CHAPTER VI

ANALYSIS, INTERPRETATION AND DISCUSSION OF RESULTS

Analysis of data pertaining to scores of achievement in mathematics, emotional intelligence, measures of creativity, learning styles and mathematical aptitude have been presented in the present chapter in order to arrive at meaningful conclusions and generalizations.

Details of analysis have been given in two sections. Section I deals with the nature of correlation of the different independent variables i.e. emotional intelligence, measures of creativity, learning styles, mathematical aptitude with dependent variable i.e. achievement in mathematics.

Section II deals with the use of t-test in order to find out whether there is any significant difference in the achievement of students in mathematics due to low and high level of emotional intelligence, low and high level of creativity and low and high level of mathematical aptitude and also due to male and female as well as government and private school differences.

For different types of statistical treatment, data were analysed with the help of computer. Results were discussed on the basis of 0.05 and 0.01 level of significance.
The present section gives detail of analysis of data and discussion of results on the basis of correlational analysis.

Correlation is also known as bi-variate analysis. Correlation studies the problem of describing the degree of simultaneous variation of two variables. For example, we get a bi-variate data if we have measures of both height and weight for a group of school children. The essential feature of the bi-variate data is that one measure can be paired with another measure for each member of the group. When we study bi-variate data, we may like to know the degree of relationship between two variables of such data. This degree of relationship is known as correlation. It can be represented quantitatively by the coefficient of correlation.

We observe that the students who have high intelligence quotient tend to receive high scores on an achievement test in arithmetic, whereas those with low intelligence quotients tend to score low. When this type of relationship is observed, the variables of intelligence and achievement in arithmetic are said to be positively correlated. In general, the individual above average in one variable, tends also to be above average in the other; those below average in one, tend to be correspondingly below average in the other; and those at or near the average in one, tend also to be at or near the average in the other, the two variables (or measures) show a positive correlation.

Sometimes students making high scores in one variable are likely to make low scores in another variable and vice-versa. To illustrate, suppose that in a class of 10 students the student who
stood first in an achievement test in mathematics test ranked lowest on anxiety, the student who stood second in mathematics test ranked next to the bottom (ninth) in the test of anxiety and each student stood just as far from the top in mathematics test as from the bottom in anxiety test. Here the correspondence between ranks in mathematics test and anxiety test is regular and definite enough but the direction of relationship is inverse (negative).

When the relationship between two sets of variables is a pure chance relationship, we say there is no correlation. For example, in a class of 10 students, a student with a high score in English test is likely to be anywhere within the total range in terms of his score in a test of numbers. The three students scoring first three positions in the English test may score fifth, seventh and fourth positions on the number test. The three lowest students in English test may score third, eighth and sixth positions in the number test.

The intensity or degree of linear correlation is represented quantitatively by co-efficient of correlation. Its value ranges from -1.00 to +1.00. A value of -1.00 describes a perfect negative correlation and +1.00 describes perfect positive correlation. A zero value describes complete lack of correlation between the two variables. The sign of the co-efficient indicates the direction of relationship and its numerical value indicates its strength.

This section accounts for the description and discussion of correlation of each of four independent variables, namely emotional intelligence, creativity, learning styles and mathematical aptitude with the dependent variable of achievement in mathematics. Pearson’s Product Moment of Correlations were found out between independent variables taken one at a time on the one hand and
achievement in mathematics scores on the other hand with the help of computer.

In present section values of coefficient of correlation have been used to measure and describe relationship in order to test the hypotheses 1, 2, 3 and 4 which are presented below for ready reference:

1. There will be no significant relationship between emotional intelligence and achievement of students in mathematics.

2. There will be no significant relationship between creativity and achievement of students in mathematics.

3. There will be no significant relationship between the learning styles and achievement of students in mathematics.

4. There will be no significant relationship between mathematical aptitude and achievement of students in mathematics.

The values of coefficients of correlation of four independent variables with the dependent variable have been presented in table 6.1.

