Chapter - V

Analysis and Interpretation of Data
5.1 INTRODUCTION

This chapter deals with the analysis and interpretation of data collected on six variables: Academic achievement, Concept formation, Logical reasoning, Styles of thinking, Awareness to Nature of knowledge and Sensitivity to language of students of standard VII taught through Inductive Thinking Model. In order to find out the effectiveness of Inductive Thinking Model, the scores of the students were obtained before the commencement of experiment and after the treatment. The following tables show the results of the experiment:

5.2 EFFECTIVENESS OF INDUCTIVE THINKING MODEL OF TEACHING

It is inferred from Table 1 that the academic achievement control group taught through traditional method increases by 23.74 gain scores. The achievement of experimental group taught through Inductive Thinking increases highly by 45.52 gain scores.

The table shows that the concept formation of control group taught through traditional method increases by 11.74 gain scores whereas the experimental group taught through Inductive Thinking model increases by 50.60 gain scores.

It is found that the logical reasoning of control group taught through traditional method increases by 02.23 gain scores but the increase is higher by 46.07 gain scores in experimental group taught through Inductive Thinking model.

It is also known from the table that the style of thinking of both control and experimental group shifted from right and left dominance to whole dominate by 04.26 and 22.66 gain scores respectively.
Table 17
Table showing the pre-test, post-test and Gain scores of control and experimental groups on selected variables (Empirical Data)

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Variables</th>
<th>Group</th>
<th>N</th>
<th>Pre-test mean scores</th>
<th>Post-test mean scores</th>
<th>Gain scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Academic achievement</td>
<td>Control</td>
<td>46</td>
<td>15.65</td>
<td>39.39</td>
<td>23.74</td>
</tr>
<tr>
<td></td>
<td></td>
<td>experiment</td>
<td>42</td>
<td>17.19</td>
<td>62.71</td>
<td>45.52</td>
</tr>
<tr>
<td>2.</td>
<td>Concept formation</td>
<td>Control</td>
<td>46</td>
<td>17.61</td>
<td>29.35</td>
<td>11.74</td>
</tr>
<tr>
<td></td>
<td></td>
<td>experiment</td>
<td>42</td>
<td>15.95</td>
<td>66.55</td>
<td>50.6</td>
</tr>
<tr>
<td>3.</td>
<td>Logical reasoning</td>
<td>Control</td>
<td>46</td>
<td>11.09</td>
<td>13.32</td>
<td>02.23</td>
</tr>
<tr>
<td></td>
<td></td>
<td>experiment</td>
<td>42</td>
<td>14.70</td>
<td>60.77</td>
<td>47.07</td>
</tr>
<tr>
<td>4a.</td>
<td>Styles of thinking (R)</td>
<td>Control</td>
<td>46</td>
<td>40.17</td>
<td>34.17</td>
<td>-06.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>experiment</td>
<td>42</td>
<td>38.95</td>
<td>26.57</td>
<td>-12.38</td>
</tr>
<tr>
<td>4b.</td>
<td>Styles of thinking (L)</td>
<td>Control</td>
<td>46</td>
<td>28.78</td>
<td>28.52</td>
<td>-00.26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>experiment</td>
<td>42</td>
<td>36.48</td>
<td>32.67</td>
<td>00.19</td>
</tr>
<tr>
<td>4c.</td>
<td>Styles of thinking (W)</td>
<td>Control</td>
<td>46</td>
<td>13.83</td>
<td>18.09</td>
<td>04.26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>experiment</td>
<td>42</td>
<td>17.81</td>
<td>40.47</td>
<td>22.66</td>
</tr>
<tr>
<td>5.</td>
<td>Awareness to nature of knowledge</td>
<td>Control</td>
<td>46</td>
<td>15.29</td>
<td>16.01</td>
<td>00.72</td>
</tr>
<tr>
<td></td>
<td></td>
<td>experiment</td>
<td>42</td>
<td>15.79</td>
<td>56.03</td>
<td>40.24</td>
</tr>
<tr>
<td>6.</td>
<td>Sensitivity to language</td>
<td>Control</td>
<td>46</td>
<td>17.17</td>
<td>20.76</td>
<td>03.59</td>
</tr>
<tr>
<td></td>
<td></td>
<td>experiment</td>
<td>42</td>
<td>19.76</td>
<td>50.00</td>
<td>30.24</td>
</tr>
</tbody>
</table>

The above table further shows that awareness to nature of the knowledge increase by 00.72 and 40.24 gain scores of control and experimental groups respectively. It is found that the sensitivity to language of control group and experimental group increase by 03.59 and 30.24 gain scores respectively.

Hence, it is concluded that the gain scores of experimental group taught through Inductive Thinking model is higher than the gain scores of the control group in all variables. It clearly shows the effectiveness of Inductive Thinking model in developing the above variables.
Hypothesis 1:

There is no significant difference between pre-test and post-test mean scores in academic achievement of Students of Standard VII, when taught through Inductive Thinking model.

Table 18

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>t</th>
<th>df.</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pre-test</td>
<td>42</td>
<td>17.19</td>
<td>8.16</td>
<td>31.19</td>
<td>82</td>
<td>0.05</td>
<td>Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Post-test</td>
<td>42</td>
<td>62.71</td>
<td>11.50</td>
<td>31.19</td>
<td></td>
<td>0.05</td>
<td></td>
</tr>
</tbody>
</table>

It is inferred from the table that the obtained ‘t’ value 31.19 is greater than the table value 1.99, of significance at 0.05 level. Hence, this null hypothesis is rejected. It is found that there is a significant difference between the pre-test and post-test mean scores of academic achievement of students of standard VII when taught through Inductive Thinking Model.

Thus, it is concluded that Inductive Thinking Model is an effective model of teaching to increase the academic achievement in physical geography at upper primary level.
Hypothesis 2:

There is no significant difference between pre-test and post-test mean scores in Concept formation of students of standard VII when taught through Inductive Thinking Model.

Table 19

Table showing the Pre-test, post-test mean scores and their ‘t’ value of Concept formation

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>t</th>
<th>df.</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pre-test</td>
<td>42</td>
<td>15.95</td>
<td>6.46</td>
<td>31.98</td>
<td>82</td>
<td>0.05</td>
<td>significant</td>
</tr>
<tr>
<td>2.</td>
<td>Post-test</td>
<td>42</td>
<td>66.55</td>
<td>10.50</td>
<td>31.98</td>
<td>82</td>
<td>0.05</td>
<td>significant</td>
</tr>
</tbody>
</table>

It is obvious from the table that the obtained ‘t’ value 31.98 is greater than the table value 1.99, of significance at 0.05 level. Hence, this null hypothesis is rejected.

It is found that there is a significant difference between the pre-test and post-test mean scores of Concept formation of students of standard VII when taught through Inductive Thinking Model. Thus, it is concluded that Inductive Thinking Model is an effective model of teaching to increase the level of Concept formation in physical geography at upper primary level.
Hypothesis 3

There is no significant difference between pre-test and post-test mean scores in Logical reasoning of students of standard VII when taught through Inductive Thinking Model.

Table 20

Table showing the Pre-test, post-test mean scores and their ‘t’ value of logical reasoning.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>t</th>
<th>df.</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pre-test</td>
<td>42</td>
<td>14.70</td>
<td>5.69</td>
<td>23.73</td>
<td>82</td>
<td>0.05</td>
<td>significant</td>
</tr>
<tr>
<td>2.</td>
<td>Post-test</td>
<td>42</td>
<td>60.77</td>
<td>12.19</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is obvious from the table that the obtained ‘t’ value 23.73 is greater than the table value, 1.99, of significance at 0.05 level. Hence, this null hypothesis is rejected.

It is found that there is a significant difference between the pre-test and post-test mean scores of logical reasoning of students of standard VII when taught through Inductive Thinking Model. Thus, it is concluded that Inductive Thinking Model is an effective model of teaching to increase the logical reasoning in physical geography at upper primary level.
Hypothesis 4

There is no significant difference between pre-test and post-test mean scores in Right dominant style of thinking of students of standard VII when taught through Inductive Thinking Model.

Table 21
Table showing the Pre-test, post-test mean scores and their ‘t’ value of Right dominant style of thinking

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>t</th>
<th>df.</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pre-test</td>
<td>42</td>
<td>38.95</td>
<td>16.15</td>
<td>6.17</td>
<td>82</td>
<td>0.05</td>
<td>Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Post-test</td>
<td>42</td>
<td>26.57</td>
<td>7.69</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is obvious from the table that the obtained ‘t’ value 6.17 is greater than the table value 1.99, of significance at 0.05 level. Hence, this null hypothesis is rejected.

It is found that there is a significant difference between the pre-test and post-test mean scores of Right dominant style of thinking of students of standard VII when taught through Inductive Thinking Model. Thus, it is concluded that Inductive Thinking Model is an effective model of teaching to increase the Right dominant style of thinking in physical geography at upper primary level.
Hypothesis 5

There is no significant difference between pre-test and post-test mean scores in left dominant style of thinking of students of standard VII when taught through Inductive Thinking Model.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>t</th>
<th>df.</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pre-test</td>
<td>42</td>
<td>36.48</td>
<td>10.97</td>
<td>1.843</td>
<td>82</td>
<td>0.05</td>
<td>Not significant</td>
</tr>
<tr>
<td>2.</td>
<td>Post-test</td>
<td>42</td>
<td>32.67</td>
<td>11.21</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is obvious from the table that the obtained 't' value 1.843 is less than the table value 1.99, of significance at 0.05 level. Hence, this null hypothesis is accepted.

It is found that there is no significant difference between the pre-test and post-test mean scores of Left dominant style of thinking of students of standard VII when taught through Inductive Thinking Model. Thus, it is concluded that Inductive Thinking Model is does not increase the left dominant style of thinking while teaching physical geography at upper primary level.
Hypothesis 6

There is no significant difference between pre-test and post-test mean scores in Whole dominant style of thinking of students of standard VII when taught through Inductive Thinking Model.

