ANALYSIS OF DATA

Comparative Analysis
Correlation Analysis
Prediction of Achievement in Science from the Multiple Regression Equation
CHAPTER IV

ANALYSIS OF DATA

Analysis of the data have been done as per the objectives of the study. The details of the analysis are given below.

4.1 COMPARATIVE ANALYSIS

Comparison of the mean scores of the three achievement groups, viz., High achievement group, Average achievement group and Low achievement groups with respect to each of the independent variables has been done by means of ‘t’ test.

4.1.1 Comparison of Selected Independent Variables with respect to Different Achievement level for the Total Sample and Relevant Subsamples

Here, the total sample was categorised separately on the basis of their achievement in science. The comparable groups were put to test of significance of difference between means for large independent groups.

Two-tailed test of significance of difference between means was applied separately for each of the independent variables, to decide whether an independent variable will discriminate between the compared groups or not. The obtained ‘t’ value is then treated as belonging to a normal distribution. If the obtained ‘t’ value falls outside the interval ±1.96, then the difference is treated as significant at 0.05 level. If the obtained ‘t’ value falls outside the interval ±2.58, the difference is said to be significant at 0.01 level.
4.1.1.1 Comparison of the High and Average Achievement Groups (Total)

The statistical data used and the results of the tests of significance for the independent variables are given in Table 4.1.

Table 4.1

Statistical Indices and the Results of the ‘t’-tests for High Achievement-Average Achievement Groups (Total)

<table>
<thead>
<tr>
<th>SL No.</th>
<th>Variables</th>
<th>High Achievement Group (HA) (N = 353)</th>
<th>Average Achievement Group (AA) (N = 416)</th>
<th>Critical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Verbal Intelligence</td>
<td>Mean M₁  50.65  SD M₁  17.01</td>
<td>Mean M₂  41.96  SD M₂  16.36</td>
<td>5.94**</td>
</tr>
<tr>
<td>2.</td>
<td>Non-verbal Intelligence</td>
<td>Mean M₁  40.32  SD M₁  14.47</td>
<td>Mean M₂  34.89  SD M₂  14.56</td>
<td>5.17**</td>
</tr>
<tr>
<td>3.</td>
<td>Intelligence (Total)</td>
<td>Mean M₁  91.79  SD M₁  20.47</td>
<td>Mean M₂  76.95  SD M₂  16.32</td>
<td>10.97**</td>
</tr>
<tr>
<td>4.</td>
<td>Fluency</td>
<td>Mean M₁  81.57  SD M₁  17.40</td>
<td>Mean M₂  68.98  SD M₂  17.31</td>
<td>10.02**</td>
</tr>
<tr>
<td>5.</td>
<td>Flexibility</td>
<td>Mean M₁  30.48  SD M₁  21.80</td>
<td>Mean M₂  18.79  SD M₂  9.56</td>
<td>9.34**</td>
</tr>
<tr>
<td>6.</td>
<td>Originality</td>
<td>Mean M₁  20.20  SD M₁  12.92</td>
<td>Mean M₂  16.24  SD M₂  8.56</td>
<td>4.35**</td>
</tr>
<tr>
<td>7.</td>
<td>Verbal Scientific Creativity</td>
<td>Mean M₁  108.04 SD M₁  37.24</td>
<td>Mean M₂  89.41  SD M₂  20.17</td>
<td>8.41**</td>
</tr>
<tr>
<td>8.</td>
<td>Non-verbal Scientific Creativity</td>
<td>Mean M₁  23.21 SD M₁  9.24</td>
<td>Mean M₂  14.06  SD M₂  7.21</td>
<td>16.10**</td>
</tr>
<tr>
<td>9.</td>
<td>Scientific Creativity (Total)</td>
<td>Mean M₁  132.25 SD M₁  43.41</td>
<td>Mean M₂  103.66 SD M₂  28.76</td>
<td>10.56**</td>
</tr>
<tr>
<td>10.</td>
<td>Achievement Motivation</td>
<td>Mean M₁  43.45  SD M₁  94</td>
<td>Mean M₂  42.42  SD M₂  8.32</td>
<td>1.59</td>
</tr>
<tr>
<td>11.</td>
<td>Home Environment</td>
<td>Mean M₁  106.65 SD M₁  24.32</td>
<td>Mean M₂  93.48  SD M₂  19.58</td>
<td>8.17**</td>
</tr>
</tbody>
</table>

**shows significance at 0.01 level

(i) Table 4.1 indicates that ten variables are capable of discriminating between HA-AA groups. The discriminating variables in the order of importance are:

1. Non-verbal scientific Creativity (CR = 15.10)
2. Intelligence (Total) (CR = 10.97)
3. Scientific Creativity (Total) (CR = 10.56)
4. Fluency (CR = 10.02)
5. Flexibility (CR = 9.34)
6. Verbal Scientific Creativity (CR = 8.41)
7. Home Environment (CR = 8.17)
8. Verbal Intelligence (CR = 5.94)
9. Non-verbal Intelligence (CR = 5.17)
10. Originality (CR = 4.35)

(ii) All these differences are significant well beyond 0.01 level. It means that the mean scores of the High Achievement Group and Average Achievement Groups differ significantly. The difference in mean scores is not significant for Achievement Motivation (CR = 1.59; p > 0.05). It means that the High Achievement Group and Average Achievement Group do not differ significantly in their Achievement Motivation.

