Chapter 5

Analysis & Interpretations
CHAPTER-5

Analysis & Interpretation

Introduction:

The kingpin of any research work is a robust analysis of data procured through proper analytical supports that allows all the different levels of investigation. The data procured do not serve any worthwhile purpose unless it is carefully edited, systematically classified and tabulated, scientifically analyzed, intellectually interpreted and rationally concluded. Analysis of the data could be conceived as a dialogue that takes place between the description and interpretation of data: or a mutually interdependent process where analysis informs interpretation and vice versa. (Burton, Brundrett, Jones, (2008). This chapter deals with the analysis of the data and interpretation of the results. The data has been analyzed using t-test, descriptive statistics, Pearson’s product moment correlation and 2X2 ANOVA and the obtained results are interpreted.

Statistical Techniques Applied:

Descriptive statistics

The Descriptive Procedure displays univariate summary statistics for several variables in a single table. Descriptive Statistics was employed in the present study to get mean and other statistics for the various dependent variables measured.
**Pearson’s product Moment Correlation**

Correlations measure how variables or rank orders are related. Pearson’s’ correlation co-efficient is a measure of linear associations. In the present study Pearson’s Correlation has been done to find the correlation co-efficient between Achievement in Mathematics and Critical Thinking Ability Test of students of experimental group.

**Independent Sample t-test**

The Independent samples t-test Procedure compares means for two groups of cases. Ideally for this test, the subjects should be randomly assigned to two groups, so that any difference in response is due to the treatment or lack of treatment and not to other factors. Independent sample t-test is being applied to find the significant difference between mean scores Post test of Achievement in Mathematics of control group and experimental group of Standard IX Students in the respective variables.

**ANOVA:** In Statistics, Analysis of Variance is a collection of statistical models, and their associated procedures, in which the observed variance in a particular variable is portioned into components attributable to different sources of variation. In its simplest form ANOVA provides a statistical test of whether or not the means of several groups are all equal, and therefore generalizes t-test to more than two groups. ANOVA are helpful because they possess an advantage over a two sample t-test. Doing multiple sample t-tests would result in an increased chance of committing a type I error. For this reason ANOVA are useful in comparing two or more means.

In this study 2X2 ANOVA is used.
Objective 5.1: To Study the effect of Interactive Multimedia Strategies on Achievement in Maths of Students of Standard IX.

Hypothesis-5.1

There is no significant difference between the Post test Mean scores of Achievement in Mathematics of Students belonging to Experimental and Control group.

Table 5.1: Comparative Post test Mean Scores of Achievement in Mathematics of Students of Standard IX of experimental and controlled group

<table>
<thead>
<tr>
<th>Source</th>
<th>Groups</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t-value</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ach-test</td>
<td>Control</td>
<td>80</td>
<td>19.7</td>
<td>4.77</td>
<td>7.42</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td>Experimental</td>
<td>80</td>
<td>25.8</td>
<td>5.70</td>
<td></td>
<td>significant</td>
</tr>
</tbody>
</table>
Graph 5.1: Comparative Post test mean scores of Achievement in Mathematics of Students of Standard IX of experimental and controlled group

From Table 5.1 it is found that obtained t-value is greater than table value at 0.01 level of significance. Hence Hypothesis-5.1 is rejected and an alternate Hypothesis is accepted. That means there is a significant difference between the
experimental group and the control group in their post test mean scores of Achievement in Mathematics.

From the Table 5.1 and graph 5.1 it is observed that, the students belonging to experimental group have scored significantly higher than controlled group students. This shows that Interactive multimedia strategies are effective in enhancing the achievement in mathematics of the students of the experimental group. The teaching aids like charts, models, flip over charts which constitute IMMS might have made the concepts clear and also helped in their retention which has in turn helped the students to do well in AIM test.


But the multimedia strategies does not affect the achievement is contradicted by the study conducted by Rile (1991) in which the questioning technique did not make a significant impact on students achievement scores. The study conducted
by Morero (1991) also contradicts that the teachers who were taught using thinking frames did not obtain statistically different scores than baseline group.

**Objective 5.2:** To study the effectiveness of Interactive Multimedia Strategies on Critical Thinking Ability of Standard IX students.

**Hypothesis 5.2**
There is no significant between the mean gain scores of Critical Thinking Ability of Students of Standard IX of experimental group and control group.