Table 23

Table showing the Pre-test, post-test mean scores and their ‘t’ value of Whole dominant style of thinking

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>t</th>
<th>df.</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pre-test</td>
<td>42</td>
<td>17.81</td>
<td>14.89</td>
<td>8.069</td>
<td>82</td>
<td>0.05</td>
<td>Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Post-test</td>
<td>42</td>
<td>40.47</td>
<td>12.99</td>
<td>8.069</td>
<td>82</td>
<td>0.05</td>
<td>Significant</td>
</tr>
</tbody>
</table>

It is inferred from the table that the obtained ‘t’ value 8.069 is greater than the table value 1.99, of significance at 0.05 level. Hence, this null hypothesis is rejected.

It is found that there is significant difference between the pre-test and post-test mean scores of Whole dominant style of thinking of students of standard VII when taught through Inductive Thinking Model. Thus, it is concluded that Inductive Thinking Model is an effective model of teaching to increase the Whole dominant style of thinking while physical geography was taught at upper primary level.

It implies that Right dominant and Whole dominant styles of thinking increase due to the effect of Inductive Thinking Model, while Left dominant style of thinking does not increase among the students through the teaching of physical geography.
Hypothesis 7
There is no significant difference between pre-test and post-test mean scores in Awareness to Nature of knowledge of students of standard VII when taught through Inductive Thinking Model.

Table 24
Table showing the Pre-test, post-test mean scores and their 't' value of Awareness to Nature of knowledge.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>t</th>
<th>df.</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pre-test</td>
<td>42</td>
<td>15.79</td>
<td>7.65</td>
<td>18.11</td>
<td>82</td>
<td>0.05</td>
<td>Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Post-test</td>
<td>42</td>
<td>56.03</td>
<td>13.15</td>
<td>18.11</td>
<td>82</td>
<td>0.05</td>
<td>Significant</td>
</tr>
</tbody>
</table>

It is inferred from the table that the obtained ‘t’ value 18.11 is greater than the table value 1.99, of significance at 0.05 level. Hence, this null hypothesis is rejected.

It is found that there is significant difference between the pre-test and post-test mean scores of Awareness to Nature of knowledge of students of standard VII when taught through Inductive Thinking Model. Thus, it is concluded that Inductive Thinking Model is an effective model of teaching to increase the Awareness to Nature of knowledge in physical geography at upper primary level.
Hypothesis 8

There is no significant difference between pre-test and post-test mean scores in Sensitivity to language of students of standard VII when taught through Inductive Thinking model.

Table 25

Table showing the Pre-test, post-test mean scores and their ‘t’ value of Sensitivity to language

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>t</th>
<th>df.</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pre-test</td>
<td>42</td>
<td>19.76</td>
<td>8.76</td>
<td>16.624</td>
<td>82</td>
<td>0.05</td>
<td>Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Post-test</td>
<td>42</td>
<td>50.00</td>
<td>11.42</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is inferred from the table that the obtained ‘t’ value 16.62 is greater than the table value 1.99, of significance at 0.05 level. Hence, this null hypothesis is rejected.

It is found that there is significant difference between the pre-test and post-test mean scores of Sensitivity to language of students of standard VII when taught through Inductive Thinking Model. Thus, it is concluded that Inductive Thinking Model is an effective model of teaching to increase the Sensitivity to language when taught physical geography at upper primary level.
Fig. 1

Figure showing the effectiveness of Inductive Thinking Model of Teaching

- Academic achievement
- Concept formation
- Logical reasoning
- Right dominant style of thinking
- Left dominant style of thinking
- Whole dominant style of thinking
- Awareness to nature of knowledge
- Sensitivity to language

Mean gain scores (%)
5.3 RELATIVE EFFECTIVENESS OF INDUCTIVE THINKING MODEL AND TRADITIONAL METHOD OF TEACHING

Hypothesis 9

There is no significant difference between the mean scores of Academic achievement of students of standard VII taught through Inductive Thinking Model and the mean scores of students taught through traditional method of teaching.

Table 26
Table showing the post-test scores of experimental and control group and their ‘t’ value in academic achievement

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>t</th>
<th>df.</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pre-test</td>
<td>42</td>
<td>62.71</td>
<td>11.5</td>
<td>9.18</td>
<td>86</td>
<td>0.05</td>
<td>Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Post-test</td>
<td>46</td>
<td>39.39</td>
<td>12.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is evident from the table that the obtained ‘t’ value 9.18 is higher than the table value 1.99, of significance at 0.05 level, Hence, this null hypothesis is rejected.

It is found that there is significant difference between the post-test mean scores of experimental group and control group in academic achievement. The higher achievement of experimental group is accounted due to the effectiveness of Inductive Thinking Model. Thus, it is concluded that the Inductive Thinking Model is more effective model of teaching in enhancing Academic achievement than the traditional teaching of physical geography at upper primary level.
Hypothesis 10

There is no significant difference between the mean scores of Concept formation of students of standard VII taught through Inductive Thinking Model and the mean scores of students taught through traditional method of teaching.

Table 27

Table showing the post-test scores of experimental and control group and their ‘t’ value in Concept formation.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Method</th>
<th>Group</th>
<th>N</th>
<th>Mean scores</th>
<th>S.D</th>
<th>‘t’</th>
<th>df</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Inductive</td>
<td>Experimental</td>
<td>42</td>
<td>66.55</td>
<td>10.50</td>
<td>17.63</td>
<td>86</td>
<td>0.05</td>
<td>Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Traditional</td>
<td>Control</td>
<td>46</td>
<td>29.35</td>
<td>9.28</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is evident from the table that the obtained ‘t’ value 17.63 is higher than the table value 1.99, of significance at 0.05 level, Hence, this null hypothesis is rejected.

It is found that there is significant difference between the post-tests mean scores of experimental group and control group in Concept formation. The higher degree of Concept formation of experimental group is accounted due to the effectiveness of Inductive Thinking Model. Thus, it is concluded that the Inductive Thinking Model is more effective model of teaching for forming the concepts of physical geography at upper primary level than the traditional method of teaching.
Hypothesis 11

There is no significant difference between the mean scores of logical reasoning of students of standard VII taught through Inductive Thinking Model and the mean scores of students taught through traditional method of teaching.

Table 28

Table showing the post-test scores of experimental and control group and their ‘t’ value in logical reasoning

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Method</th>
<th>Group</th>
<th>N</th>
<th>Mean scores</th>
<th>S.D</th>
<th>‘t’</th>
<th>df</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Inductive</td>
<td>Experimental</td>
<td>42</td>
<td>60.77</td>
<td>12.19</td>
<td>23.18</td>
<td>86</td>
<td>0.05</td>
<td>Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Traditional</td>
<td>Control</td>
<td>46</td>
<td>13.32</td>
<td>5.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is evident from the table that the obtained ‘t’ value 23.18 is higher than the table value 1.99, of significance at 0.05 level, Hence, this null hypothesis is rejected.

It is found that there is significant difference between the post-tests mean scores of experimental group and control group in logical reasoning. The higher degree of logical reasoning of experimental group is achieved due to the effectiveness of Inductive Thinking Model. Thus, it is concluded that the Inductive Thinking Model is more effective model of teaching for logical reasoning of physical geography at upper primary level than the traditional method of teaching.
Hypothesis 12

There is no significant difference between the mean scores of Right dominant style of thinking of students of standard VII taught through Inductive Thinking Model and the mean scores of students taught through traditional method of teaching.

Table 29

Table showing the Post-test scores of experimental and control group and their ‘t’ value in Right dominant style of thinking

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Method</th>
<th>Group</th>
<th>N</th>
<th>Mean scores</th>
<th>S.D</th>
<th>‘t’</th>
<th>df</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Inductive</td>
<td>Experimental</td>
<td>42</td>
<td>26.57</td>
<td>7.69</td>
<td>3.53</td>
<td>86</td>
<td>0.05</td>
<td>Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Traditional</td>
<td>Control</td>
<td>46</td>
<td>34.17</td>
<td>12.18</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is evident from the table that the obtained ‘t’ value 3.53 is higher than the table value 1.99, of significance at 0.05 level, Hence, this null hypothesis is rejected.

It is found that there is significant difference between the post-tests mean scores of experimental group and control group in Right dominant style of thinking. The Right dominant style of thinking of experimental group is lowered due to the effectiveness of Inductive Thinking Model. Thus, it is concluded that the Inductive Thinking Model is transforming the style of thinking from Right dominance to Left dominant style of thinking.
Hypothesis 13

There is no significant difference between the mean scores of Left dominant style of thinking of students of standard VII taught through Inductive Thinking Model and the mean scores of students taught through traditional method of teaching.

Table 30

Table showing the Post-test scores of experimental and control group and their ‘t’ value in left dominant style of thinking

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Method</th>
<th>Group</th>
<th>N</th>
<th>Mean scores</th>
<th>S.D</th>
<th>‘t’</th>
<th>df</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Inductive</td>
<td>Experimental</td>
<td>42</td>
<td>32.67</td>
<td>11.2</td>
<td>1.663</td>
<td>86</td>
<td>0.05</td>
<td>Not significant</td>
</tr>
<tr>
<td>2.</td>
<td>Traditional</td>
<td>Control</td>
<td>46</td>
<td>28.52</td>
<td>12.09</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is evident from the table that the obtained ‘t’ value 1.663 is lower than the table value 1.99, of significance at 0.05 level. Hence, this null hypothesis is accepted.

It is found that there is no significant difference between the post-tests mean scores of experimental group and control group in left dominant style of thinking. The left dominant style of thinking for both experimental group and control group is found to be the same. Thus, it is concluded that the Inductive Thinking Model does not play a significant role in changing Left dominant style of thinking.
Hypothesis 14

There is no significant difference between the mean scores of whole dominant style of thinking of students of standard VII taught through Inductive Thinking Model and the mean scores of students taught through traditional method of teaching.

Table 31

Table showing the Post-test scores of experimental and control group and their ‘t’ value in whole dominant style of thinking

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Method</th>
<th>Group</th>
<th>N</th>
<th>Mean scores</th>
<th>S.D</th>
<th>‘t’</th>
<th>df</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Inductive</td>
<td>Experimental</td>
<td>42</td>
<td>40.47</td>
<td>12.99</td>
<td>9.04</td>
<td>86</td>
<td>0.05</td>
<td>Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Traditional</td>
<td>Control</td>
<td>46</td>
<td>18.08</td>
<td>10.18</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is evident from the table that the obtained ‘t’ value 9.04 is higher than the table value 1.99, of significance at 0.05 level. Hence, this null hypothesis is rejected.