4.1.1.2 Comparison of the Average and Low Achievement Groups (Total)

The statistical data used and the results of the tests of significance for the independent variables are given in Table 4.2.
Table 4.2

Statistical Indices and the Results of the ‘t’-tests for Average Achievement-Low Achievement Groups (Total)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables</th>
<th>Average Achievement Group (AA) (N = 416)</th>
<th>Low Achievement Group (LA) (N = 351)</th>
<th>Critical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean $M_1$</td>
<td>SD $\sigma_1$</td>
<td>Mean $M_2$</td>
</tr>
<tr>
<td>1.</td>
<td>Verbal Intelligence</td>
<td>41.96</td>
<td>16.38</td>
<td>34.35</td>
</tr>
<tr>
<td>2.</td>
<td>Non-verbal Intelligence</td>
<td>34.89</td>
<td>14.56</td>
<td>28.85</td>
</tr>
<tr>
<td>3.</td>
<td>Intelligence (Total)</td>
<td>76.95</td>
<td>16.32</td>
<td>64.47</td>
</tr>
<tr>
<td>4.</td>
<td>Fluency</td>
<td>68.93</td>
<td>17.31</td>
<td>56.65</td>
</tr>
<tr>
<td>5.</td>
<td>Flexibility</td>
<td>18.79</td>
<td>9.56</td>
<td>12.26</td>
</tr>
<tr>
<td>6.</td>
<td>Originality</td>
<td>16.24</td>
<td>8.56</td>
<td>12.19</td>
</tr>
<tr>
<td>7.</td>
<td>Verbal Scientific Creativity</td>
<td>89.41</td>
<td>20.17</td>
<td>69.96</td>
</tr>
<tr>
<td>8.</td>
<td>Non-verbal Scientific Creativity</td>
<td>14.06</td>
<td>7.21</td>
<td>9.82</td>
</tr>
<tr>
<td>9.</td>
<td>Scientific Creativity (Total)</td>
<td>103.66</td>
<td>28.76</td>
<td>81.10</td>
</tr>
<tr>
<td>10.</td>
<td>Achievement Motivation</td>
<td>42.42</td>
<td>8.32</td>
<td>42.06</td>
</tr>
<tr>
<td>11.</td>
<td>Home Environment</td>
<td>93.48</td>
<td>19.58</td>
<td>80.16</td>
</tr>
</tbody>
</table>

**shows significance at 0.01 level

(i) Table 4.2 indicates that all the variables except Achievement Motivation, are capable of discriminating between AA-LA groups. The discriminating variables in the order of importance are:

1. Verbal scientific Creativity (CR = 14.91)
2. Scientific Creativity (Total) (CR = 11.79)
3. Flexibility (CR = 10.89)
4. Intelligence (Total) (CR = 10.22)
5. Fluency (CR = 10.19)
7. Home Environment  (CR = 8.75)
8. Originality  (CR = 6.81)
9. Verbal Intelligence  (CR = 6.58)
10. Non-verbal Intelligence  (CR = 6.22)

(ii) All these differences are significant well beyond 0.01 level. It means that the mean scores of the Average Achievement Group and Low Achievement Groups differ significantly. The difference in mean scores is not significant for Achievement Motivation (CR = 0.60; p > 0.05). It means that the Average and Low Achievement Groups do not differ significantly in their Achievement Motivation.

4.1.1.3 Comparison of the High and Low Achievement Groups (Total)

The statistical data used and the results of the tests of significance for the independent variables are given in Table 4.3.
Table 4.3

Statistical Indices and the Results of the ‘t’-tests for High Achievement-Low Achievement Groups (Total)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables</th>
<th>High Achievement Group (HA) (N = 353)</th>
<th>Low Achievement Group (LA) (N = 351)</th>
<th>Critical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean $M_1$</td>
<td>SD $\sigma_1$</td>
<td>Mean $M_2$</td>
<td>SD $\sigma_2$</td>
</tr>
<tr>
<td>1.</td>
<td>Verbal Intelligence</td>
<td>50.65</td>
<td>17.01</td>
<td>34.35</td>
</tr>
<tr>
<td>2.</td>
<td>Non-verbal Intelligence</td>
<td>40.32</td>
<td>14.47</td>
<td>28.85</td>
</tr>
<tr>
<td>3.</td>
<td>Intelligence (Total)</td>
<td>91.79</td>
<td>20.47</td>
<td>64.47</td>
</tr>
<tr>
<td>4.</td>
<td>Fluency</td>
<td>81.57</td>
<td>17.40</td>
<td>56.65</td>
</tr>
<tr>
<td>5.</td>
<td>Flexibility</td>
<td>30.48</td>
<td>21.80</td>
<td>12.26</td>
</tr>
<tr>
<td>6.</td>
<td>Originality</td>
<td>20.20</td>
<td>12.92</td>
<td>12.19</td>
</tr>
<tr>
<td>7.</td>
<td>Verbal Scientific Creativity</td>
<td>108.04</td>
<td>37.24</td>
<td>69.96</td>
</tr>
<tr>
<td>8.</td>
<td>Non-verbal Scientific Creativity</td>
<td>23.21</td>
<td>9.24</td>
<td>9.82</td>
</tr>
<tr>
<td>9.</td>
<td>Scientific Creativity (Total)</td>
<td>132.25</td>
<td>43.41</td>
<td>81.10</td>
</tr>
<tr>
<td>10.</td>
<td>Achievement Motivation</td>
<td>43.45</td>
<td>94</td>
<td>42.06</td>
</tr>
<tr>
<td>11.</td>
<td>Home Environment</td>
<td>106.85</td>
<td>24.32</td>
<td>80.16</td>
</tr>
</tbody>
</table>

**shows significance at 0.01 level

(i) Table 4.3 indicates that all the variables except Achievement Motivation, are capable of discriminating between HA-LA groups. The discriminating variables in the order of importance are:

1. Scientific Creativity (Total)  (CR = 23.25)
2. Fluency  (CR = 19.70)
3. Non-verbal Scientific Creativity  (CR = 19.32)
4. Intelligence (Total)  (CR = 19.15)
5. Verbal scientific Creativity  (CR = 17.56)
6. Home Environment  (CR = 15.11)
7. Flexibility \hspace{1cm} (CR = 13.68)
8. Verbal Intelligence \hspace{1cm} (CR = 13.25)
9. Non-verbal Intelligence \hspace{1cm} (CR = 11.33)
10. Originality \hspace{1cm} (CR = 9.93)

(ii) All these differences are significant well beyond 0.01 level. It means that the mean scores of the High Achievement Group and Low Achievement Groups differ significantly with respect to the above-mentioned variables. The difference in mean scores is not significant for Achievement Motivation (CR = 1.55; \( p > 0.05 \)). It means that the High and Low Achievement Groups do not differ significantly in their Achievement Motivation.

