability of better educational opportunities in English medium schools. Similarly
teaching with more scientific and better methods of teaching may account for the same.

Moreover many of the new inventions, discoveries and publications appear in English.

Thus the hypotheses 4(b) that there will be no significant difference in the scientific attitude of students studying in Hindi and English medium was not retained in the present study.

2(b) Scientific attitude and medium of instruction (English and Punjabi)

When the scientific attitude of two groups i.e. English and Punjabi was compared (Table 6.5), it was noticed that there was a significant difference in the scientific attitude of students studying in English and Punjabi medium schools (t=7.43). The mean score of scientific attitude of students studying in English medium (M=992.39) was higher as compared to those studying in Punjabi medium (M=935.44).

The reason for the significant difference in the scientific attitude of English and Punjabi medium students may be due to the fact that English medium schools have better methods, more availability of books and materials, better infrastructure which helps in development better scientific attitude as compared to the Punjabi medium schools.

Thus the hypotheses 4(b) that there will be no significant difference in the scientific attitude of students studying in English and Punjabi medium was not retained in the present study.
2(b) Scientific attitude and medium of instruction (Hindi and Punjabi)

A significant difference in the scientific attitude of students studying in Hindi and Punjabi medium school was obtained \((t=2.28, \text{ vide Table 6.6})\). The mean scores of scientific attitude of students studying in Hindi medium \((M=959.62)\) was higher as compared to those studying in Punjabi medium \((M=935.44)\).

The reason for this may be that students studying in Hindi medium get more opportunities to develop their thinking approach. Hindi being the national language provides a platform to express freely. Another reason may be that books and scientific literature are available in Hindi. So the student studying in Hindi medium have better opportunities to develop scientific attitude as compared to those studying in Punjabi medium.

Thus the hypotheses 4(b) that there will be no significant difference in the scientific attitude of students studying in Hindi and Punjabi medium was not retained in the present study.

Above results are in line with the study conducted by Jayashree (1998).

\textbf{Table 6.7}

\textbf{Value of S.S, M.S.E, and F-ratio to locate difference in the scientific attitude of the students on the basis of type of management.}

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>df</th>
<th>S.S.</th>
<th>M.S.E</th>
<th>F-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between schools</td>
<td>3</td>
<td>52019.36</td>
<td>173399.45</td>
<td>17.235**</td>
</tr>
<tr>
<td>Within school</td>
<td>785</td>
<td>7897416.94</td>
<td>10060.41</td>
<td></td>
</tr>
</tbody>
</table>

\text{Tab value } F_{3,785}=2.6
**Sig. At .01 level

171
Table 6.8
Value of mean, standard deviation and t-ratio to locate difference in the scientific attitude of students due to difference in type of management i.e. government and government - aided school.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Type of school</th>
<th>N</th>
<th>M</th>
<th>S.D</th>
<th>t-ratio</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Government</td>
<td>220</td>
<td>941.32</td>
<td>99.39</td>
<td>0.638</td>
<td>Not significant</td>
</tr>
<tr>
<td>2.</td>
<td>Government-aided</td>
<td>174</td>
<td>947.48</td>
<td>91.56</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.9
Value of mean, standard deviation and t-ratio to locate difference in the scientific attitude of students due to difference in type of management i.e. government and private school.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Type of school</th>
<th>N</th>
<th>M</th>
<th>S.D</th>
<th>t-ratio</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Government</td>
<td>220</td>
<td>941.32</td>
<td>99.39</td>
<td>4.18</td>
<td>0.01</td>
</tr>
<tr>
<td>2.</td>
<td>Private</td>
<td>212</td>
<td>981.40</td>
<td>99.64</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 6.10
Value of mean, standard deviation and t-ratio to locate difference in the scientific attitude of students due to difference in type of management i.e. government school and navodaya vidyalayas.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Type of school</th>
<th>N</th>
<th>M</th>
<th>S.D</th>
<th>t-ratio</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Government</td>
<td>220</td>
<td>941.32</td>
<td>99.39</td>
<td>6.067</td>
<td>0.01</td>
</tr>
<tr>
<td>2.</td>
<td>Navodaya vidyalayas</td>
<td>183</td>
<td>1005.13</td>
<td>109.66</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.11
Value of mean, standard deviation and t-ratio to locate difference in the scientific attitude of students due to difference in type of management i.e. government – aided and private school.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Type of school</th>
<th>N</th>
<th>M</th>
<th>S.D</th>
<th>t-ratio</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Government-aided</td>
<td>174</td>
<td>947.48</td>
<td>91.56</td>
<td>3.47</td>
<td>0.01</td>
</tr>
<tr>
<td>2.</td>
<td>Private</td>
<td>212</td>
<td>981.40</td>
<td>99.64</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 6.12
Value of mean, standard deviation and t-ratio to locate difference in the scientific attitude of students due to difference in type of management i.e. government – aided school and navodaya vidyalayas.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Type of school</th>
<th>N</th>
<th>M</th>
<th>S.D</th>
<th>t-ratio</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Government-aided</td>
<td>174</td>
<td>947.48</td>
<td>91.56</td>
<td>5.401</td>
<td>0.01</td>
</tr>
<tr>
<td>2.</td>
<td>Navodaya vidyalayas</td>
<td>183</td>
<td>1005.13</td>
<td>109.66</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.13
Value of mean, standard deviation and t-ratio to locate difference in the scientific attitude of students due to difference in type of management i.e. private schools and navodaya vidyalayas.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Type of school</th>
<th>N</th>
<th>M</th>
<th>S.D</th>
<th>t-ratio</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Private</td>
<td>212</td>
<td>981.40</td>
<td>99.64</td>
<td>2.23</td>
<td>0.01</td>
</tr>
<tr>
<td>2.</td>
<td>Navodaya vidyalayas</td>
<td>183</td>
<td>1005.13</td>
<td>109.66</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3. Scientific attitude and type of management