It is found that there is significant difference between the post-tests mean scores of experimental group and control group in whole dominant style of thinking. The higher degree of whole dominant style of thinking of experimental group is achieved due to the effectiveness of Inductive Thinking Model. Thus, it is concluded that the Inductive Thinking Model is more effective model of teaching for whole dominant style of thinking when taught physical geography at upper primary level than the traditional method of teaching.

It is evident that Inductive Thinking Model is effective in transforming the Left and Right dominant styles of thinking to whole dominant style of thinking among the students at upper primary level, while teaching physical geography.
Hypothesis 15

There is no significant difference between the mean scores of Awareness to Nature of knowledge of students of standard VII taught through Inductive Thinking Model and the mean scores of students taught through traditional method of teaching.

Table 32
Table showing the post-test scores of experimental and control group and their ‘t’ value in Awareness to Nature of knowledge

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Method</th>
<th>Group</th>
<th>N</th>
<th>Mean scores</th>
<th>S.D</th>
<th>‘t’</th>
<th>df</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Inductive</td>
<td>Experimental</td>
<td>42</td>
<td>56.03</td>
<td>13.15</td>
<td>17.71</td>
<td>86</td>
<td>0.05</td>
<td>Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Traditional</td>
<td>Control</td>
<td>46</td>
<td>16.01</td>
<td>6.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is inferred from the table that the obtained ‘t’ value 17.71 is higher than the table value 1.99, of significance at 0.05 level, Hence, this null hypothesis is rejected.

It is found that there is a significant difference between the post-test mean scores of experimental group and control group in Awareness to Nature of knowledge. The higher Awareness to Nature of knowledge of experimental group is achieved due to the effectiveness of Inductive Thinking Model. Thus, it is concluded that the Inductive Thinking Model is more effective model of teaching for creating Awareness to Nature of knowledge on physical geography at upper primary level than the traditional method of teaching.
Hypothesis 16

There is no significant difference between the mean scores of Sensitivity to language of students of standard VII taught through Inductive Thinking Model and the mean scores of students taught through traditional method of teaching.

Table 33
Table showing the Post-test scores of experimental and control group and their ‘t’ value in Sensitivity to language

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Method</th>
<th>Group</th>
<th>N</th>
<th>Mean scores</th>
<th>S.D</th>
<th>‘t’</th>
<th>df</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Inductive</td>
<td>Experimental</td>
<td>42</td>
<td>50.00</td>
<td>11.42</td>
<td></td>
<td>13.56</td>
<td>86</td>
<td>0.05</td>
</tr>
<tr>
<td>2.</td>
<td>Traditional</td>
<td>Control</td>
<td>46</td>
<td>20.76</td>
<td>8.43</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is indicated from the table that the obtained ‘t’ value 13.56 is higher than the table value 1.99, of significance at 0.05 level, Hence, this null hypothesis is rejected.

It is found that there is significant difference between the post-test mean scores of experimental group and control group in Sensitivity to language. The higher scores of Sensitivity to knowledge of experimental group are achieved due to the effectiveness of Inductive Thinking Model. Thus, it is concluded that the Inductive Thinking Model is more effective model of teaching for developing sensitivity to language on physical geography at upper primary level than the traditional method of teaching.
Fig. 2
Figure showing the Relative Effectiveness of Inductive Thinking model and Traditional method of teaching.

- **Academic achievement**: Traditional group = 62.17%, Inductive thinking = 66.55%
- **Concept formation**: Traditional group = 29.35%, Inductive thinking = 13.33%
- **Logical reasoning**: Traditional group = 13.32%, Inductive thinking = 34.17%
- **Right dominant style of thinking**: Traditional group = 26.67%, Inductive thinking = 28.52%
- **Left dominant style of thinking**: Traditional group = 37.67%, Inductive thinking = 46.47%
- **Whole dominant style of thinking**: Traditional group = 18.09%, Inductive thinking = 16.01%
- **Awareness to nature of knowledge**: Traditional group = 16.01%, Inductive thinking = 20.76%
- **Sensitivity to language**: Traditional group = 20.76%, Inductive thinking = 34.17%
5.4 ANALYSIS OF CORRELATIONS BETWEEN THE VARIABLES UNDER STUDY

Hypothesis 17

There is no significant correlation between the post-test mean scores of academic achievement and Concept formation of students of standard VII taught through Inductive Thinking Model.

Table 34

Table showing the ‘r’ value between academic achievement and Concept formation

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Variable</th>
<th>N</th>
<th>‘r’</th>
<th>Table value</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Academic achievement</td>
<td>42</td>
<td>0.411</td>
<td>0.304</td>
<td>0.05</td>
<td>Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Concept formation</td>
<td>42</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is indicated from the table that the obtained ‘r’ value 0.411 is higher than the table value of significance at 0.05 level. Hence, this null hypothesis is rejected.

It is found that there is significant correlation between the post-tests mean scores of experimental group in academic achievement and Concept formation of the same. It is obvious that academic achievement and Concept formation are positively correlated. Hence, it is concluded that the higher the Concept formation, the higher will be the academic achievement. Thus, it is concluded that academic achievement and Concept formation of experimental group are related to one another, positively.
Hypothesis 18

There is no significant correlation between the post-test mean scores of academic achievement and logical reasoning of students of standard VII taught through Inductive Thinking Model.

Table 35

Table showing the ‘r’ value between academic achievement and logical reasoning

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Variable</th>
<th>N</th>
<th>‘r’</th>
<th>Table value</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Academic achievement</td>
<td>42</td>
<td>0.333</td>
<td>0.304</td>
<td>0.05</td>
<td>Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Logical reasoning</td>
<td>42</td>
<td>0.333</td>
<td>0.304</td>
<td>0.05</td>
<td>Significant</td>
</tr>
</tbody>
</table>

It is indicated from the table that the obtained ‘r’ value 0.333 is higher than the table value of significance at 0.05 level. Hence, this null hypothesis is rejected.

It is found that there is significant correlation between the post-tests mean scores of experimental group in academic achievement and logical reasoning. It is obvious that academic achievement and logical reasoning are positively correlated. Hence, it is concluded that the higher the logical reasoning, the higher will be the academic achievement. Thus, it is concluded that academic achievement and logical reasoning of experimental group are positively related to one another.
Hypothesis 19

There is no significant correlation between the post-test mean scores of academic achievement and Right dominant style of thinking of students of standard VII taught through Inductive Thinking Model.

Table 5.36

<table>
<thead>
<tr>
<th>No.</th>
<th>Variable</th>
<th>N</th>
<th>‘r’</th>
<th>Table value</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Academic achievement</td>
<td>42</td>
<td>-0.037</td>
<td>0.304</td>
<td>0.05</td>
<td>Not Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Right dominant</td>
<td>42</td>
<td>-0.037</td>
<td>0.304</td>
<td>0.05</td>
<td></td>
</tr>
</tbody>
</table>

It is indicated from the table that the obtained ‘r’ value - 0.037 is lower than the table value of significance at 0.05 level. Hence, this null hypothesis is accepted.

It is found that there is no significant correlation between the post-test mean scores of experimental group in academic achievement and Right dominant style of thinking. It is obvious that academic achievement and Right dominant style of thinking are not correlated. Thus, it is concluded that academic achievement and Right dominant style of thinking of experimental group are not significantly related to one another.
Hypothesis 20

There is no significant correlation between the post-test mean scores of academic achievement and Left dominant style of thinking of students of standard VII taught through Inductive Thinking Model.

Table 37

Table showing ‘r’ value between academic achievement and Left dominant style of thinking

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Variable</th>
<th>N</th>
<th>‘r’</th>
<th>Table value</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Academic achievement</td>
<td>42</td>
<td>0.139</td>
<td>0.304</td>
<td>0.05</td>
<td>Not Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Left dominant</td>
<td>42</td>
<td>0.139</td>
<td>0.304</td>
<td>0.05</td>
<td></td>
</tr>
</tbody>
</table>

It is indicated from the table that the obtained ‘r’ value 0.139 is lower than the table value of significance at 0.05 level. Hence, this null hypothesis is accepted.

It is found that there is no significant correlation between the post-test mean scores of experimental group in academic achievement and Left dominant style of thinking. It is obvious that academic achievement and Left dominant style of thinking are not correlated. Thus, it is concluded that academic achievement and Left dominant style of thinking of experimental group are not significantly related to one another.
Hypothesis 21
There is no significant correlation between the post-test mean scores of academic achievement and whole dominant style of thinking of students of standard VII taught through Inductive Thinking Model.

Table 38
Table showing the ‘r’ value between academic achievement and whole dominant style of thinking

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Variable</th>
<th>N</th>
<th>‘r’</th>
<th>Table value</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Academic achievement</td>
<td>42</td>
<td>-0.116</td>
<td>0.304</td>
<td>0.05</td>
<td>Not Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Whole dominant</td>
<td>42</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is indicated from the table that the obtained ‘r’ value - 0.116 is lower than the table value of significance at 0.05 level. Hence, this null hypothesis is accepted.

It is found that there is no significant correlation between the post-test mean scores of experimental group in academic achievement and whole dominant style of thinking. It is obvious that academic achievement and whole dominant style of thinking are not correlated. Thus, it is concluded that academic achievement and whole dominant style of thinking of experimental group are not significantly related to one another.
Hypothesis 22

There is no significant correlation between the post-test mean scores of academic achievement and awareness to nature of knowledge of students of standard VII taught through Inductive Thinking Model.

Table 39

Table showing the ‘r’ value between academic achievement and awareness to nature of knowledge

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Variable</th>
<th>N</th>
<th>‘r’</th>
<th>Table value</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Academic achievement</td>
<td>42</td>
<td>0.179</td>
<td>0.304</td>
<td>0.05</td>
<td>Not Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Awareness to nature of knowledge.</td>
<td>42</td>
<td>0.179</td>
<td>0.304</td>
<td>0.05</td>
<td>Not Significant</td>
</tr>
</tbody>
</table>

It is indicated from the table that the obtained ‘r’ value 0.179 is lower than the table value of significance at 0.05 level. Hence, this null hypothesis is accepted.