The graphical representation of the components of Intelligence and Intelligence (Total), components of Scientific Creativity and Scientific Creativity (Total), Achievement Motivation and Home Environment scores of the High, Average and Low Achievement groups of the total sample are given in Fig. 4.1 to 4.11 respectively.
Fig. 4.1
Mean Verbal Intelligence Scores of High, Average and Low Achievement Groups (Total Sample)
Fig. 4.2
Mean Non-verbal Intelligence Scores of High, Average and Low Achievement Groups (Total Sample)
Fig. 4.3
Mean Intelligence (Total) Scores of High, Average and Low Achievement Groups (Total Sample)
Fig. 4.4
Mean Fluency Scores of High, Average and Low Achievement Groups (Total Sample)
Fig. 4.5
Mean Flexibility Scores of High, Average and Low Achievement Groups (Total Sample)
Fig. 4.6
Mean Originality Scores of High, Average and Low Achievement Groups (Total Sample)
Fig. 4.7
Mean Verbal Scientific Creativity Scores of High, Average and Low Achievement Groups (Total Sample)
Fig. 4.8
Mean Non-verbal Scientific Creativity Scores of High, Average and Low Achievement Groups (Total Sample)
Fig. 4.9
Mean Scientific Creativity (Total) Scores of High, Average and Low Achievement Groups (Total Sample)
Fig. 4.10
Mean Achievement Motivation Scores of High, Average and Low Achievement Groups (Total Sample)
Fig. 4.11
Mean Home Environment Scores of High, Average and Low Achievement Groups (Total Sample)
4.1.1.4 Comparison of the High and Average Achievement Groups (Boys)

The statistical data used and the results of the 't'-test of significance for the independent variables are given in Table 4.4.

Table 4.4
Statistical Indices and the Results of the 't'-tests for High Achievement-Average Achievement Groups (Boys)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables</th>
<th>High Achievement Group (HA) (N = 145)</th>
<th>Average Achievement Group (AA) (N = 224)</th>
<th>Critical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Verbal Intelligence</td>
<td>Mean $M_1$: 56.54, SD $\sigma_1$: 13.21</td>
<td>Mean $M_2$: 41.96, SD $\sigma_2$: 12.28</td>
<td>10.64**</td>
</tr>
<tr>
<td>2</td>
<td>Non-verbal Intelligence</td>
<td>Mean $M_1$: 47.57, SD $\sigma_1$: 12.23</td>
<td>Mean $M_2$: 35.46, SD $\sigma_2$: 10.23</td>
<td>9.89**</td>
</tr>
<tr>
<td>3</td>
<td>Intelligence (Total)</td>
<td>Mean $M_1$: 103.29, SD $\sigma_1$: 20.76</td>
<td>Mean $M_2$: 77.49, SD $\sigma_2$: 14.32</td>
<td>13.08**</td>
</tr>
<tr>
<td>4</td>
<td>Fluency</td>
<td>Mean $M_1$: 84.43, SD $\sigma_1$: 17.33</td>
<td>Mean $M_2$: 70.48, SD $\sigma_2$: 17.23</td>
<td>7.57**</td>
</tr>
<tr>
<td>5</td>
<td>Flexibility</td>
<td>Mean $M_1$: 36.42, SD $\sigma_1$: 24.48</td>
<td>Mean $M_2$: 19.85, SD $\sigma_2$: 10.69</td>
<td>7.69**</td>
</tr>
<tr>
<td>6</td>
<td>Originality</td>
<td>Mean $M_1$: 23.23, SD $\sigma_1$: 13.87</td>
<td>Mean $M_2$: 17.46, SD $\sigma_2$: 11.71</td>
<td>4.14**</td>
</tr>
<tr>
<td>7</td>
<td>Verbal Scientific Creativity</td>
<td>Mean $M_1$: 110.23, SD $\sigma_1$: 40.21</td>
<td>Mean $M_2$: 75.04, SD $\sigma_2$: 16.69</td>
<td>9.99**</td>
</tr>
<tr>
<td>8</td>
<td>Non-verbal Scientific Creativity</td>
<td>Mean $M_1$: 37.41, SD $\sigma_1$: 10.02</td>
<td>Mean $M_2$: 18.72, SD $\sigma_2$: 11.45</td>
<td>16.53**</td>
</tr>
<tr>
<td>9</td>
<td>Scientific Creativity (Total)</td>
<td>Mean $M_1$: 147.08, SD $\sigma_1$: 28.00</td>
<td>Mean $M_2$: 92.90, SD $\sigma_2$: 23.56</td>
<td>19.29**</td>
</tr>
<tr>
<td>10</td>
<td>Achievement Motivation</td>
<td>Mean $M_1$: 44.21, SD $\sigma_1$: 5.30</td>
<td>Mean $M_2$: 42.26, SD $\sigma_2$: 9.18</td>
<td>1.97*</td>
</tr>
<tr>
<td>11</td>
<td>Home Environment</td>
<td>Mean $M_1$: 108.82, SD $\sigma_1$: 16.22</td>
<td>Mean $M_2$: 95.04, SD $\sigma_2$: 16.32</td>
<td>7.95**</td>
</tr>
</tbody>
</table>