**TABLE 6.1**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Independent Variables</th>
<th>The value of coefficient of correlation with dependent variable of Achievement in Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Emotional Intelligence</td>
<td>.071</td>
</tr>
</tbody>
</table>
Emotional intelligence and achievement in mathematics

Dependent variable of achievement in mathematics was found to be insignificantly correlated with the independent variable of emotional intelligence due to its insignificant value of coefficient of correlation \((r = 0.071, \text{ vide table 6.1})\). In other words, variable of emotional intelligence and achievement of students in mathematics are independent of each other.

The reason of above mentioned results may be due to the fact that achievement in mathematics is related to general mental ability i.e. the cognitive side and left hemisphere of the brain. On the other hand, emotions are entirely related to the affective side and right hemisphere of the brain. Secondly, mathematics is associated with logical thinking while emotional intelligence is associated with emotions.

Therefore, hypothesis no. 1 that there will be no significant relationship between emotional intelligence and achievement of students in mathematics was accepted.

The results of the present study were not in agreement with the studies already conducted by Pool (1997), Miglani (2001) and Manhas (2004).

Values of correlation of achievement in mathematics with different measures of creativity are given in table 6.2.
Creativity and Achievement in Mathematics

TABLE 6.2

The values of coefficient of correlation between measures of creativity and dependent variable of Achievement in Mathematics

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Measures of independent variable Creativity</th>
<th>The values of coefficient of correlation with dependent variable of Achievement in Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fluency</td>
<td>.210**</td>
</tr>
<tr>
<td>2</td>
<td>Flexibility</td>
<td>.245**</td>
</tr>
<tr>
<td>3</td>
<td>Originality</td>
<td>.329**</td>
</tr>
<tr>
<td>4</td>
<td>Total Verbal Creativity</td>
<td>.264**</td>
</tr>
</tbody>
</table>

** Significant at 0.01 level

Table 6.2 revealed that correlation of achievement in mathematics with different measures of creativity i.e. fluency, flexibility and originality were positive and significant at .01 level (r = .210, .245, .329 respectively).

In other words, these significant correlations have established that fluency, flexibility and originality measures of creativity have significant relationship with achievement of the students in mathematics. It means that students higher on fluency, flexibility and originality measures of creativity tend to achieve high in the subject of mathematics.

The reasons for the significant correlation of fluency, flexibility and originality measure of creativity may be due to the fact that these measures are directly or indirectly related to speed, relevancy and flow of innovative and unrepeated ideas. All these factors are important in mathematics. Secondly, for the solution of
mathematical problems, thinking ability is very much involved. The students with high level of these three factors have the mental curiosity about the mathematical problems, which boost the original thoughts in their minds. Clearly all these things are needed in order to get proficiency in mathematics.

Therefore, hypothesis 2 that there will be no significant relationship between creativity and achievement of students in mathematics was not accepted.

Above results were in agreement with the already available empirical evidences by Setia (1984), Kaur (1992) and Prasad (2002).

| TABLE 6.3 |
| The values of coefficient of correlation between measures of independent variable Learning Style and dependent variable of Achievement in Mathematics |

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Measures of independent variable Learning Style</th>
<th>The values of coefficient of correlation with dependent variable of Achievement in Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Activities related to learning</td>
<td>.124**</td>
</tr>
<tr>
<td>2</td>
<td>Motivation for learning</td>
<td>.131**</td>
</tr>
<tr>
<td>3</td>
<td>Views regarding learning</td>
<td>.095*</td>
</tr>
<tr>
<td>4</td>
<td>Learning Styles Total</td>
<td>.141**</td>
</tr>
</tbody>
</table>

** Significant at 0.01 level  
* Significant at 0.05 level.

Learning Style and achievement in mathematics

Table 6.3 revealed that correlation of achievement in mathematics with different measures of learning styles i.e.
activities related to learning, motivation for learning, views regarding learning were positive and significant at 0.05 level. (r = .124, .131, .095 respectively).

In other words, these significant correlations have established that activities related to learning, motivation for learning and views regarding learning have significant relationship with achievement of the students in mathematics. This significant correlation may be explained on the nature of subject of mathematics. Mathematics is such a subject which is purely based on good styles of learning on a specified system. It follows some sequence. The student of mathematics not only relates himself with the text of the given problem but also with the context of that field. The more accurate are the activities related to learning and the more students feel motivated, more will be the achievement of students in the subject. Thus, these activities are directly related to learning.