It is found that there is no significant correlation between the post-test mean scores of experimental group in academic achievement and awareness to nature of knowledge. It is obvious that academic achievement and awareness to nature of knowledge are not correlated. Thus, it is concluded that academic achievement and awareness to nature of knowledge of experimental group are not significantly related to one another.
Hypothesis 23

There is no significant correlation between the post-test mean scores of academic achievement and sensitivity to language of students of standard VII taught through Inductive Thinking Model.

Table 40

Table showing the ‘r’ value between academic achievement and sensitivity to language

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Variable</th>
<th>N</th>
<th>‘r’</th>
<th>Table value</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Academic achievement</td>
<td>42</td>
<td>-0.061</td>
<td>0.304</td>
<td>0.05</td>
<td>Not Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Sensitivity to language</td>
<td>42</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is indicated from the table that the obtained ‘r’ value - 0.061 is lower than the table value of significance at 0.05 level, Hence, this null hypothesis is accepted.

It is found that there is no significant correlation between the post-test mean scores of experimental group in academic achievement and sensitivity to language. It is obvious that academic achievement and sensitivity to language are not correlated. Thus, it is concluded that academic achievement and sensitivity to language of experimental group are not significantly related to one another.
Hypothesis 24

There is no significant correlation between the post-test mean scores of Concept formation and logical reasoning of students of standard VII taught through Inductive Thinking Model.

Table 41

Table showing the ‘r’ value between Concept formation and logical reasoning

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Variable</th>
<th>N</th>
<th>‘r’</th>
<th>Table value</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Concept formation</td>
<td>42</td>
<td>0.395</td>
<td>0.304</td>
<td>0.05</td>
<td>Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Logical reasoning</td>
<td>42</td>
<td>0.395</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is indicated from the table that the obtained ‘r’ value 0.395 is higher than the table value of significance at 0.05 level. Hence, this null hypothesis is rejected.

It is found that there is significant correlation between the post-test mean scores of experimental group in Concept formation and logical reasoning. It is obvious that Concept formation and logical reasoning are positively correlated. Thus, it is concluded that Concept formation and logical reasoning of experimental group are related to one another. The higher the logical reasoning the higher will be Concept formation.
Hypothesis 25

There is no significant correlation between the post-test mean scores of Concept formation and Whole dominant style of thinking of students of standard VII taught through Inductive Thinking Model.

Table 42

Table showing the ‘r’ value between Concept formation and whole dominant style of thinking

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Variable</th>
<th>N</th>
<th>‘r’</th>
<th>Table value</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Concept formation</td>
<td>42</td>
<td>-0.206</td>
<td>0.304</td>
<td>0.05</td>
<td>Not Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Whole dominant</td>
<td>42</td>
<td>-0.206</td>
<td>0.304</td>
<td>0.05</td>
<td></td>
</tr>
</tbody>
</table>

It is indicated from the table that the obtained ‘r’ value - 0.206 is lower than the table value but not significant even at the level of significance at 0.05 level. Hence, this null hypothesis is accepted.

It is found that there is no significant correlation between the post-test mean scores of experimental group in Concept formation and Whole dominant style of thinking. It is obvious that Concept formation and whole dominant style of thinking are not correlated. Thus, it is concluded that Concept formation and Whole dominant style of thinking of experimental group are not significantly related to one another.
Hypothesis 26

There is no significant correlation between the post-test mean scores of Concept formation and Awareness to Nature of knowledge of students of standard VII taught through Inductive Thinking Model.

Table 43

Table showing the ‘r’ value between Concept formation and Nature of knowledge

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Variable</th>
<th>N</th>
<th>‘r’</th>
<th>Table value</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Concept formation</td>
<td>42</td>
<td>0.384</td>
<td>0.304</td>
<td>0.05</td>
<td>Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Nature of knowledge</td>
<td>42</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is indicated from the table that the obtained ‘r’ value 0.384 is higher than the table value of significance at 0.05 level. Hence, this null hypothesis is rejected.

It is found that there is significant correlation between the post-test mean scores of experimental group in Concept formation and Awareness to Nature of knowledge. It is obvious that Concept formation and Awareness to Nature of knowledge are positively correlated. Thus, it is concluded that Concept formation and Awareness to Nature of knowledge of experimental group are related to one another. The higher the Awareness to Nature of knowledge the higher will be Concept formation.
Hypothesis 27

There is no significant correlation between the post-test mean scores of Logical reasoning and Whole dominant style of thinking of students of standard VII taught through Inductive Thinking Model.

Table 44

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Variable</th>
<th>N</th>
<th>'r'</th>
<th>Table value</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Logical reasoning</td>
<td>42</td>
<td>0.152</td>
<td>0.304</td>
<td>0.05</td>
<td>Not Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Whole dominant</td>
<td>42</td>
<td>0.152</td>
<td>0.304</td>
<td>0.05</td>
<td></td>
</tr>
</tbody>
</table>

It is indicated from the table that the obtained ‘r’ value 0.384 is lower than the table value of significance at 0.05 level. Hence, this null hypothesis is accepted.

It is found that there is no significant correlation between the post-test mean scores of experimental group in Logical reasoning and Whole dominant style of thinking. It is obvious that Logical reasoning and Whole dominant style of thinking are not significantly correlated. Thus, it is concluded that Logical reasoning and Whole dominant style of thinking of experimental group are not significantly related to one another.
Hypothesis 28

There is no significant correlation between the post-test mean scores of Logical reasoning and Sensitivity to language of students of standard VII taught through Inductive Thinking Model.

Table 45

<table>
<thead>
<tr>
<th>No.</th>
<th>Variable</th>
<th>N</th>
<th>'r'</th>
<th>Table value</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Logical reasoning</td>
<td>42</td>
<td>0.026</td>
<td>0.304</td>
<td>0.05</td>
<td>Not Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Sensitivity to language</td>
<td>42</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is indicated from the table that the obtained 'r' value 0.026 is lower than the table value of significance at 0.05 level. Hence, this null hypothesis is accepted.

It is found that there is no significant correlation between the post-test mean scores of experimental group in Logical reasoning and Sensitivity to language. It is obvious that Logical reasoning and Sensitivity to language are not correlated. Thus, it is concluded that Logical reasoning and Sensitivity to language of experimental group are not significantly related to one another.
Hypothesis 29

There is no significant correlation between the post-test mean scores of Awareness to Nature of knowledge and sensitivity to language of students of standard VII taught through Inductive Thinking Model.

Table 46

Table showing the ‘r’ value between Nature of knowledge and sensitivity to language

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Variable</th>
<th>N</th>
<th>‘r’</th>
<th>Table value</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Nature of knowledge</td>
<td>42</td>
<td>0.330</td>
<td>0.304</td>
<td>0.05</td>
<td>Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Sensitivity to language</td>
<td>42</td>
<td>0.330</td>
<td>0.304</td>
<td>0.05</td>
<td>Significant</td>
</tr>
</tbody>
</table>

It is indicated from the table that the obtained ‘r’ value 0.330 is higher than the table value of significance at 0.05 level. Hence, this null hypothesis is rejected.

It is found that there is significant correlation between the post-test mean scores of experimental group in Awareness to Nature of knowledge and sensitivity to language. Thus, it is concluded that Awareness to Nature of knowledge and sensitivity to language are highly and positively related to one another. The higher the sensitivity to language the higher will be the Awareness to Nature of knowledge, when taught through Inductive Thinking Model.
5.5 ANALYSIS OF DIFFERENCE BETWEEN BOYS AND GIRLS TAUGHT THROUGH INDUCTIVE THINKING MODEL

Hypothesis 30
There is no significant difference between post-test mean scores of boys and girls of standard VII in academic achievement when taught through Inductive Thinking Model.

Tables 47
Table showing the Post-test mean scores and their ‘t’ value of academic achievement

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>t</th>
<th>df</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Boys</td>
<td>21</td>
<td>59.05</td>
<td>10.33</td>
<td>2.156</td>
<td>40</td>
<td>0.05</td>
<td>Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Girls</td>
<td>21</td>
<td>66.38</td>
<td>11.67</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is inferred from the table that the obtained ‘t’ value 2.156 is greater than the table value 2.02, of significance at 0.05 level. Hence, this null hypothesis is rejected.

It is found that there is a significant difference between the post-test mean scores of boys and girls of standard VII in academic achievement. Girls achieve higher than the boys. Thus, it is concluded that boys and girls do differ in Academic achievement when taught through Inductive Thinking Model and girls perform better than boys.
Hypothesis 31

There is no significant difference between boys and girls of standard VII in Concept formation when taught through Inductive Thinking Model.

Table 48

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>t</th>
<th>df</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Boys</td>
<td>21</td>
<td>68.8</td>
<td>10.60</td>
<td>1.412</td>
<td>40</td>
<td>0.05</td>
<td>Not Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Girls</td>
<td>21</td>
<td>64.29</td>
<td>10.16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is inferred from the table that the obtained ‘t’ value 1.412 is less than the table value 2.02, of significance at 0.05 level. Hence, this null hypothesis is accepted.

It is found that there is no significant difference between the boys and girls of standard VII in post-test mean scores of Concept formation when taught through Inductive Thinking Model. Thus, it is concluded that boys and girls do not differ in Concept formation, while teaching physical geography at upper primary level.
Hypothesis 32
There is no significant difference between boys and girls of standard VII in Logical reasoning when taught through Inductive Thinking Model.

Table 49
Table showing the Post-test mean scores and their ‘t’ value of Logical reasoning

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>t</th>
<th>df</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Boys</td>
<td>21</td>
<td>63.69</td>
<td>11.63</td>
<td>1.578</td>
<td>40</td>
<td>0.05</td>
<td>Not Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Girls</td>
<td>21</td>
<td>67.86</td>
<td>12.3</td>
<td>1.578</td>
<td>40</td>
<td>0.05</td>
<td></td>
</tr>
</tbody>
</table>

It is inferred from the table that the obtained ‘t’ value 1.578 is less than the table value 2.02, of significance at 0.05 level. Hence, this null hypothesis is accepted.

It is found that there is no significant difference between the boys and girls of standard VII in post-test mean scores of Logical reasoning when taught through Inductive Thinking Model. Thus, it is concluded that boys and girls do not differ in logical reasoning, while teaching physical geography at upper primary level.
Hypothesis 33

There is no significant difference between boys and girls of standard VII in Left dominant style of thinking when taught through Inductive Thinking Model.