**shows significance at 0.01 level
*shows significance at 0.05 level

(i) Table 4.4 shows that all the eleven variables are capable of discriminating between HA-AA groups. The discriminating variables in the order of importance are:

1. Scientific Creativity (Total) (CR = 19.29)
2. Non-verbal Scientific Creativity (CR = 16.53)
3. Intelligence (Total) (CR = 13.08)
4. Verbal Intelligence (CR = 10.64)
5. Verbal Scientific Creativity (CR = 9.99)

6. Non-verbal Intelligence (CR = 9.89)

7. Home Environment (CR = 7.95)

8. Flexibility (CR = 7.69)

9. Fluency (CR = 7.57)

10. Originality (CR = 4.14)

11. Achievement Motivation (CR = 1.97)

(ii) All these differences except that of Achievement Motivation are significant well beyond 0.01 level. The difference is significant at 0.05 level for Achievement Motivation (CR = 1.97; p < 0.05). This indicates that the mean scores of the High and Average Achievement groups of boys differ significantly with respect of each of the eleven variables.

4.1.1.5 Comparison of the Average and Low Achievement Groups (Boys)

The statistical data used and the results of the ‘t’-test of significance for the independent variables is given in Table 4.5.
Table 4.5
Statistical Indices and the Results of the ‘t’-tests for Average Achievement-Low Achievement Groups (Boys)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables</th>
<th>Average Achievement Group (AA) (N = 224)</th>
<th>Low Achievement Group (LA) (N = 188)</th>
<th>Critical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean $M_1$</td>
<td>SD $\sigma_1$</td>
<td>Mean $M_2$</td>
</tr>
<tr>
<td>1.</td>
<td>Verbal Intelligence</td>
<td>41.96</td>
<td>12.28</td>
<td>30.68</td>
</tr>
<tr>
<td>2.</td>
<td>Non-verbal Intelligence</td>
<td>35.46</td>
<td>10.23</td>
<td>24.48</td>
</tr>
<tr>
<td>3.</td>
<td>Intelligence (Total)</td>
<td>77.49</td>
<td>14.32</td>
<td>56.24</td>
</tr>
<tr>
<td>4.</td>
<td>Fluency</td>
<td>70.48</td>
<td>17.23</td>
<td>57.22</td>
</tr>
<tr>
<td>5.</td>
<td>Flexibility</td>
<td>19.85</td>
<td>10.69</td>
<td>13.55</td>
</tr>
<tr>
<td>6.</td>
<td>Originality</td>
<td>17.46</td>
<td>11.71</td>
<td>12.97</td>
</tr>
<tr>
<td>7.</td>
<td>Verbal Scientific Creativity</td>
<td>75.04</td>
<td>16.69</td>
<td>70.21</td>
</tr>
<tr>
<td>9.</td>
<td>Scientific Creativity (Total)</td>
<td>92.90</td>
<td>23.56</td>
<td>83.74</td>
</tr>
<tr>
<td>10.</td>
<td>Achievement Motivation</td>
<td>42.26</td>
<td>9.18</td>
<td>41.67</td>
</tr>
<tr>
<td>11.</td>
<td>Home Environment</td>
<td>95.04</td>
<td>16.32</td>
<td>80.07</td>
</tr>
</tbody>
</table>

**shows significance at 0.01 level

(i) Table 4.5 shows that all variables, except Achievement Motivation, are capable of discriminating between AA-LA groups. The discriminating variables in the order of importance are:

1. Intelligence (Total) (CR = 12.89)
2. Home Environment (CR = 10.64)
3. Non-verbal Intelligence (CR = 10.09)
4. Verbal Intelligence (CR = 9.21)
5. Fluency (CR = 8.54)
6. Flexibility (CR = 6.86)
7. Non-verbal Scientific Creativity (CR = 5.21)
8. Originality (CR = 4.39)
9. Scientific Creativity (CR = 3.89)
10. Verbal Scientific Creativity  \((CR = 3.89)\)

(ii) All these differences except that of Achievement Motivation are significant well beyond 0.01 level. It shows that the mean scores of the Average and Low Achievement groups of boys differ significantly with respect to each of the above ten variables. The difference is not significant for Achievement Motivation. This shows that Average and Low Achievement groups of boys do not differ significantly in Achievement Motivation.