When the scientific attitude was compared on the basis of type of management i.e. government, government aided, private schools and navodaya vidyalayas, it was found that F-value (F=17.235, vide Table 6.7) was significant at .01 level. Thus the null hypothesis 4(c) that there will be no significant difference in the scientific attitude of students studying in government, government aided, private schools and navodaya vidyalayas was rejected and further groups were compared by finding t-ratios.

3. (a) Scientific attitude and type of management (government and government-aided schools)

On comparing the scientific attitude of government and government-aided school students, it was noticed that there is no significant difference in the scientific attitude of government and government-aided school students (t=0.638, Table 6.8).

The reason for an insignificant difference in the scientific attitude of students studying in government and government-aided schools may be explained on the basis that these days government and government-aided school provide similar facilities to the students. Government-aided schools since get grant from the government, so are able to generate similar conditions and infrastructure for their students as is being provided to government school students.

Thus the hypotheses 4(c) that there will be no significant difference in the scientific attitude of students studying in government and government-aided schools was retained in the present study.
3. (b) Scientific attitude and type of management (government and private schools)

A significant difference was found to exist in the scientific attitude of the students studying in the government and private schools (t=4.18, Table 6.9). The mean score of scientific attitude of students studying in private schools was higher (M=981.40) as compared to those studying in government schools (M=941.32).

The reason for the above results may be due to the presence of more qualified and well-trained science teachers in the private schools. Most of the private schools have well equipped laboratories. Teachers also get more opportunities to grow professionally. The number of co-curricular activities in science that are carried on in the private schools are much more as compared to those in government schools. Teachers of private schools are also trained to use new methods and innovations in teaching which further enhance reasoning ability and scientific temper among the students.

Thus the hypotheses 4(c) that there will be no significant difference in the scientific attitude of students studying in government and private schools was not retained here.

3. (c) Scientific attitude and type of management (government schools and navodaya vidyalayas)

When the scientific attitude of government school students and those studying in navodaya vidyalayas was compared, a significant difference was obtained (t=6.067, Table 6.10). The mean score of the scientific attitude of students studying in navodaya vidyalayas was higher...
(M=941.32) as compared to those studying in government schools (M=941.32).

The reason for above results may be due to the fact that the student who get admission in navodaya vidyalayas are scrutinized for their mental ability and reasoning power prior to their admissions. Moreover well qualified and trained teachers are appointed by holdings tests and interviews. Moreover the facilities provided in Navodaya Vidyalayas are much better as compared to government schools.

Thus the hypotheses 4(c) that there will be no significant difference in the scientific attitude of students studying in government schools and navodaya vidyalayas was not retained here.

3. (d) Scientific attitude and type of management (government –aided and private schools)

A significant difference was found to exist in the scientific attitude of the students studying in government-aided and private schools (t=3.47, Table 6.11). The mean score of scientific attitude of students studying in private schools was higher (M=981.40) as compared to those studying in government – aided schools (M=947.48).

The above difference is due to better opportunities and facilities available in private schools. The better methods of teaching also facilitate the development of scientific attitude in case of private school students.

Thus the hypotheses 4(c) that there will be no significant difference in the scientific attitude of students studying in government - aided schools and private schools was not retained in the present study.
3. (e) Scientific attitude and type of management (government-aided schools and navodaya vidyalayas)

When the scientific attitude of the students studying in government-aided and private schools and those studying in navodaya vidyalayas was compared, a significant difference was found between the two ($t=5.491$, Table 6.12). The mean score of scientific attitude of students studying in navodaya vidyalayas was higher ($M=1005.13$) was higher as compared to those studying in government-aided schools ($M=947.48$).

The reason for this may be due to the availability of better provisions and more qualified staff appointed after a thorough testing procedure in the Navodaya vidyalayas. The government-aided schools are sometimes not that much equipped with laboratories and library material due to lack of funds. So the scientific attitude of students studying in the navodaya vidyalayas is better developed than the students studying in government-aided schools.

Thus the hypotheses $4(c)$ that there will be no significant difference in the scientific attitude of students studying in government-aided schools and navodaya vidyalayas was not retained in the present study.

3. (f) Scientific attitude and type of management (private schools and navodaya vidyalayas)

A significant difference was found to exist in the scientific attitude of the students studying in private schools and navodaya vidyalayas ($t=2.23$, Table 6.13). The mean score of scientific attitude of
students studying in navodaya vidyalayas (M=1005.13) was higher as compared to those studying in private schools (M=981.40).

The higher mean score of the scientific attitude of students studying in Navodaya Vidyalayas may be due to the fact that Navodaya Vidyalayas being residential schools, provide more time and facilities for development of power of thinking, observation and critical mindedness.

Thus the hypotheses that there will be no significant difference in the scientific attitude of students studying in private schools and navodaya vidyalayas was not retained in the present study.

Above result were in line with the studies conducted by Srivastava (1980), Jayashree (1998) and Haseen (1999).