On the basis of above results, hypothesis no. 3 that there will be no significant relationship of learning styles and achievement in mathematics was rejected.

Above results were in agreement with the already available empirical evidences by Key (1993), Jones (2000) and Srivastava (2002).
TABLE 6.4

The values of coefficient of correlation between measures of independent variable Mathematical Aptitude and dependent variable of Achievement in Mathematics

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Independent Variable</th>
<th>The values of coefficient of correlation with dependent variable of Achievement in Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mathematical Aptitude</td>
<td>.578**</td>
</tr>
</tbody>
</table>

** Significant at 0.01 level.

**Mathematical aptitude and achievement in mathematics**

The variable of mathematical aptitude was positively and significantly correlated with the dependent variable of achievement of the students in mathematics at 0.01 level of significance ($r =0.578$, vide table 6.4). In other words, the results of present study clearly revealed that mathematical aptitude and achievement of the students in mathematics go hand in hand and mathematical aptitude is a powerful determinant of deciding the achievement of students in mathematics.

The reasons for the significant positive correlation may be explained on the basis that nature of mathematical aptitude test and achievement test in mathematics are somewhat similar. Numerical ability influences one’s scores on aptitude tests. Similarly, one’s aptitude for learning and drill influences one’s grades on the test of mathematical achievement and hence there is positive correlation between them.

In the light of above results, the hypothesis no. 4 that there will be no significant relationship between mathematical aptitude and achievement of students in mathematics was not retained.
Similar results were found by Deshpande (1967), Kumar (1985) and Diwan (1991).

SECTION – II

(t- ratio)

Since co-efficient of correlation revealed simple association between different variables, therefore, an effort was made to do the extreme group analysis for obtaining causal relationship between major variables i.e. achievement in mathematics, emotional intelligence, creativity and mathematical aptitude.

The most important parametric statistics is t- test. A parametric statistical test is one, which specifies certain conditions about the parameter of the population from which a sample is drawn.

In order to test the significance of difference between two means, t-test is used. The computation of t involves the computation of a ratio between the experimental variance i.e. the obtained difference between two means and the error variance i.e. standard error of the mean difference.

Number of degree of freedom (df) depends upon the restriction placed upon the observation. One df is lost for each restriction imposed. If there are N df for computing the means, but only N- 1 available for the SD (standard deviation) as one df is lost in calculating the mean. The SD is of course, based upon the square of the deviation taken around the mean.

In general practice, two confidence intervals are accepted as standard by majority of statisticians. We know 95 % of the cases in normal distribution fall within the limits M ± 1.96 σM and that
99 % fall within the limits $M \pm 2.58\sigma$. If we take the limits specified by $M \pm 1.96\sigma_m$, we define an interval for which the level of confidence is 0.95. Basing our judgement as to the size the mean of the population on these limits, we stand to be right 95 % of the time and wrong 5 %. For greater assurance, we may take the interval defined by the limits $M \pm 2.58\sigma_m$. The limits $M \pm 2.58\sigma_m$ defined an interval for which the level of confidence is 0.99. Basing our judgment as to the size of mean of population on these limits, we stand to be right 99 % of the time and wrong 1 %.

In nut shell, the main purpose of t-test is to enable us to make generalization from a sample to a large population.

T-test is considered to be more powerful than non-parametric statistical tests if its basic requirements or assumptions are met. These assumptions are:

1. The observations must be independent. In other words, the selection of one case must not be dependent upon the selection of any other case.

2. The observation must be drawn from a normal distribution.

3. The variable must be expressed in interval scale.

4. The variable under study should be continuous.

All the above assumptions of t-test were fulfilled before using this statistics.

T-test in the present study was used in order to test the following hypotheses which were already given in chapter- III. These hypotheses are again presented here for ready reference:
5. (a) There will be no significant difference in the achievement of students in mathematics due to high and low level of emotional intelligence.

(b) There will be no significant difference in the achievement of students in mathematics due to high and low level of creativity.

(c) There will be no significant difference in the achievement of students in mathematics due to high and low level of mathematical aptitude.

6(a) There will be no significant difference in the emotional intelligence of male and female students.

(b) There will be no significant difference in the emotional intelligence of government and private school students.

7(a) There will be no significant difference in creativity of male and female students.