Table 50

Table showing the Post-test mean scores and ‘t’ value of Left dominant style of thinking.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>t</th>
<th>df</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Boys</td>
<td>21</td>
<td>31.61</td>
<td>9.62</td>
<td>0.601</td>
<td>40</td>
<td>0.05</td>
<td>Not Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Girls</td>
<td>21</td>
<td>33.71</td>
<td>12.75</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is inferred from the table that the obtained 't' value 0.601 is less than the table value 2.02, of significance at 0.05 level. Hence, this null hypothesis is accepted.

It is found that there is no significant difference between the boys and girls of standard VII in post-test mean scores of Left dominant style of thinking when taught through Inductive Thinking Model. Thus, it is concluded that boys and girls do not differ in Left dominant style of thinking, while teaching physical geography at upper primary level.
Hypothesis 34

There is no significant difference between boys and girls of standard VII in Whole dominant style of thinking when taught through Inductive Thinking Model.

Table 51

Table showing the Post-test mean scores and their ‘t’ value of Whole dominant style of thinking.

<table>
<thead>
<tr>
<th>S. No</th>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>t</th>
<th>df</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Boys</td>
<td>21</td>
<td>41.90</td>
<td>12.24</td>
<td>0.708</td>
<td>40</td>
<td>0.05</td>
<td>Not Significant</td>
</tr>
<tr>
<td>2</td>
<td>Girls</td>
<td>21</td>
<td>39.05</td>
<td>13.85</td>
<td>0.708</td>
<td>40</td>
<td>0.05</td>
<td></td>
</tr>
</tbody>
</table>

It is inferred from the table that the obtained ‘t’ value 0.708 is less than the table value 2.02, of significance at 0.05 levels. Hence, this null hypothesis is accepted.

It is found that there is no significant difference between the boys and girls of standard VII in post-test mean scores of Whole dominant style of thinking when taught through Inductive Thinking Model. Thus, it is concluded that boys and girls do not differ in Whole dominant style of thinking, while teaching physical geography at upper primary level.
Hypothesis 35
There is no significant difference between boys and girls of standard VII in Awareness to Nature of knowledge when taught through Inductive Thinking Model.

Table 52
Table showing the Post-test mean scores and their ‘t’ value of Awareness to Nature of knowledge

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>t</th>
<th>df</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Boys</td>
<td>21</td>
<td>60.16</td>
<td>11.52</td>
<td>2.118</td>
<td>40</td>
<td>0.05</td>
<td>Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Girls</td>
<td>21</td>
<td>51.90</td>
<td>13.65</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is inferred from the table that the obtained ‘t’ value 2.118 is greater than the table value 2.02, of significance at 0.05 levels. Hence, this null hypothesis is rejected.

It is found that there is significant difference between the boys and girls of standard VII in post-test mean scores of Awareness to Nature of knowledge when taught through Inductive Thinking Model. Thus, it is concluded that boys and girls do differ in Awareness to Nature of knowledge, while teaching physical geography at upper primary level.
Hypothesis 36

There is no significant difference between boys and girls of standard VII in Sensitivity to language when taught through Inductive Thinking Model.

Table 53

Table showing the Post-test mean scores and their ‘t’ value of sensitivity to language

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>t</th>
<th>df</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Boys</td>
<td>21</td>
<td>52.86</td>
<td>11.46</td>
<td>1.655</td>
<td>40</td>
<td>0.05</td>
<td>Not Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Girls</td>
<td>21</td>
<td>47.14</td>
<td>10.90</td>
<td>1.655</td>
<td>40</td>
<td>0.05</td>
<td>Not Significant</td>
</tr>
</tbody>
</table>

It is inferred from the table that the obtained ‘t’ value 1.655 is lower than the table value 2.02, of significance at 0.05 level. Hence, this null hypothesis is accepted.

It is found that there is no significant difference between the boys and girls of standard VII in post-test mean scores of sensitivity to language when taught through Inductive Thinking Model. Thus, it is concluded that boys and girls do not differ in sensitivity to language, while teaching physical geography at upper primary level.
Fig. 3
Figure showing the difference between the post-test Mean scores of Boys and Girls taught through Inductive Thinking model.
5.6. ANALYSIS OF DIFFERENCE BETWEEN HIGH AND LOW ACHIEVERS WHEN TAUGHT THROUGH INDUCTIVE THINKING MODEL ON ALL VARIABLES

Hypothesis 37

There is no significant difference between high and low achieving groups of students of standard VII in academic achievement when taught through Inductive thinking model.

Table 54

Table showing the post-test mean scores of high and low achievers and their ‘t’ value in academic achievement

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Achievers</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>t</th>
<th>df</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>High</td>
<td>12</td>
<td>74.83</td>
<td>7.05</td>
<td>7.829</td>
<td>27</td>
<td>0.05</td>
<td>Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Low</td>
<td>17</td>
<td>54.23</td>
<td>6.92</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is inferred from the table that the obtained ‘t’ value 7.829 is greater than the table value 2.05, of significance at 0.05 level. Hence, this null hypothesis is rejected.

It is found that there is a significant difference between the high and low achieving groups of standard VII in post-test mean scores of academic achievement when taught through Inductive Thinking Model. Thus, it is concluded that high and low achievers do differ in academic achievement, while teaching physical geography at upper primary level.
Hypothesis 38

There is no significant difference between high and low achieving groups of students of standard VII in Concept formation when taught through Inductive Thinking Model.

Table 55

Table showing the Post-test mean scores of high and low achievers and their ‘t’ value in Concept formation.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Achievers</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>t</th>
<th>df</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>High</td>
<td>12</td>
<td>76.67</td>
<td>8.616</td>
<td>3.656</td>
<td>27</td>
<td>0.05</td>
<td>Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Low</td>
<td>17</td>
<td>63.24</td>
<td>10.45</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is inferred from the table that the obtained ‘t’ value 3.656 is greater than the table value 2.05, of significance at 0.05 level. Hence, this null hypothesis is rejected.

It is found that there is a significant difference between the high and low achieving groups of standard VII in post-test mean scores of Concept formation when taught through Inductive Thinking Model. Thus, it is concluded that high and low achievers do differ in Concept formation, while teaching physical geography at upper primary level.
Hypothesis 39

There is no significant difference between high and low achieving groups of students of standard VII in Logical reasoning when taught through Inductive Thinking Model.

Table 56

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Achievers</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>t</th>
<th>df</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>High</td>
<td>12</td>
<td>68.96</td>
<td>12.81</td>
<td>2.422</td>
<td>27</td>
<td>0.05</td>
<td>Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Low</td>
<td>17</td>
<td>58.09</td>
<td>11.23</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is inferred from the table that the obtained 't' value 2.422 is greater than the table value 2.05, of significance at 0.05 level. Hence, this null hypothesis is rejected.

It is found that there is a significant difference between the high and low achieving groups of standard VII in post-test mean scores of logical reasoning when taught through Inductive Thinking Model. Thus, it is concluded that high and low achievers do differ in logical reasoning, while teaching physical geography at upper primary level.
Hypothesis 40

There is no significant difference between high and low achieving groups of students of standard VII in Awareness to Nature of knowledge through Inductive Thinking Model.

Table 57

Table showing the Post-test mean scores of high and low achievers and their ‘t’ value in Awareness to Nature of knowledge

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Achievers</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>t</th>
<th>df</th>
<th>Level of significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>High</td>
<td>12</td>
<td>62.78</td>
<td>16.75</td>
<td>1.309</td>
<td>15</td>
<td>0.05</td>
<td>Not Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Low</td>
<td>17</td>
<td>55.88</td>
<td>8.62</td>
<td>1.309</td>
<td>15</td>
<td>0.05</td>
<td>Not Significant</td>
</tr>
</tbody>
</table>

It is inferred from the table that the obtained ‘t’ value 1.309 is lower than the table value 2.13, of significance at 0.05 level. Hence, this null hypothesis is accepted.

It is found that there is no significant difference between the high and low achieving groups of standard VII in post-test means scores of Awareness to Nature of knowledge when taught through Inductive Thinking Model. Thus, it is concluded that high and low achievers do differ in Awareness to Nature of knowledge, while teaching physical geography at upper primary level.
Fig. 4
Figure showing the difference between the post-test mean scores of high and low achievers taught through inductive thinking model.
5.7 ANALYSIS OF INTERACTION EFFECT

To study the Interaction effect of treatment (Teaching Technique) and gender
Two way ANOVA test was used. The results are shown in the following tables.

Hypothesis 41

There is no significant interaction effect of treatment and gender in academic Achievement.

Table 58
Table Showing the Two way ANOVA for interaction of treatment and gender on gain scores of Academic Achievement

<table>
<thead>
<tr>
<th>Sources</th>
<th>Ss</th>
<th>df</th>
<th>MSs</th>
<th>F-ratio</th>
<th>Level of Significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between the treatment</td>
<td>11942.427</td>
<td>1</td>
<td>11942.427</td>
<td>86.436</td>
<td>0.00</td>
<td>Significant</td>
</tr>
<tr>
<td>Between the gender</td>
<td>561.665</td>
<td>1</td>
<td>561.665</td>
<td>4.065</td>
<td>0.05</td>
<td>Significant</td>
</tr>
<tr>
<td>Interaction</td>
<td>113.665</td>
<td>1</td>
<td>113.665</td>
<td>0.823</td>
<td>0.363</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Error</td>
<td>11605.818</td>
<td>84</td>
<td>138.164</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

In the above table the summary of Analysis of Variable is given:

➢ There is a significant difference between the groups taught under Inductive Thinking Model and Traditional Method of teaching at 0.05 level. The group taught under Inductive Thinking Model achieved better than the group taught under Traditional Method of teaching.

➢ There is a significant difference between the boys and girls in mean scores of Academic Achievement at 0.05 level. The girls achieved better than the boys.

➢ There is no significant Interaction effect of treatment and gender on gain scores in Academic Achievement.

➢ It is found from the graphical representation that there is no Interaction effect between treatment and gender in Academic Achievement.
Fig. 5

Figure showing the Interaction of Treatment on Gender on Academic Achievement

Estimated marginal means of POAA

POAA : Post Test Academic Achievement
Hypothesis 42

There is no significant interaction effect of treatment and gender in Concept formation.