4.1.1.6 Comparison of the High and Low Achievement Groups (Boys)

The statistical data used and the results of the 't'-test of significance for the independent variables is given in Table 4.6.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables</th>
<th>High Achievement Group (HA) ((N = 145))</th>
<th>Low Achievement Group (LA) ((N = 188))</th>
<th>Critical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Verbal Intelligence</td>
<td>56.54, 13.21</td>
<td>30.68, 12.46</td>
<td>18.15**</td>
</tr>
<tr>
<td>2</td>
<td>Non-verbal Intelligence</td>
<td>47.57, 12.23</td>
<td>24.48, 11.61</td>
<td>17.46**</td>
</tr>
<tr>
<td>3</td>
<td>Intelligence (Total)</td>
<td>103.29, 20.76</td>
<td>56.24, 18.40</td>
<td>21.54**</td>
</tr>
<tr>
<td>4</td>
<td>Fluency</td>
<td>84.43, 17.33</td>
<td>57.22, 14.27</td>
<td>15.32**</td>
</tr>
<tr>
<td>5</td>
<td>Flexibility</td>
<td>36.42, 24.48</td>
<td>13.55, 7.92</td>
<td>10.82**</td>
</tr>
<tr>
<td>6</td>
<td>Originality</td>
<td>23.23, 13.87</td>
<td>12.97, 9.04</td>
<td>7.73**</td>
</tr>
<tr>
<td>7</td>
<td>Verbal Scientific Creativity</td>
<td>110.23, 40.21</td>
<td>70.21, 14.56</td>
<td>11.42**</td>
</tr>
<tr>
<td>8</td>
<td>Non-verbal Scientific Creativity</td>
<td>37.41, 10.02</td>
<td>13.42, 9.21</td>
<td>22.43**</td>
</tr>
<tr>
<td>9</td>
<td>Scientific Creativity (Total)</td>
<td>147.08, 28.00</td>
<td>83.74, 24.03</td>
<td>21.75**</td>
</tr>
<tr>
<td>10</td>
<td>Achievement Motivation</td>
<td>44.21, 5.30</td>
<td>41.67, 8.06</td>
<td>2.61**</td>
</tr>
<tr>
<td>11</td>
<td>Home Environment</td>
<td>108.82, 16.22</td>
<td>80.07, 12.20</td>
<td>17.81**</td>
</tr>
</tbody>
</table>

**shows significance at 0.01 level
(i) Table 4.6 shows that all the eleven variables are capable of discriminating between AA-LA groups of boys. The discriminating variables in the descending order are:

1. Non-verbal Scientific Creativity (CR = 22.43)
2. Scientific creativity (Total) (CR = 21.75)
3. Intelligence (Total) (CR = 21.54)
4. Verbal Intelligence (CR = 18.15)
5. Home Environment (CR = 17.81)
6. Non-verbal Intelligence (CR = 17.46)
7. Fluency (CR = 15.32)
8. Verbal Scientific Creativity (CR = 11.42)
9. Flexibility (CR = 10.82)
10. Originality (CR = 7.73)
11. Achievement Motivation (CR = 2.61)

(ii) All these differences are significant well beyond 0.01 level. It shows that the mean scores of the High and Low Achievement groups of boys differ significantly with respect to each of the above eleven variables.

4.1.1.7 Comparison of the High and Average Achievement Groups (Girls)

The statistical data used and the results of the ‘t’-test of significance for the independent variables are given in Table 4.7.
Table 4.7
Statistical Indices and the Results of the 't'-tests for High Achievement-Average Achievement Groups (Girls)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables</th>
<th>High Achievement Group (HA) (N = 208)</th>
<th>Average Achievement Group (AA) (N = 192 )</th>
<th>Critical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean $M_1$</td>
<td>SD $\sigma_1$</td>
<td>Mean $M_2$</td>
</tr>
<tr>
<td>1</td>
<td>Verbal Intelligence</td>
<td>57.56</td>
<td>14.40</td>
<td>41.96</td>
</tr>
<tr>
<td>2</td>
<td>Non-verbal Intelligence</td>
<td>42.45</td>
<td>11.85</td>
<td>35.46</td>
</tr>
<tr>
<td>3</td>
<td>Intelligence (Total)</td>
<td>99.89</td>
<td>22.11</td>
<td>77.49</td>
</tr>
<tr>
<td>4</td>
<td>Fluency</td>
<td>74.06</td>
<td>14.10</td>
<td>67.95</td>
</tr>
<tr>
<td>5</td>
<td>Flexibility</td>
<td>23.36</td>
<td>13.74</td>
<td>17.62</td>
</tr>
<tr>
<td>6</td>
<td>Originality</td>
<td>16.02</td>
<td>10.47</td>
<td>15.30</td>
</tr>
<tr>
<td>7</td>
<td>Verbal Scientific Creativity</td>
<td>90.58</td>
<td>24.06</td>
<td>84.36</td>
</tr>
<tr>
<td>8</td>
<td>Non-verbal Scientific Creativity</td>
<td>13.06</td>
<td>9.77</td>
<td>11.12</td>
</tr>
<tr>
<td>9</td>
<td>Scientific Creativity (Total)</td>
<td>103.64</td>
<td>31.87</td>
<td>95.04</td>
</tr>
<tr>
<td>10</td>
<td>Achievement Motivation</td>
<td>42.73</td>
<td>5.10</td>
<td>42.24</td>
</tr>
<tr>
<td>11</td>
<td>Home Environment</td>
<td>103.44</td>
<td>17.23</td>
<td>92.90</td>
</tr>
</tbody>
</table>

**shows significance at 0.01 level
*shows significance at 0.05 level

(i) Table 4.7 shows that nine variables are capable of discriminating between HA-AA groups. The discriminating variables in the order of importance are:

1. Verbal Intelligence (CR = 11.20)
2. Home Environment (CR = 6.51)
3. Intelligence (Total) (CR = 5.47)
4. Flexibility (CR = 4.77)
5. Fluency (CR = 4.17)
6. Non-verbal Intelligence (CR = 4.03)
7. Verbal Scientific Creativity (CR = 2.93)
8. Scientific Creativity (Total) (CR = 2.69)
9. Non-verbal scientific Creativity (CR = 2.36)

(ii) The differences obtained are significant at 0.01 level except for Non-verbal Scientific Creativity. The difference is significant at 0.05 level for this variable. This means that the mean scores of the High and Average groups of Girls differ significantly with respect to each of the above nine variables.

(iii) Variables which do not discriminate between HA-AA groups of Girls are
   1. Achievement Motivation (CR = 0.83; p > 0.05)
   2. Originality (CR = 0.66; p > 0.05)

   These differences are not significant. It means that the mean scores of High and Average Achievement groups of Girls do not differ significantly with respect to Achievement Motivation and Originality.