(b) There will be no significant difference in creativity of government and private school students.

8(a) There will be no significant difference in mathematical aptitude of male and female students.

(b) There will be no significant difference in mathematical aptitude of government and private school students.

Values of mean, standard deviation and t-ratio have been given from table 6.5 to 6.13
Values of mean, standard deviation and t-ratio to locate difference in the achievement of students in mathematics due to the level of emotional intelligence

<table>
<thead>
<tr>
<th>Vr. No.</th>
<th>Name of Variable</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t-ratio</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>5(a)</td>
<td>Emotional Intelligence</td>
<td>Low emotional intelligence</td>
<td>107</td>
<td>13.24</td>
<td>4.76</td>
<td>2.854</td>
<td>0.01**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High emotional intelligence</td>
<td>113</td>
<td>15.05</td>
<td>4.64</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As indicated by the results of table 6.5, significant difference was observed in the achievement of high emotional intelligence group and low emotional intelligence group due to significant t-value at .01 level (t = 2.854). It depicted that students of high emotional intelligence and low emotional intelligence differed significantly from each other on the variable of achievement in mathematics. After comparing their mean scores on achievement in mathematics, it was found that students with high level of emotional intelligence scored higher (mean = 15.05) as compared to the students with low level of emotional intelligence (mean = 13.24).

Reasons for the higher achievement of students with high level of emotional intelligence may be that no doubt, general mental ability affects the mathematics achievement of the students but research studies have shown that in difficult task such as solving of mathematical problems, emotional intelligence of the person also plays its role. Secondly, some of the measures of emotional intelligence i.e. self-motivation, self-development, emotional stability, commitment etc. help in the enhancement in
the knowledge and skill of students in the subject of mathematics.

Therefore, hypothesis 5(a) that there will be no significant difference in the achievement of students in mathematics due to high and low level of emotional intelligence was not retained in the present study.

Above results were in line with the studies by Singh (2006).

TABLE 6.6

Values of mean, standard deviation and t-ratio to locate difference in the achievement of students in mathematics due to total creativity

<table>
<thead>
<tr>
<th>Vr. No.</th>
<th>Name of Variable</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t-ratio</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>5(b)</td>
<td>Creativity</td>
<td>Low creativity</td>
<td>114</td>
<td>13.32</td>
<td>5.36</td>
<td>4.794</td>
<td>0.01**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High creativity</td>
<td>114</td>
<td>16.78</td>
<td>5.55</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results of table 6.6 revealed significant difference on the variable of achievement of students in mathematics due to low and high level of creativity, as t-value was significant at .01 level (t = 4.794). When mean scores of both the groups were compared, it was found that high creative students scored higher mean scores (mean = 16.78) as compared to low creative students (mean = 13.32).

Above results may be explained on the basis of thinking ability involved in the creative process as well as in the solution of mathematical problems.
Therefore, hypothesis 5(b) that there will be no significant difference in the achievement of students in mathematics due to high and low level of creativity was not retained in the present study.

Findings of the present study were in line with the findings of Vijay Laxmi (1980), Thampurathy (1995), Singh (2006) but contrary to the finding of Kapoor (1996).

**TABLE 6.7**

Values of mean, standard deviation and t-ratio to locate difference in the achievement of students in mathematics due to different levels of mathematical aptitude

<table>
<thead>
<tr>
<th>Vr. No.</th>
<th>Name of Variable</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t-ratio</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>5(c)</td>
<td>Mathematical Aptitude</td>
<td>Low Mathematical Aptitude</td>
<td>124</td>
<td>11.26</td>
<td>3.52</td>
<td>16.28</td>
<td>0.01**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High Mathematical Aptitude</td>
<td>108</td>
<td>20.44</td>
<td>5.02</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results of table 6.7 revealed significant difference on the variable of achievement of students in mathematics due to low and high level of mathematical aptitude, as t-value was significant at .01 level (t = 16.28). When mean scores of both the groups were compared, it was found that students of high mathematical aptitude got higher mean scores (mean = 20.44) as compared to the students who were having low mathematical aptitude (mean = 11.26).

High mathematical aptitude students scored higher mean scores on mathematical achievement test as compared to low mathematical aptitude students. The reason may be similar type
of problems and abilities were involved in the solution of problems of mathematical achievement test and mathematical aptitude test.