**Table 5.2: Comparative mean gain scores of CTA of experimental and controlled group of Students of Standard IX of experimental and controlled group**

<table>
<thead>
<tr>
<th>Source</th>
<th>Groups</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t-value</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain scores</td>
<td>Control</td>
<td>80</td>
<td>5.22</td>
<td>2.53</td>
<td>2.28</td>
<td>significant 0.01</td>
</tr>
<tr>
<td>CTA</td>
<td>Experimental</td>
<td>80</td>
<td>7.60</td>
<td>4.23</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Graph 5.2: Comparative mean gain scores of Critical Thinking Ability of students of Standard IX of experimental group and control group.
From table 5.2 and graph 5.2 it is found that the obtained t-value is greater than table value at 0.01 level of significance. Hence the null hypothesis 5.2 is rejected and alternate hypothesis is accepted. That means, the mean gain scores of Critical Thinking Ability of students belonging to experimental group is greater than that of control group. This result shows that the use of Interactive Multimedia strategies such as charts, videos and models might have helped the students to improve their critical thinking ability and to analyze the given data and think critically in arriving at the proper solution. According to those studies Morero(1991), Srikanta Swamy(1995), Valerie Frear and John J Hirschbuhl(1999), Panda, Subhas Chandra

**Objective 5.3**: To find the relationship between Critical Thinking Ability and Achievement in Mathematics of Standard IX Students.

**Hypothesis -5.3**

There is no significant relationship between Critical Thinking Ability and Achievement in Mathematics of standard IX students of Bangalore city.
Table 5.3: The correlation between Critical Thinking Ability and Achievement in Mathematics of Standard IX Students

<table>
<thead>
<tr>
<th>Testing Variable</th>
<th>N</th>
<th>r-value</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTA</td>
<td>160</td>
<td>0.22</td>
<td>0.01 significant</td>
</tr>
<tr>
<td>AIM</td>
<td>160</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From Table 5.3: it is found that there is a positive relationship between Critical Thinking Ability and Achievement in Mathematics, as ‘r’ is significant at 0.01 level. Hence, Hypothesis 5.3 is rejected and an alternate hypothesis is accepted. Therefore CTA and AIM are positively correlated. This might be attributed to the fact that the components of CTA such as analysis, synthesis and would have helped the students to analyze the given data and helped them to arrive at the solution which would in turn result in working out the problems in mathematics. The similar results were shown by the studies, Rajaswaminathan (1998), Patel J.Z (1987), Sumangala (2000), have shown a positive relationship between CTA and achievement in their respective subjects. This shows that usage of Interactive Multimedia Strategies in the teaching learning process would enhance the Achievement in their respective subjects.

**Objective 5.4:** To find differential effect of IMMS on the Post test scores of Achievement in Mathematics of Students of Standard IX.
Objective 5.4(a): To find the differential effect of IMMS on Post test mean scores of Achievement in Mathematics of students of Standard IX with high and low Intelligence.

Hypothesis 5.4(a)

There is no significant difference between students of Standard IX having high and low intelligence in their Post test Mean Scores of Achievement in Mathematics.

Table 5.4(a) : Comparative post test Mean Scores of Students of standard IX having high and low intelligence with respect Achievement in Mathematics

<table>
<thead>
<tr>
<th>Source</th>
<th>Levels of intelligence</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t-value</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ach-test</td>
<td>High</td>
<td>47</td>
<td>28.829</td>
<td>5.65</td>
<td>2.34</td>
<td>Significant at 0.05level</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>33</td>
<td>26.000</td>
<td>5.04</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Graph 5.4(a): Comparative post test Mean Scores of Students of standard IX having high and low intelligence with respect Achievement in Mathematics
From the Table 5.4(a), it is found that the obtained t-value is greater than the table value at 0.05 level of significance. Hence hypothesis 5.4(a) is rejected and an alternate hypothesis is accepted. This indicates that there is a significant difference between the Achievement in Mathematics of students having high and low intelligence. From table 5.4(a) and graph 5.4(a), it is found that students having high intelligence have scored significantly higher than the students having low intelligence. This might be because the components of intelligence like reasoning, availing previous knowledge, problem solving is required for achievement in mathematics. This is in tune with the findings of the study conducted by Patel JZ(1987) and Biswal J (1988).

**Objective 5.4(b):** To find the differential effect of IMMS on Post test mean scores of Achievement in Mathematics of boys and girls of Standard IX.
**Hypothesis 5.4 (b)** There is no significant difference between boys and girls of standard IX in their Post test mean scores of Achievement in Mathematics.