Table 59

Table showing the Two way ANOVA for interaction of treatment and gender on gain scores of Concept formation

<table>
<thead>
<tr>
<th>Sources</th>
<th>Ss</th>
<th>df</th>
<th>MSs</th>
<th>F-ratio</th>
<th>Level of Significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between the treatment</td>
<td>30381.240</td>
<td>1</td>
<td>30381.240</td>
<td>311.604</td>
<td>0.00</td>
<td>Significant</td>
</tr>
<tr>
<td>Between the gender</td>
<td>112.324</td>
<td>1</td>
<td>112.324</td>
<td>1.152</td>
<td>0.286</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Interaction</td>
<td>112.324</td>
<td>1</td>
<td>112.324</td>
<td>1.152</td>
<td>0.286</td>
<td>Significant</td>
</tr>
<tr>
<td>Error</td>
<td>8189.959</td>
<td>84</td>
<td>97.50</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

In the above table the summary of Analysis of Variable is given:

➢ There is a significant difference between the groups taught under Inductive Thinking Model and Traditional Method of teaching at 0.01 and 0.05 level. The group taught under Inductive Thinking Model achieved better than the group taught under Traditional Method of teaching.

➢ There is no significant difference between the boys and girls in mean scores of Concept formation at 0.01 and 0.05 level.

➢ There is significant Interaction effect of treatment and gender on gain scores in Concept formation.

➢ It is found from the graphical representation that there is no Interaction effect between treatment and gender in Concept formation.
Fig. 6

Figure showing the Interaction of Treatment on Gender on Concept Formation

Estimated Marginal Means of POCF

POCF : Post Test Concept formation
Hypothesis 43

There is no significant interaction effect of treatment and gender in Logical reasoning.

Table 60

Table showing the Two way ANOVA for interaction of treatment and gender on gain scores of Logical reasoning

<table>
<thead>
<tr>
<th>Sources</th>
<th>Ss</th>
<th>df</th>
<th>MSs</th>
<th>F-ratio</th>
<th>Level of Significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between the treatment</td>
<td>49448.617</td>
<td>1</td>
<td>49448.617</td>
<td>612.019</td>
<td>0.00</td>
<td>Significant</td>
</tr>
<tr>
<td>Between the gender</td>
<td>2.882</td>
<td>1</td>
<td>2.882</td>
<td>0.036</td>
<td>0.851</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Interaction</td>
<td>657.143</td>
<td>1</td>
<td>657.143</td>
<td>8.133</td>
<td>0.005</td>
<td>Significant</td>
</tr>
<tr>
<td>Error</td>
<td>6784.853</td>
<td>84</td>
<td>80.796</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

In the above table the summary of Analysis of Variable is given:

➢ There is a significant difference between the groups taught under Inductive Thinking Model and Traditional Method of teaching at 0.01 and 0.05 level. The group taught under Inductive Thinking Model achieved better than the group taught under Traditional Method of teaching.

➢ There is no significant difference between the boys and girls in mean scores of Logical reasoning at 0.01 and 0.05 level.

➢ There is a significant Interaction effect of treatment and gender on gain scores in Logical reasoning.

➢ It is found from the graphical representation that there is Interaction effect between treatment and gender in Logical reasoning.
Fig. 7

Figure showing the Interaction of Treatment on Gender on Logical Reasoning

Estimated Marginal Means of POLR

POLR : Post Test Logical Reasoning
Hypothesis 44

There is no significant interaction effect of treatment and gender in Left dominant Styles of Thinking.

Table 61

Table showing the “Two way ANOVA” for interaction of treatment and gender on gain scores of Left dominant Styles of Thinking

<table>
<thead>
<tr>
<th>Sources</th>
<th>Ss</th>
<th>df</th>
<th>MSs</th>
<th>F-ratio</th>
<th>Level of Significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between the treatment</td>
<td>377.188</td>
<td>1</td>
<td>377.188</td>
<td>2.733</td>
<td>0.102</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Between the gender</td>
<td>130.593</td>
<td>1</td>
<td>130.593</td>
<td>0.946</td>
<td>0.333</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Interaction</td>
<td>2.593</td>
<td>1</td>
<td>2.593</td>
<td>0.019</td>
<td>0.891</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Error</td>
<td>11593.673</td>
<td>84</td>
<td>138.020</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

In the above table the summary of Analysis of Variable is given

➢ There is no significant difference between the groups taught under Inductive Thinking Model and Traditional Method of teaching at 0.01 and 0.05 level. The group taught under Inductive Thinking Model achieved better than the group taught under Traditional Method of teaching.

➢ There is no significant difference between the boys and girls in mean scores of Left dominant Styles of Thinking at 0.01 and 0.05 level.

➢ There is no significant Interaction effect of treatment and gender on gain scores in Left dominant Styles of Thinking

➢ It is found from the graphical representation that there is no Interaction effect between treatment and gender in Left dominant Styles of Thinking.
Fig. 8

Figure showing the Interaction of Treatment on Gender on Left dominant Style of Thinking

Estimated Marginal Means of POSTL

POSTL: Post Test - Style of Thinking Left
Hypothesis 45
There is no significant interaction effect of treatment and gender in Right dominant Styles of Thinking

Table 62
Table showing the “Two way ANOVA” for interaction of treatment and gender on gain scores of Right dominant Styles of Thinking

<table>
<thead>
<tr>
<th>Sources</th>
<th>Ss</th>
<th>df</th>
<th>MSs</th>
<th>F-ratio</th>
<th>Level of Significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between the treatment</td>
<td>1268.924</td>
<td>1</td>
<td>1268.924</td>
<td>11.871</td>
<td>0.001</td>
<td>Significant</td>
</tr>
<tr>
<td>Between the gender</td>
<td>67.037</td>
<td>1</td>
<td>67.037</td>
<td>0.627</td>
<td>0.431</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Interaction</td>
<td>53.219</td>
<td>1</td>
<td>53.219</td>
<td>0.498</td>
<td>0.482</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Error</td>
<td>8978.948</td>
<td>84</td>
<td>106.892</td>
<td>0.000</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

In the above table the summary of Analysis of Variable is given

➢ There is a significant difference between the groups taught under Inductive Thinking Model and Traditional Method of teaching at 0.01 and 0.05 level. The group taught under Inductive Thinking Model achieved better than the group taught under Traditional Method of teaching.

➢ There is no significant difference between the boys and girls in mean scores of Right dominant Styles of Thinking at 0.01 and 0.05 level.

➢ There is no significant Interaction effect of treatment and gender on gain scores in Right dominant Styles of Thinking.

➢ It is found from the graphical representation that there is no Interaction effect between treatment and gender under the analysis on Right dominant Styles of Thinking.
Fig. 9

Figure showing the Interaction of Treatment on Gender on Right dominant Style of Thinking

Estimated Marginal Means of POSOTR

POSOTR: Post Test - Style of Thinking Right
Hypothesis 46

There is no significant interaction effect of treatment and gender in Whole dominant Styles of Thinking.

Table 63

Table showing the “Two way ANOVA” for interaction of treatment and gender on gain scores of Whole dominant Styles of Thinking

<table>
<thead>
<tr>
<th>Sources</th>
<th>Ss</th>
<th>df</th>
<th>MSs</th>
<th>F-ratio</th>
<th>Level of Significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between the treatment</td>
<td>11005.326</td>
<td>1</td>
<td>11005.326</td>
<td>80.568</td>
<td>0.000</td>
<td>Significant</td>
</tr>
<tr>
<td>Between the gender</td>
<td>99.066</td>
<td>1</td>
<td>99.066</td>
<td>0.725</td>
<td>0.397</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Interaction</td>
<td>11.793</td>
<td>1</td>
<td>11.793</td>
<td>0.086</td>
<td>0.770</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Error</td>
<td>11474.153</td>
<td>84</td>
<td>136.597</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

In the above table the summary of Analysis of Variable is given:

- There is a significant difference between the groups taught under Inductive Thinking Model and Traditional Method of teaching at 0.01 and 0.05 level. The group taught under Inductive Thinking Model achieved better than the group taught under Traditional Method of teaching.
- There is no significant difference between the boys and girls in mean scores of Whole dominant styles of Thinking at 0.01 and 0.05 level.
- There is no significant Interaction effect of treatment and gender on gain scores in Whole dominant styles of Thinking.
- It is found from the graphical representation that there is no Interaction effect between treatment and gender under the analysis on Whole dominant styles of Thinking.
Fig. 10

Figure showing the Interaction of Treatment on Gender on Whole dominant Style of Thinking

Estimated Marginal Means of POSOTW

POSOTW: Post Test - Style of Thinking Whole dominance
Hypothesis 47

There is no significant interaction effect of treatment and gender in Awareness to Nature of Knowledge.

Table 64

Table showing the “Two way ANOVA” for interaction of treatment and gender on gain scores of Nature of Knowledge

<table>
<thead>
<tr>
<th>Sources</th>
<th>Ss</th>
<th>df</th>
<th>MSs</th>
<th>F-ratio</th>
<th>Level of Significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between the treatment</td>
<td>35157.582</td>
<td>1</td>
<td>35157.582</td>
<td>355.456</td>
<td>0.00</td>
<td>Significant</td>
</tr>
<tr>
<td>Between the gender</td>
<td>149.012</td>
<td>1</td>
<td>149.012</td>
<td>1.507</td>
<td>0.223</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Interaction</td>
<td>700.527</td>
<td>1</td>
<td>700.527</td>
<td>7.083</td>
<td>0.009</td>
<td>Significant</td>
</tr>
<tr>
<td>Error</td>
<td>8308.305</td>
<td>84</td>
<td>98.908</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

In the above table the summary of Analysis of Variable is given:

➢ There is a significant difference between the groups taught under Inductive Thinking Model and Traditional Method of teaching at 0.01 and 0.05 level. The group taught under Inductive Thinking Model achieved better than the group taught under Traditional Method of teaching.

➢ There is no significant difference between the boys and girls in mean scores of Nature of Knowledge at 0.01 and 0.05 level.

➢ There is a significant Interaction effect of treatment and gender on gain scores in Nature of Knowledge.