4.1.1.8 Comparison of the Average-Low Achievement Groups (Girls)

The statistical data used and the results of the t-test of significance for the independent variables are given in Table 4.8.
Table 4.8
Statistical indices and the Results of the ‘t’-tests for Average
Achievement-Low Achievement Groups (Girls)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables</th>
<th>Average Achievement Group (AA) (N = 192)</th>
<th>Low Achievement Group (LA) (N = 163)</th>
<th>Critical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean $M_1$</td>
<td>SD $\sigma_1$</td>
<td>Mean $M_2$</td>
</tr>
<tr>
<td>1</td>
<td>Verbal Intelligence</td>
<td>41.96</td>
<td>13.80</td>
<td>30.68</td>
</tr>
<tr>
<td>2</td>
<td>Non-verbal Intelligence</td>
<td>35.46</td>
<td>12.14</td>
<td>24.48</td>
</tr>
<tr>
<td>3</td>
<td>Intelligence (Total)</td>
<td>77.49</td>
<td>18.32</td>
<td>56.24</td>
</tr>
<tr>
<td>4</td>
<td>Fluency</td>
<td>67.95</td>
<td>15.12</td>
<td>56.15</td>
</tr>
<tr>
<td>5</td>
<td>Flexibility</td>
<td>17.62</td>
<td>10.19</td>
<td>11.14</td>
</tr>
<tr>
<td>6</td>
<td>Originality</td>
<td>15.30</td>
<td>11.14</td>
<td>11.52</td>
</tr>
<tr>
<td>7</td>
<td>Verbal Scientific Creativity</td>
<td>84.36</td>
<td>18.23</td>
<td>70.22</td>
</tr>
<tr>
<td>8</td>
<td>Non-verbal Scientific Creativity</td>
<td>11.12</td>
<td>6.49</td>
<td>7.77</td>
</tr>
<tr>
<td>9</td>
<td>Scientific Creativity (Total)</td>
<td>95.04</td>
<td>31.91</td>
<td>78.81</td>
</tr>
<tr>
<td>10</td>
<td>Achievement Motivation</td>
<td>42.24</td>
<td>6.58</td>
<td>41.62</td>
</tr>
<tr>
<td>11</td>
<td>Home Environment</td>
<td>92.90</td>
<td>15.74</td>
<td>80.23</td>
</tr>
</tbody>
</table>

**shows significance at 0.01 level

(i) Table 4.8 shows that all the variables except Achievement Motivation are capable of discriminating between AA-LA groups of Girls. The discriminating variables in the order of importance are:

1. Intelligence (Total) (CR = 10.55)
2. Non-verbal Intelligence (CR = 8.15)
3. Verbal Intelligence (CR = 7.64)
4. Flexibility (CR = 7.46)
5. Verbal Scientific Creativity (CR = 7.06)
6. Home Environment (CR = 6.69)
7. Fluency (CR = 6.71)
8. Non-verbal Scientific Creativity (CR = 6.28)
9. Scientific Creativity (Total) (CR = 5.44)
10. Originality (CR = 3.91)

(ii) All these differences are significant well beyond 0.01 level. It indicates that the mean scores of the Average and Low groups of Girls differ significantly with respect to each of the above ten variables. The difference is not significant for Achievement Motivation (CR = 1.32; \( p > 0.05 \)). It indicates that Average and Low Achievement Groups of Girls are almost identical with respect to their Achievement Motivation.

4.1.1.9 Comparison of the High-Low Achievement Groups (Girls)

The statistical data used and the results of the t-test of significance for the independent variables are given in Table 4.9.
Table 4.9
Statistical Indices and the Results of the ‘t’-tests for High Achievement-Low Achievement Groups (Girls)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables</th>
<th>High Achievement Group (HA) (N = 208)</th>
<th>Low Achievement Group (LA) (N = 163)</th>
<th>Critical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean $M_1$</td>
<td>SD $\sigma_1$</td>
<td>Mean $M_2$</td>
</tr>
<tr>
<td>1.</td>
<td>Verbal Intelligence</td>
<td>57.56</td>
<td>14.40</td>
<td>30.68</td>
</tr>
<tr>
<td>2.</td>
<td>Non-verbal Intelligence</td>
<td>42.45</td>
<td>11.85</td>
<td>24.48</td>
</tr>
<tr>
<td>3.</td>
<td>Intelligence (Total)</td>
<td>99.89</td>
<td>22.11</td>
<td>56.24</td>
</tr>
<tr>
<td>4.</td>
<td>Fluency</td>
<td>74.06</td>
<td>14.10</td>
<td>56.15</td>
</tr>
<tr>
<td>5.</td>
<td>Flexibility</td>
<td>23.36</td>
<td>13.74</td>
<td>11.14</td>
</tr>
<tr>
<td>7.</td>
<td>Verbal Scientific Creativity</td>
<td>90.58</td>
<td>24.06</td>
<td>70.22</td>
</tr>
<tr>
<td>8.</td>
<td>Non-verbal Scientific Creativity</td>
<td>13.06</td>
<td>9.77</td>
<td>7.77</td>
</tr>
<tr>
<td>9.</td>
<td>Scientific Creativity (Total)</td>
<td>103.64</td>
<td>31.87</td>
<td>78.81</td>
</tr>
<tr>
<td>10.</td>
<td>Achievement Motivation</td>
<td>42.73</td>
<td>5.10</td>
<td>41.62</td>
</tr>
<tr>
<td>11.</td>
<td>Home Environment</td>
<td>103.44</td>
<td>17.23</td>
<td>80.23</td>
</tr>
</tbody>
</table>

**shows significance at 0.01 level

(i) Table 4.9 shows that all the variables except Achievement Motivation are capable of discriminating between HA-LA groups of Girls. The discriminating variables in the order of importance are:

1. Intelligence (Total) (CR = 20.22)
2. Verbal Intelligence (CR = 18.19)
3. Non-verbal Intelligence (CR = 13.68)
4. Home Environment (CR = 12.13)
5. Fluency (CR = 10.59)
6. Flexibility (CR = 10.31)
7. Verbal Scientific Creativity (CR = 9.05)
8. Scientific Creativity (Total) (CR = 8.53)
9. Non-verbal Scientific Creativity (CR 7.30)
10. Originality (CR = 4.99)

(ii) All these differences are significant well beyond 0.01 level. It means that the mean scores of the High and Low groups of Girls differ significantly with respect to each of the above-mentioned variables. The difference is not significant for Achievement Motivation (CR = 1.62; p > 0.05). It indicates that the mean scores of High and Low Achievement Groups of Girls do not differ with respect to their Achievement Motivation.