**Table 5.4 (b): Comparative Post test Mean Scores of Achievement in Mathematics of Boys and Girls of Standard IX**

<table>
<thead>
<tr>
<th>Source</th>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t-value</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ach-test</td>
<td>Boys</td>
<td>40</td>
<td>27.62</td>
<td>5.54</td>
<td>0.06</td>
<td>Not Significant</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>40</td>
<td>27.70</td>
<td>5.64</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Graph 5.4(b): Comparative Post test Mean Scores of Achievement in Mathematics of Boys and Girls of Standard IX**
From table 5.4(b) and the graph 5.4(b) it is found that the obtained t-value is less than the table value, hence hypothesis 5.4(b) is accepted, and that means there is no significant difference in the achievement of mathematics of boys and girls of standard IX students. This might be attributed to provision of same facilities and exposure to both boys and girls in urban area.

The Studies conducted by Chaudhary GG (1983), Patel JZ (1987), Piyavadee Boonsathron (1988), Srikanta Swamy (1995), Dayavathi (2000), Klement and Teixeira (2002) reveals that there is no significant difference between the post tests mean scores of boys and girls with respect to their achievement in their respective subjects and also in their critical thinking ability that means both the boys and girls are equally well performed in their achievement and development of critical thinking abilities it may be because of the usage of the interactive multimedia strategies.. This is contradicted by the study conducted by Myrtle Maria A.C (2001) which reveals that there was significant difference between the mean scores of boys and girls on the total scores. The study conducted by Fayza,
S. Al-Hammadi (2009) and Sumangala (2000) also falls in the line of contradiction that the girls had scored better than boys. The study conducted by Panda, Subhas Chandra and Chaudhary, Jayakrushna (2000) also supports that male students are superior to girls in learning physics.

**Objective 5.5:** To find the differential effect of IMMS on their gain scores of CTA of

5.5(a) IX students with high and low Intelligence

**Hypothesis 5.5(a):** There is no significant difference between the students of Standard IX having high and low intelligence in their CTA.

**Table 5.5(a): Comparative mean gain scores of CTA of standard IX students having high and low intelligence.**

<table>
<thead>
<tr>
<th>Source</th>
<th>Levels of Intelligence</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t-value</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain Experimental Group CTA</td>
<td>High</td>
<td>47</td>
<td>8.38</td>
<td>4.52</td>
<td>2.01</td>
<td>0.05 significant</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>33</td>
<td>6.48</td>
<td>4.164</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

142
Graph 5.5(a): Comparative mean gain scores of CTA of standard IX students having high and low Intelligence

From the table 5.5(a) and graph 5.5(a) the obtained t-value is greater than the table value, hence null Hypothesis 5.5(a) is rejected and the alternate Hypothesis is accepted. That means there is significant difference between the students of
standard IX having high and low intelligence. The students having high Intelligence are having high Critical Thinking Ability and students having low Intelligence are having low Critical Thinking Ability.

The studies conducted by Patel J. Z (1987) reveals that students having high Intelligence are having high creative thinking ability and the students having low Intelligence are having low creative thinking ability.

The above results are contradicted by the study conducted by Chaudhary G.G (1983) shows that the students with high intelligence did not have more creative thinking ability than the students of low intelligence.

Objective: 5.5(b): To find the differential effect of IMMS on the mean post test scores of CTA of boys and girls of Standard IX

Hypothesis: 5.5(b)
There is no significant difference between boys and girls of Standard IX in their mean post test scores of CTA

Table 5.5(a): Comparative mean post scores of CTA of boys and girls of Standard IX.

<table>
<thead>
<tr>
<th>Source</th>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t-value</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group CTA</td>
<td>Boys</td>
<td>40</td>
<td>9.05</td>
<td>3.40</td>
<td>3.24</td>
<td>significant</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>40</td>
<td>6.15</td>
<td>4.52</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Graph 5.5 (b) **Comparative mean post scores of CTA of boys and girls of Standard IX.**

From the table and graph 5.5(b) the obtained t-value is greater than the table value hence the null Hypothesis 5.5 (b) is rejected and the alternate Hypothesis is accepted. This means there is significant difference among boys and girls in their CTA of standard IX. The Critical Thinking Ability in Boys is more than Critical Thinking Ability in Girls.