➢ It is found from the graphical representation that there is Interaction effect between treatment and gender under the analysis on Nature of Knowledge.
Fig. 11

Figure showing the Interaction of Treatment on Gender on Nature of Knowledge

Estimated Marginal Means of PONOK

PONOK: Post Test - Nature of Knowledge
Hypothesis 48

There is no significant interaction effect of treatment and gender in Sensitivity to Language.

Table 65

Table showing the “Two way ANOVA” for interaction of treatment and gender on gain scores of Sensitivity to Language

<table>
<thead>
<tr>
<th>Sources</th>
<th>Ss</th>
<th>df</th>
<th>MSs</th>
<th>F-ratio</th>
<th>Level of Significance</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between the treatment</td>
<td>18769.528</td>
<td>1</td>
<td>18769.528</td>
<td>192.259</td>
<td>0.00</td>
<td>Significant</td>
</tr>
<tr>
<td>Between the gender</td>
<td>222.464</td>
<td>1</td>
<td>222.464</td>
<td>2.279</td>
<td>0.135</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Interaction</td>
<td>140.646</td>
<td>1</td>
<td>140.646</td>
<td>1.441</td>
<td>0.233</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Error</td>
<td>8200.621</td>
<td>84</td>
<td>97.626</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

In the above table the summary of Analysis of Variable is given:

➢ There is a significant difference between the groups taught under Inductive Thinking Model and Traditional Method of teaching at 0.01 and 0.05 level. The group taught under Inductive Thinking Model achieved better than the group taught under Traditional Method of teaching.

➢ There is no significant difference between the boys and girls in mean scores of Sensitivity to Language.

➢ There is no significant Interaction effect of treatment and gender on gain scores in Sensitivity to Language.

➢ It is found from the graphical representation that there is no Interaction effect between treatment and gender under the analysis on Sensitivity to Language.
Fig. 12

Figure showing the Interaction of Treatment on Gender on Sensitivity to Language

POSTL: Post Test of Sensitivity to Language
5.8  INTERPRETATION OF RESULTS

Results of Analysis of data obtained earlier in this chapter have been interpreted here by the researcher. The researcher framed 11 objectives and 48 hypotheses for the study. The achievement of the objectives and testing of hypotheses are discussed by the following subtitles:

5.8.1  Achievement of Objectives

All the objectives framed for the study were achieved as follows:

Objective No: 1

To design and develop instructional plans for teaching Physical geography from amongst the prescribed course of study for the students of standard VII based on Inductive Thinking Model.

This objective was achieved by developing Inductive Thinking Model lesson plans on physical geography for experimental group from standard VII geography textbook. (Sample lesson plan is annexed at appendix).

Objective No: 2

To expose the group of students of standard VII to Inductive Thinking Model of teaching.

This objective was achieved by exposing the students to learn the lessons through classroom teaching by Inductive Thinking Model successfully for 40 periods in six months.

Objective No: 3

To find the effectiveness of Inductive Thinking Model among std VII students on

- Academic achievement in physical geography
- Concept formation
- Logical reasoning
- Styles of thinking
Objective No: 4

To find the relative effectiveness of Inductive Thinking Model over traditional teaching of physical geography among students of standard VII on

- Academic achievement
- Concept formation
- Logical reasoning
- Styles of thinking
- Awareness to nature of Knowledge
- Sensitivity to language

This objective was also achieved by testing the hypotheses formulated for this purpose from 9 to 16.

Objective No: 5

To find out whether there is any significant correlation between Academic achievement and

- Concept formation
- Logical reasoning
- Styles of thinking
- Awareness to nature of Knowledge
- Sensitivity to language

This objective was realised by testing the hypothesis from tables 17 to 23, which are discussed under ‘Co-relational analysis’ section by using ‘r’ value.
Objective No: 6

To find out whether there is any significant Correlation between Concept formation and
✧ Logical reasoning
✧ Styles of thinking
✧ Awareness to nature of Knowledge

This objective was realised by testing the hypothesis from tables 24 to 26, posttest scores of experimental group. ‘r’ ratio was calculated on above variables by using ‘r’ value. The results are shown in respective tables, which are discussed under ‘Correlational analysis’ section.

Objective No: 7

To find out whether there is any significant correlation between Logical reasoning and
✧ Styles of thinking
✧ Sensitivity to language

This objective was realised by testing the hypothesis from tables 27 and 28 by using ‘r’ value which are discussed under ‘Correlational analysis’ section.

Objective No: 8

To find out whether there is any significant correlation between Awareness to nature of Knowledge and Sensitivity to language. This objective was realised by testing the hypothesis 29 by using ‘r’ value. which is discussed under ‘Correlational analysis’ section.

Objective No: 9

To find out whether there is any significant difference between boys and girls when taught through Inductive Thinking Model on
✧ Academic achievement
Concept formation
Logical reasoning
Styles of thinking
Awareness to nature of Knowledge
Sensitivity to language

This objective was realised by testing the hypothesis formulated from tables 30 to 36, which are discussed by using ‘t’ value under the analysis of difference between boys and girls section.

Objective No: 10

To find out whether there is any significant difference between high and low achieving groups of students when taught through Inductive Thinking Model on

- Academic achievement
- Concept formation
- Logical reasoning
- Awareness to nature of Knowledge

This objective was realised by testing the hypothesis formulated from tables 37 to 40, which are discussed by using ‘t’ value under difference between high and low achieving group of students section.

Objective No: 11

To find out whether there is any significant interaction effect of treatment and gender exists on:

- Academic achievement
- Concept formation
- Logical reasoning
- Styles of thinking
- Awareness to nature of Knowledge
- Sensitivity to language
This objective was realised by testing the hypotheses formulated from tables 41 to 48, which are discussed under ‘Unvaried analysis of variance’ section by using ‘F’ test.

5.8.2 Hypothesis Testing

**Hypothesis No. 1**

Academic Achievement of students of standard VII taught through Inductive Thinking Model significantly increases.

It was found that the Academic Achievement of students taught through Inductive Thinking Model significantly increases. \( t = 31.19, \ 0.05 \text{ level} \).

**Hypothesis No. 2**

Concept formation of students of standard VII taught through Inductive Thinking Model significantly increases.

It was found that Concept formation of students taught through Inductive Thinking Model significantly increases. \( t = 31.98, \ 0.05 \text{ level} \).

**Hypothesis No. 3**

Logical reasoning of students of standard VII taught through Inductive Thinking Model significantly increases.

It was found that Logical reasoning of students taught through Inductive Thinking Model significantly increases. \( t = 23.73, \ 0.05 \text{ level} \).

**Hypothesis No. 4**

Right dominant style of thinking of students of standard VII taught through Inductive Thinking Model significantly increases.

It was found that the Right dominant style of thinking of students taught through Inductive Thinking Model significantly increases. \( t = 6.17, \ 0.05 \text{ level} \).
Hypothesis No. 5

Left dominant style of thinking of students of standard VII taught through Inductive Thinking Model significantly increases.

It was found that the left dominant style of thinking of students taught through Inductive Thinking Model not significantly increases. (t= 1.843, 0.05 level)

Hypothesis No. 6

Whole dominant style of thinking of students of standard VII taught through Inductive Thinking Model significantly increases.

It was found that whole dominant style of thinking of students taught through Inductive Thinking Model significantly increases. (t =8.069, 0.05 level)

Hypothesis No. 7

Awareness to nature of knowledge of students of standard VII taught through Inductive Thinking Model significantly increases.

It was found that Awareness to nature of knowledge of students taught through Inductive Thinking Model significantly increases. (t = 18.11, 0.05 level)

Hypothesis No. 8

Sensitivity to language of students of standard VII taught through Inductive Thinking Model significantly increases.

It was found that the sensitivity to language of students taught through Inductive Thinking Model significantly increases. (t = 16.624, 0.05 level)

Hypothesis No. 9

The mean scores of the students taught through Inductive Thinking Model is significantly higher than the mean scores of students taught through Traditional method in Academic achievement.
It was found that there is significant difference between the mean scores of students of standard VII taught through Inductive Thinking Model and the mean scores of students taught through Traditional method in Academic achievement. (t= 9.18, 0.05 level).

**Hypothesis No. 10**

There is no significant difference between the mean scores of the students taught through Inductive Thinking Model and the mean scores of students taught through Traditional method in Concept formation.

It was found that there is significant difference between the mean scores of the students taught through Inductive Thinking Model and the mean scores of students taught through Traditional method in Concept formation. (t= 17.63, 0.05 level).

**Hypotheses No. 11**

There is no significant difference between the mean scores of the students taught through Inductive Thinking Model and the mean scores of students taught through Traditional method in Logical reasoning.

It was found that there is significant difference between the mean scores of the students taught through Inductive Thinking Model and the mean scores of students taught through Traditional method in Logical reasoning. (t = 23.18, 0.05 level).

**Hypothesis No. 12**

There is no significant difference between the mean scores of the students taught through Inductive Thinking Model and the mean scores of students taught through Traditional method in Right dominant style of thinking.

It was found that there is significant difference between the mean scores of the students taught through Inductive Thinking Model and the mean scores of
students taught through Traditional method in Right dominant style of thinking 
(t =3.53, 0.05 level).

**Hypothesis No. 13**

There is no significant difference between the mean scores of the students taught through Inductive Thinking Model and the mean scores of students taught through Traditional method in Left dominant style of thinking.

It was found that there is no significant difference between the mean scores of the students taught through Inductive Thinking Model and the mean scores of students taught through Traditional method in Left dominant style of thinking 
(t = 1.663 , 0.05 level)

**Hypothesis No. 14**

There is no significant difference between the mean scores of the students taught through Inductive Thinking Model and the mean scores of students taught through Traditional method in whole dominant style of thinking.

It was found that there is significant difference between the mean scores of the students taught through Inductive Thinking Model and the mean scores of students taught through Traditional method in whole dominant style of thinking 
(t = 9.04, 0.05 level)

**Hypothesis No. 15**

There is no significant difference between the mean scores of the students taught through Inductive Thinking Model and the mean scores of students taught through Traditional method in Awareness to nature of knowledge.

It was found that there is a significant difference between the mean scores of the students taught through Inductive Thinking Model and the mean scores of students taught through Traditional method in Awareness to nature of knowledge 
(t = 17.71, 0.05 level)
Hypothesis No. 16

There is no significant difference between the mean scores of the students taught through Inductive Thinking Model and the mean scores of students taught through Traditional method in Sensitivity to knowledge.