4.1.1.10 Comparison of the High and Average Achievement Groups (Rural)

The statistical data used and the results of the 't'-test of significance for the independent variables are given in Table 4.10.
Table 4.10  
Statistical Indices and the Results of the ‘t’-tests for High Achievement-Average Achievement Groups (Rural)  

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables</th>
<th>High Achievement Group (HA) (N = 160)</th>
<th>Average Achievement Group (AA) (N = 240)</th>
<th>Critical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Verbal Intelligence</td>
<td>Mean (M_1) 47.52, SD (\sigma_1) 11.92</td>
<td>Mean (M_2) 39.72, SD (\sigma_2) 14.46</td>
<td>5.89**</td>
</tr>
<tr>
<td>2.</td>
<td>Non-verbal Intelligence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Intelligence (Total)</td>
<td>Mean (M_1) 44.12, SD (\sigma_1) 12.42</td>
<td>Mean (M_2) 34.54, SD (\sigma_2) 11.39</td>
<td>7.80**</td>
</tr>
<tr>
<td>4.</td>
<td>Fluency</td>
<td>Mean (M_1) 81.28, SD (\sigma_1) 17.66</td>
<td>Mean (M_2) 66.73, SD (\sigma_2) 19.06</td>
<td>13.83**</td>
</tr>
<tr>
<td>5.</td>
<td>Flexibility</td>
<td>Mean (M_1) 30.04, SD (\sigma_1) 23.09</td>
<td>Mean (M_2) 17.68, SD (\sigma_2) 10.60</td>
<td>6.34**</td>
</tr>
<tr>
<td>6.</td>
<td>Originality</td>
<td>Mean (M_1) 21.32, SD (\sigma_1) 16.70</td>
<td>Mean (M_2) 15.50, SD (\sigma_2) 12.75</td>
<td>3.74**</td>
</tr>
<tr>
<td>7.</td>
<td>Verbal Scientific Creativity</td>
<td>Mean (M_1) 110.56, SD (\sigma_1) 41.04</td>
<td>Mean (M_2) 87.17, SD (\sigma_2) 17.59</td>
<td>6.80**</td>
</tr>
<tr>
<td>8.</td>
<td>Non-verbal Scientific Creativity</td>
<td>Mean (M_1) 24.21, SD (\sigma_1) 9.76</td>
<td>Mean (M_2) 12.04, SD (\sigma_2) 6.88</td>
<td>13.67**</td>
</tr>
<tr>
<td>9.</td>
<td>Scientific Creativity (Total)</td>
<td>Mean (M_1) 132.64, SD (\sigma_1) 46.26</td>
<td>Mean (M_2) 99.92, SD (\sigma_2) 37.02</td>
<td>12.23**</td>
</tr>
<tr>
<td>10.</td>
<td>Achievement Motivation</td>
<td>Mean (M_1) 42.86, SD (\sigma_1) 5.46</td>
<td>Mean (M_2) 40.42, SD (\sigma_2) 7.74</td>
<td>3.69**</td>
</tr>
<tr>
<td>11.</td>
<td>Home Environment</td>
<td>Mean (M_1) 98.79, SD (\sigma_1) 18.36</td>
<td>Mean (M_2) 84.56, SD (\sigma_2) 17.71</td>
<td>7.70**</td>
</tr>
</tbody>
</table>

**shows significance at 0.01 level**

(i) Table 4.10 shows that all the eleven variables are capable of discriminating between High and Average Achievement groups of Rural subjects. The discriminating variables in the order of importance are:

1. Fluency \((CR = 13.83)\)
2. Non-verbal Scientific Creativity \((CR = 13.67)\)
3. Scientific Creativity (Total) \((CR = 12.23)\)
4. Intelligence (Total) \((CR = 10.09)\)
5. Non-verbal Intelligence \((CR = 7.80)\)
6. Home Environment \((CR = 7.70)\)
7. Verbal Scientific Creativity (CR = 6.80)
8. Flexibility (CR = 6.34)
9. Verbal Intelligence (CR = 5.89)
10. Originality (CR = 3.74)
11. Achievement Motivation (CR = 3.69)

(ii) All these differences are significant well beyond 0.01 level. It means that the mean scores of the High and Average groups of Rural subjects differ significantly with respect to each of the above eleven variables.