The study conducted by **Panda, Subhas Chandra and Chaudhary, Jayakrushna (2000)** supports that male students are superior to girls in learning physics. The study conducted by **Sumangala (2000)** also in line that the scores of female B.Ed students in critical thinking skills were higher than male B.Ed students of
Mangalore University. But the studies conducted by Chaudhary GG (1983), Patel JZ (1987), Piyavadee Boonsathron (1988), Srikanta Swamy (1995), Dayavathi (2000), Klement and Teixeira (2002) reveals that there is no significant difference between the post tests mean scores of boys and girls with respect to their achievement in their respective subjects and also in their critical thinking ability that means both the boys and girls are equally well performed in their achievement and development of critical thinking abilities, which is contradictory in nature to the above results.

**Objective 5.6:** To find out the interaction effect of Gender and intelligence on the post Test Mean scores of AIM of Students of standard IX.

**Hypothesis 5.6:** There is no significant interaction effect of gender and intelligence on the post-test mean scores of AIM of students of standard IX

<table>
<thead>
<tr>
<th>Gender</th>
<th>Levels_Intelligence</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>High</td>
<td>26.3571</td>
<td>6.03171</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>22.8158</td>
<td>5.10884</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>24.6750</td>
<td>5.85430</td>
<td>80</td>
</tr>
<tr>
<td>Girls</td>
<td>High</td>
<td>27.0250</td>
<td>5.57691</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>23.8250</td>
<td>6.56286</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>25.4250</td>
<td>6.26175</td>
<td>80</td>
</tr>
<tr>
<td>Total</td>
<td>High</td>
<td>26.6829</td>
<td>5.78819</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>23.3333</td>
<td>5.88343</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>25.0500</td>
<td>6.05405</td>
<td>160</td>
</tr>
<tr>
<td>Source</td>
<td>Type III Sum of Squares</td>
<td>df</td>
<td>Mean Square</td>
<td>F</td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------------------</td>
<td>----</td>
<td>-------------</td>
<td>---------</td>
</tr>
<tr>
<td>Corrected Model</td>
<td>477.497&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3</td>
<td>159.166</td>
<td>4.641</td>
</tr>
<tr>
<td>Intercept</td>
<td>99920.656</td>
<td>1</td>
<td>99920.656</td>
<td>2913.51</td>
</tr>
<tr>
<td>Gender</td>
<td>28.090</td>
<td>1</td>
<td>28.090</td>
<td>.819</td>
</tr>
<tr>
<td>Levels_Intel</td>
<td>453.890</td>
<td>1</td>
<td>453.890</td>
<td>13.235</td>
</tr>
<tr>
<td>Gender * Levels_Intel</td>
<td>1.164</td>
<td>1</td>
<td>1.164</td>
<td>.034</td>
</tr>
<tr>
<td>Error</td>
<td>5350.103</td>
<td>156</td>
<td>34.296</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>106228.000</td>
<td>160</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>5827.600</td>
<td>159</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the above table, it reveals that the interaction effect of gender (Boys & Girls) and Intelligence (High & Low) towards achievement in mathematics of students of standard IX were taught through IMMS is not significant, since the obtained F-value is 0.03 which is less than the table value. Therefore, the null hypothesis is accepted that there is no significant interaction effects of gender and intelligence on the posttest mean scores of AIM of students of Standard IX.
Objective 5.7: To find the interaction effect of gender and intelligence on the gain scores of CTA of students of standard IX.

Hypothesis 5.7: There is no significant interaction effect of gender and intelligence on the gain scores of CTA of students of Standard IX.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Levels_Intelligence</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>High</td>
<td>8.0238</td>
<td>3.93538</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>6.2895</td>
<td>3.61609</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>7.2000</td>
<td>3.86284</td>
<td>80</td>
</tr>
<tr>
<td>Girls</td>
<td>High</td>
<td>7.5500</td>
<td>4.52316</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>5.7000</td>
<td>3.29880</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>6.6250</td>
<td>4.04210</td>
<td>80</td>
</tr>
<tr>
<td>Total</td>
<td>High</td>
<td>7.7927</td>
<td>4.21267</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>5.9872</td>
<td>3.44717</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>6.9125</td>
<td>3.95157</td>
<td>160</td>
</tr>
</tbody>
</table>

From the above table, it reveals that the interaction effect of gender (Boys&Girls) and Intelligence (High&Low) towards CTA of students of standard of IX. Taught through IMMS is not significant, since the obtained F-value is 0.09 which is less than the table value. Therefore, the null hypothesis is accepted that there is no significant interaction effects of gender and intelligence on the posttest mean scores of CTA of students of Standard IX.
The study conducted by Srikanta Swamy (1995) shows that there was no significant interaction between the nature of the test, sex, SES and intelligence regarding all the components of critical thinking skills and also There was no significant interaction between sex, SES and critical thinking skills with respect to achievement in methods of teaching of physics

Objective-5.8: To find the effect of boys and girls on the post-test mean scores on Achievement in Mathematics of Standard IX.