It was found that there is significant difference between the mean scores of the students taught through Inductive Thinking Model and the mean scores of students taught through Traditional method in Sensitivity to knowledge. (t = 13.56, 0.05 level).

Hypothesis No. 17

There is no significant correlation between the post test mean scores of Academic achievement and Concept formation of the students taught through Inductive Thinking Model

It was found that there is significant correlation between the post-test mean scores of academic achievement of the students taught through Inductive Thinking Model(r = 0.411, 0.05 level).

Hypothesis No. 18

There is no significant correlation between the post test mean scores of Academic achievement and Logical reasoning of the students taught through Inductive Thinking Model

It was found that there is significant correlation between the post-test mean scores of academic achievement and Logical reasoning of the students taught through Inductive Thinking Model(r = 0.333, 0.05 level).

Hypothesis No. 19

There is no significant correlation between the post test mean scores of Academic achievement and Right dominant style of thinking of the students taught through Inductive Thinking Model.
It was found that there is no significant correlation between the post-test mean scores of academic achievement and Right dominant style of thinking of the students taught through Inductive Thinking Model \( (r = 0.37, 0.05 \text{ level}) \).

**Hypothesis No. 20**

There is no significant correlation between the post-test mean scores of Academic achievement and Left dominant style of thinking of the students taught through Inductive Thinking Model.

It was found that there is no significant correlation between the post-test mean scores of academic achievement and Left dominant style of thinking of the students taught through Inductive Thinking Model \( (r = 0.139, 0.05 \text{ level}) \).

**Hypothesis No. 21**

There is no significant correlation between the post-test mean scores of Academic achievement and Whole dominant style of thinking of the students taught through Inductive Thinking Model.

It was found that there is no significant correlation between the post-test mean scores of academic achievement and Whole dominant style of thinking of the students taught through Inductive Thinking Model \( (r = 0.116, 0.05 \text{ level}) \).

**Hypothesis No. 22**

There is no significant correlation between the post-test mean scores of Academic achievement and Awareness to nature of knowledge of the students taught through Inductive Thinking Model.

It was found that there is no significant correlation between the post-test mean scores of academic achievement and Awareness to nature of knowledge of the students taught through Inductive Thinking Model \( (r = 0.179, 0.05 \text{ level}) \).
**Hypothesis No. 23**

There is no significant correlation between the post test mean scores of Academic achievement and Sensitivity to language of the students taught through Inductive thinking model.

It was found that there is no significant correlation between the post-test mean scores of Academic achievement and Sensitivity to language of the students taught through Inductive Thinking Model ($r = 0.061$, 0.05 level).

**Hypothesis No. 24**

There is no significant correlation between the posttest mean scores of Concept formation and logical reasoning of the students taught through Inductive Thinking Model.

It was found that there is significant correlation between the post-test mean scores of Concept formation and logical reasoning of the students taught through Inductive Thinking Model ($r = 0.395$, 0.05 level).

**Hypothesis No. 25**

There is no significant correlation between the posttest mean scores of Concept formation and whole dominant style of thinking of the students taught through Inductive Thinking Model.

It was found that there is significant correlation between the post-test mean scores of Concept formation and Whole dominant style of thinking of the students taught through Inductive Thinking Model ($r = 0.206$, 0.05 level).

**Hypothesis No. 26**

There is no significant correlation between the posttest mean scores of Concept formation and Awareness to Nature of knowledge of the students taught through Inductive Thinking Model.
It was found that there is significant correlation between the post-test mean scores of Concept formation and Awareness to Nature of knowledge of the students taught through Inductive Thinking Model ($r = 0.384$, 0.05 level)

**Hypothesis No. 27**

There is no significant correlation between the posttest mean scores of Logical reasoning and Whole dominant style of thinking of the students taught through Inductive Thinking Model.

It was found that there is no significant correlation between the post-test mean scores of Logical reasoning and Whole dominant style of thinking of the students taught through Inductive Thinking Model ($r = 0.152$, 0.05 level)

**Hypothesis No. 28**

There is no significant correlation between the posttest mean scores of logical reasoning and Sensitivity to language of the students taught through Inductive thinking model.

It was found that there is no significant correlation between the post-test mean scores of Logical reasoning and sensitivity to language of the students taught through Inductive Thinking Model ($r = 0.026$, 0.05 level)

**Hypothesis No. 29**

There is no significant correlation between the posttest mean scores of Awareness to nature of knowledge and Sensitivity to language of the students taught through Inductive Thinking Model.

It was found that there is significant correlation between the post-test mean scores of Awareness to nature of knowledge and Sensitivity to language of the students taught through Inductive Thinking Model ($r = 0.330$, 0.05 level)
Hypothesis No. 30

There is no significant difference between the posttest mean scores of boys and girls in Academic achievement when taught through Inductive Thinking Model.

It was found that there is significant difference between the post-test mean scores of boys and girls in Academic achievement when taught through Inductive Thinking Model (t = 2.156, 0.05 level)

Hypothesis No. 31

There is no significant difference between the posttest mean scores of boys and girls in Concept formation when taught through Inductive Thinking Model.

It was found that there is no significant difference between the post-test mean scores of boys and girls in Academic achievement when taught through Inductive Thinking Model (t = 1.412, 0.05 level)

Hypothesis No. 32

There is no significant difference between the posttest mean scores of boys and girls in Logical reasoning when taught through Inductive Thinking Model.

It was found that there is no significant difference between the post-test mean scores of boys and girls in Logical reasoning when taught through Inductive Thinking Model (t = 1.578, 0.05 level)

Hypothesis No. 33

There is no significant difference between the posttest mean scores of boys and girls in Left dominant style of thinking when taught through Inductive Thinking Model.

It was found that there is no significant difference between the post-test mean scores of boys and girls in Left dominant style of thinking when taught through Inductive Thinking Model (t = 0.601, 0.05 level)
Hypothesis No. 34

There is no significant difference between the posttest mean scores of boys and girls in Whole dominant style of thinking when taught through Inductive Thinking Model.

It was found that there is no significant difference between the post-test mean scores of boys and girls in Whole dominant style of thinking when taught through Inductive Thinking Model ($t = 0.708$, 0.05 level).

Hypothesis No. 35

There is no significant difference between the posttest mean scores of boys and girls in Awareness to Nature of knowledge when taught through Inductive Thinking Model.

It was found that there is significant difference between the post-test mean scores of boys and girls in Awareness to Nature of knowledge when taught through Inductive Thinking Model ($t = 2.118$, 0.05 level)

Hypothesis No. 36

There is no significant difference between the posttest mean scores of boys and girls in Sensitivity to language when taught through Inductive Thinking Model.

It was found that there is no significant difference between the post-test mean scores of boys and girls in Sensitivity to language when taught through Inductive Thinking Model ($t = 1.655$, 0.05 level)

Hypothesis No. 37

There is no significant difference between the posttest mean scores of high and low achievers in Academic achievement when taught through Inductive Thinking Model.
It was found that there is significant difference between the post-test mean scores of high and low achievers in Academic achievement when taught through Inductive Thinking Model ($t = 7.829$, $0.05$ level)

**Hypothesis No. 38**

There is no significant difference between the posttest mean scores of high and low achievers in Concept formation when taught through Inductive Thinking Model.

It was found that there is significant difference between the post-test mean scores of high and low achievers in Concept formation when taught through Inductive Thinking Model ($t = 3.656$, $0.05$ level).

**Hypothesis No. 39**

There is no significant difference between the posttest mean scores of high and low achievers in Logical reasoning when taught through Inductive Thinking Model.

It was found that there is a significant difference between the post-test mean scores of high and low achievers in Logical reasoning when taught through Inductive Thinking Model ($t = 2.422$, $0.05$ level)

**Hypothesis No: 40**

There is no significant difference between the posttest mean scores of high and low achievers in Awareness to Nature of knowledge when taught through Inductive Thinking Model.

It was found that there is no significant difference between the post-test mean scores of high and low achievers in Awareness to Nature of knowledge when taught through Inductive Thinking Model ($t = 1.309$, $0.05$ level).
**Hypothesis No. 41**

There is no significant Interaction of treatment and gender on Academic achievement.

It is found that there is no significant Interaction effect of treatment and gender on academic achievement ($F = 0.823$, 0.05 level).

**Hypothesis No. 42**

There is no significant Interaction effect of treatment on gender in Concept formation.

It is found that there is significant Interaction effect of treatment on gender in Concept formation ($F = 1.152$, 0.05 level)

**Hypothesis No. 43**

There is no significant Interaction effect of treatment and gender on Logical reasoning.

It is found that there is significant Interaction effect of treatment and gender on Logical reasoning ($F = 8.133$, 0.05 level).

**Hypothesis No. 44**

There is no significant Interaction effect of treatment and gender on Left dominant style of thinking.

It is found that there is no significant Interaction effect of treatment and gender on Left dominant style of thinking ($F = 0.019$, 0.05 level)

**Hypothesis No. 45**

There is no significant Interaction effect of treatment and gender on Right dominant style of thinking.

It is found that there is no significant Interaction effect of treatment and gender on Right dominant style of thinking ($F = 0.498$, 0.05 level)
**Hypothesis No. 46**

There is no significant Interaction effect of treatment and gender on Whole dominant style of thinking.

It is found that there is no significant Interaction effect of treatment and gender on Whole dominant style of thinking \((F= 0.086, 0.05 \text{ level})\)

**Hypothesis No. 47**

There is no significant Interaction effect of treatment and gender on Awareness to Nature of Knowledge.

It is found that there is significant Interaction effect of treatment and gender on Awareness to Nature of Knowledge \((F= 7.083, 0.05 \text{ level})\)

**Hypothesis No. 48**

There is no significant Interaction effect of treatment and gender on Sensitivity to language.

It is found that there is no significant Interaction effect of treatment and gender on Sensitivity to language \((F= 1.441, 0.05 \text{ level})\).

**5.9 CONCLUSION**

Thus, this chapter gives a detailed data analysis, achievement of objectives and hypotheses testing in order to draw the outcome of the experiment conducted by the researcher. Based on the results the summary and suggestions for the further study will be explained in the next chapter.