Therefore, hypothesis 5(c) that there will be no significant difference in the achievement of students in mathematics due to high and low level of mathematical aptitude was not retained in the present study

Above results were in line with the studies by Kumar (1985).

**Sex Differences and Emotional Intelligence**

**TABLE 6.8**

<table>
<thead>
<tr>
<th>Name of Variable</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>DF</th>
<th>t-ratio</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Intelligence</td>
<td>Male</td>
<td>127.31</td>
<td>127.31</td>
<td>16.65</td>
<td>698</td>
<td>8.699</td>
<td>0.01**</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>137.99</td>
<td>137.99</td>
<td>15.83</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the results of table 6.8, significant difference was obtained in the achievement of male and female students on the variable of emotional intelligence as t-ratio was found to be significant at .01 level (t = 8.699). Also, when the mean scores of emotional intelligence of male and female students were compared, it was found that female students were having high level of emotional intelligence (mean = 137.99) as compared to the male students (mean = 127.31).

Higher mean scores of female students on the variable of emotional intelligence was due to the fact that females are
emotionally more intelligent. They are by nature more sensitive and self-aware. They are more considerate, empathetic and concerned about others. Females have the natural quality of understanding the emotional conflicts more intelligently as compared to the males. Females are able to control their external impulses more efficiently.

Therefore, hypothesis 6(a) that there will be no significant difference in the emotional intelligence of male and female students was not accepted in the present study.

Above results were in line with the studies by Schutte et. al. (1998), Mayer (2000).

Institutional Differences and Emotional Intelligence

TABLE 6.9

Values of mean, standard deviation and t-ratio to locate difference in emotional intelligence due to category of schools

<table>
<thead>
<tr>
<th>Name of Variable</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>df</th>
<th>t-ratio</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotion intelligence</td>
<td>Private</td>
<td>387</td>
<td>129.28</td>
<td>16.98</td>
<td>698</td>
<td>6.327</td>
<td>0.01**</td>
</tr>
<tr>
<td></td>
<td>Government</td>
<td>313</td>
<td>137.27</td>
<td>16.16</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the results of the table 6.9, students of government and private schools differed significantly in the level of emotional intelligence due to significant t-value at .01 level (t = 6.327). After comparing the mean scores, it was found that students of government schools were higher on emotional intelligence (mean = 137.27) as compared to the students of private schools (mean = 129.28).
Higher emotional intelligence level of students of government schools may be that in government schools, generally, the children of below average and average families come for study. As such students face common problems in their domestic matters so they have the feelings of mutual understanding, co-operation. They have emotional attachment with their fellow-beings. Secondly, the children belonging to such families are much more concerned about their future.

Therefore, hypothesis 6(b) that there will be no significant difference in the emotional intelligence of government and private school students was not accepted in the present study.

**Sex Differences and Creativity**

**TABLE 6.10**

Values of mean, standard deviation and t-ratio to locate difference in creativity due to sex differences

<table>
<thead>
<tr>
<th>Name of Variable</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>df</th>
<th>t-ratio</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creativity</td>
<td>Male</td>
<td>337</td>
<td>85.09</td>
<td>30.39</td>
<td>698</td>
<td>6.172</td>
<td>0.01**</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>363</td>
<td>101.05</td>
<td>37.35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As per the results of the table 6.10, significant difference was found in the creativity of male and female students due to significant t-value at .01 level (t = 6.172). It was also found that female students scored higher on creativity (mean = 101.05) as compared to the male students (mean = 85.09). In other words, as per the findings of the present study female students were more creative as compared to male students.

Above results may be due to the fact that females have natural instinct of indulging in artistic and aesthetic activities. These keep them busy in creative activities like rangoli,
embroidery etc. Moreover, due to natural calmness in females, they are more interested in creative activities. Thirdly, females by nature are more resourceful as they can use limited resources to accomplish their task.

Therefore, hypothesis 7(a) that there will be no significant difference in the creativity of male and female students was not accepted in the present study.

Above results were not in line with the studies by Asha (1980), Agarwal and Agarwal (1999).