Hypothesis-5.8: There is no significant difference between boys and girls on post test mean scores AIM on Standard IX

Table 5.8: the comparative post test mean scores of Achievement in Mathematics of Boys and Girls of Standard IX

<table>
<thead>
<tr>
<th>Source</th>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t-value</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ach test</td>
<td>Boys</td>
<td>40</td>
<td>27.62</td>
<td>5.54</td>
<td>0.06</td>
<td>Not significant</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>40</td>
<td>27.70</td>
<td>5.64</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
From the table 5.8 and graph 5.8 the obtained t-value is less than the table value hence the null Hypothesis 5.8 is accepted that means there is no significant difference in the post-test mean scores of AIM of boys and girls of standard IX. The Studies conducted by Chaudhary GG (1983), Patel JZ (1987), Piyavadee Boonsathron (1988), Srikanta Swamy (1995), Dayavathi (2000), Klement and Teixeira (2002) reveals that there is no significant difference between the post tests mean scores of boys and girls with respect to their achievement in their respective subjects that means both the boys and girls are equally well performed in their achievement it may be because of the usage of the interactive multimedia strategies.. This is contradicted by the study conducted by Myrtle Maria A.C (2001) which reveals that there was significant difference between the mean scores of boys and girls on the total scores. The study conducted by Fayza, S. Al-Hammadi (2009) also falls in the line of contradiction that the girls had scored
better than boys. The study conducted by Panda, Subhas Chandra and Chaudhary, Jayakrushna (2000) also supports that male students are superior to girls in learning physics.

**Objective: 5.9:** To find the effect of IMMS on post test mean scores of AIM of experimental group after delayed post-test of students of standard IX.

**Hypothesis 5.9**

There is no significant difference between the post-test mean scores and delayed post test mean scores of AIM of experimental group.

**Table 5.9: The Comparative mean post scores of AIM of experimental group after delayed post test.**

<table>
<thead>
<tr>
<th>Source</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t-value</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ach-post-test</td>
<td>80</td>
<td>27.66</td>
<td>5.55</td>
<td>5.63</td>
<td>0.01</td>
</tr>
<tr>
<td>Ach-delay post-test</td>
<td>80</td>
<td>25.87</td>
<td>5.70</td>
<td></td>
<td>significant</td>
</tr>
</tbody>
</table>

From the table 5.9 the t-value is greater than the table value at 0.01 level of significance. Hence the null hypothesis 5.9 is rejected and the alternate hypothesis is accepted. That means there is significant difference in the post test mean scores of AIM of experimental group after the delayed post test. This might be because of the impact of IMMS which helped the students in retaining the concepts and reproduce it after some time.
Objective 5.10: To find the effect of IMMS on the gain scores of CTA of Experimental group after delayed post-test of the Students of Standard IX.

Hypothesis 5.10: There is no significant difference between post test mean gain scores and delayed post test of CTA of Experimental group

Table: 5.10: Comparative Mean gain scores of CTA of experimental group after delayed post-test of the Students of Standard IX.

<table>
<thead>
<tr>
<th>Source</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t-value</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair-1 CTA-Post-Test</td>
<td>80</td>
<td>27.97</td>
<td>6.17</td>
<td>3.83</td>
<td>0.01 significant</td>
</tr>
<tr>
<td>Ach-delay post-test</td>
<td>80</td>
<td>26.67</td>
<td>7.156</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the Table 5.10 the obtained t-value is greater than table value at 0.01 level of significance. Hence the null hypothesis 5.10 is rejected and the alternate hypothesis is accepted. That means there is significant difference in the gain scores of CTA of experimental group after the delayed post test. This might be because of the use of IMMS which had significant effect in retention of the concepts and might have helped the students to think critically and solve the problems.