Institutional Differences and Creativity

TABLE 6.11

<table>
<thead>
<tr>
<th>Name of Variable</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>df</th>
<th>t-ratio</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creativity</td>
<td>Private</td>
<td>387</td>
<td>95.81</td>
<td>37.34</td>
<td>698</td>
<td>2.052</td>
<td>0.05*</td>
</tr>
<tr>
<td></td>
<td>Government</td>
<td>313</td>
<td>90.35</td>
<td>31.85</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant difference was obtained in the creativity of the students belonging to private and government schools due to significant t-value at .05 level (t = 2.052), as per the result of table 6.11. In other words, students belonging to private schools have more creative talents as compared to the students belonging to government schools. After comparing their mean scores, it was found that students of private schools scored more (mean = 95.81) as compared to the students of government schools (mean = 90.35) on the variable of creativity.

Above results may be due to the fact that in private schools, students get more chances to bring forth their hidden talents as
they get numerous chances for co-curricular activities along with academic growth. Secondly, private schools have more infrastructure like up-to-date electronic gadgets such as multimedia or audio-visual aids. Moreover, in private schools, there are so many activities for the students, like mathematical quiz; debates; declamations etc. All these activities inspire students to bring forth their curiousness; sense of initiativeness and persistency. Thirdly, in private schools, their needs and hidden characteristics are satisfied which boost to the creative talents, interests and achievements of students in a particular field. Fourthly, private schools are financially much stronger than the government schools. So, they can spend a huge amount of money on innovative and novel techniques.

Therefore, hypothesis 7(b) that there will be no significant difference in the creativity of government and private school students was not accepted in the present study.

Above results were in line with the studies by Prasad (2002).

**Sex Differences and Mathematical Aptitude**

**TABLE 6.12**

Values of mean, standard deviation and t-ratio to locate difference in mathematical aptitude due to sex differences

<table>
<thead>
<tr>
<th>Name of Variable</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>df</th>
<th>t-ratio</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematical Aptitude</td>
<td>Male</td>
<td>337</td>
<td>16.50</td>
<td>4.67</td>
<td>698</td>
<td>2.994</td>
<td>.01**</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>363</td>
<td>17.54</td>
<td>4.53</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As per the results of table 6.12, significance difference was obtained in the mathematical aptitude of male and female students due to significant t-value at .01 level (t = 2.994). After
comparing their mean scores, it was found that female scored more on mathematical aptitude test (mean = 17.54) as compared to the males (mean = 16.50).

The reasons for the above results may be due to the fact that females have more interest in mathematics these days. The new generation of female students are more inclined towards mathematics inspired by educated mothers.

Therefore, hypothesis 8(a) that there will be no significant difference in the mathematical aptitude of male and female students was not accepted in the present study.

Above results were not in line with the studies Khatoon (1988), Singh (2004).

Institutional Differences and Mathematical Aptitude

TABLE 6.13

Values of mean, standard deviation and t-ratio to locate difference in mathematical aptitude due to category of schools

<table>
<thead>
<tr>
<th>Name of Variable</th>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>df</th>
<th>t-ratio</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematical Aptitude</td>
<td>Private</td>
<td>387</td>
<td>17.80</td>
<td>5.02</td>
<td>698</td>
<td>4.949</td>
<td>0.01**</td>
</tr>
<tr>
<td></td>
<td>Government</td>
<td>313</td>
<td>16.09</td>
<td>3.88</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the results of table 6.13 significant difference was found in the mathematical aptitude of students of private and government schools due to significant t- value at .01 level (t = 4.949). When their mean scores were compared, it was found that students of private schools were higher in the mathematical aptitude as compared to the students of government schools.
The reasons may be that in private schools generally the students come from rich well-to-do families. Moreover in private schools, environment is more congenial. Therefore such students have varied interests. Secondly, the students from rich families have the privilege of well-educated parents who keep themselves aware of up to date knowledge with the surroundings as well as social arena. This environment helps such children in the formation of their right aptitudes. Further, private schools in general have much more and better facilities than provided in government schools. They inculcate more values as well as right talents, which enhance the academic growth of students resulting in formation of positive aptitudes.

Therefore, hypothesis 8(b) that there will be no significant difference in the mathematical aptitude of government and private school students was not accepted in the present study.