4.1.1.11 Comparison of the Average and Low Achievement Groups (Rural)

The statistical data used and the results of the 't'-test of significance for the independent variables are given in Table 4.11.
Table 4.11
Statistical Indices and the Results of the 't'-tests for Average Achievement-Low Achievement Groups (Rural)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables</th>
<th>Average Achievement Group (AA) (N = 240)</th>
<th>Low Achievement Group (LA) (N = 149)</th>
<th>Critical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean $M_1$</td>
<td>SD $\sigma_1$</td>
<td>Mean $M_2$</td>
</tr>
<tr>
<td>1.</td>
<td>Verbal Intelligence</td>
<td>39.72</td>
<td>14.46</td>
<td>28.94</td>
</tr>
<tr>
<td>2.</td>
<td>Non-verbal Intelligence</td>
<td>34.54</td>
<td>11.39</td>
<td>23.40</td>
</tr>
<tr>
<td>3.</td>
<td>Intelligence (Total)</td>
<td>72.56</td>
<td>18.78</td>
<td>49.78</td>
</tr>
<tr>
<td>4.</td>
<td>Fluency</td>
<td>66.73</td>
<td>19.06</td>
<td>55.54</td>
</tr>
<tr>
<td>5.</td>
<td>Flexibility</td>
<td>17.68</td>
<td>10.60</td>
<td>12.29</td>
</tr>
<tr>
<td>6.</td>
<td>Originality</td>
<td>15.50</td>
<td>12.75</td>
<td>11.41</td>
</tr>
<tr>
<td>7.</td>
<td>Verbal Scientific Creativity</td>
<td>87.17</td>
<td>17.59</td>
<td>69.43</td>
</tr>
<tr>
<td>9.</td>
<td>Scientific Creativity (Total)</td>
<td>99.92</td>
<td>37.02</td>
<td>79.23</td>
</tr>
<tr>
<td>10.</td>
<td>Achievement Motivation</td>
<td>40.40</td>
<td>7.74</td>
<td>39.12</td>
</tr>
<tr>
<td>11.</td>
<td>Home Environment</td>
<td>84.56</td>
<td>17.71</td>
<td>75.27</td>
</tr>
</tbody>
</table>

**shows significance at 0.01 level

(i) Table 4.11 shows that all the variables except Achievement Motivation are capable of discriminating between AA-LA groups of Rural subjects.

The discriminating variables in the order of importance are:

1. Intelligence (Total) (CR = 11.29)
2. Verbal Scientific Creativity (CR = 10.14)
3. Verbal Intelligence (CR = 10.07)
4. Non-verbal Intelligence (CR = 8.87)
5. Scientific Creativity (Total) (CR = 6.56)
6. Fluency (CR = 6.03)
7. Flexibility (CR = 5.93)
8. Home Environment (CR = 5.09)
9. Non-verbal Scientific Creativity (CR = 3.98)
10. Originality (CR = 3.92)

(ii) All the above differences are significant well beyond 0.01 level. It shows that the mean scores of Average and Low Achievement groups of Rural subjects differ significantly with respect to each of the above-mentioned variables. The difference is not significant for Achievement Motivation (CR = 1.73; p > 0.05). It shows that the mean scores of Average and Low Achievement groups of Rural subjects do not differ significantly with respect to Achievement Motivation.

4.1.1.12 Comparison of the High and Low Achievement Groups (Rural)

The statistical data used and the results of the 't'-test of significance for the independent variables are given in Table 4.12.
Table 4.12
Statistical Indices and the Results of the 't'-tests for High Achievement-Low Achievement Groups (Rural)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables</th>
<th>High Achievement Group (HA) (N = 160)</th>
<th>Low Achievement Group (LA) (N = 149)</th>
<th>Critical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean $M_1$</td>
<td>SD $\sigma_1$</td>
<td>Mean $M_2$</td>
</tr>
<tr>
<td>1.</td>
<td>Verbal Intelligence</td>
<td>47.52</td>
<td>11.92</td>
<td>28.94</td>
</tr>
<tr>
<td>2.</td>
<td>Non-verbal Intelligence</td>
<td>44.12</td>
<td>12.42</td>
<td>23.40</td>
</tr>
<tr>
<td>3.</td>
<td>Intelligence (Total)</td>
<td>94.22</td>
<td>22.41</td>
<td>49.78</td>
</tr>
<tr>
<td>4.</td>
<td>Fluency</td>
<td>81.28</td>
<td>17.66</td>
<td>55.54</td>
</tr>
<tr>
<td>5.</td>
<td>Flexibility</td>
<td>30.04</td>
<td>23.09</td>
<td>12.29</td>
</tr>
<tr>
<td>6.</td>
<td>Originality</td>
<td>21.32</td>
<td>16.70</td>
<td>11.41</td>
</tr>
<tr>
<td>7.</td>
<td>Verbal Scientific Creativity</td>
<td>110.56</td>
<td>41.04</td>
<td>69.43</td>
</tr>
<tr>
<td>9.</td>
<td>Scientific Creativity (Total)</td>
<td>132.64</td>
<td>46.26</td>
<td>79.23</td>
</tr>
<tr>
<td>10.</td>
<td>Achievement Motivation</td>
<td>42.86</td>
<td>5.46</td>
<td>39.12</td>
</tr>
<tr>
<td>11.</td>
<td>Home Environment</td>
<td>98.79</td>
<td>18.36</td>
<td>75.27</td>
</tr>
</tbody>
</table>

**shows significance at 0.01 level

(i) Table 4.12 shows that all the eleven variables are capable of discriminating between AA-LA groups of Rural subjects. The discriminating variables in the order of importance are:

1. Intelligence (Total) (CR = 18.55)
2. Non-verbal Scientific Creativity (CR = 15.78)
3. Non-verbal Intelligence (CR = 14.78)
4. Verbal Intelligence (CR = 14.56)
5. Fluency (CR = 13.07)
6. Scientific Creativity (CR 12.73)
7. Verbal Scientific Creativity (CR = 11.73)
8. Home Environment (CR = 11.56)
10. Originality (CR = 6.75)
11. Achievement Motivation (CR = 5.28)

(ii) All the differences are significant well beyond 0.01 level. It indicates that the mean scores of High and Average Achievement groups of Rural subjects differ significantly with respect to the above eleven variables.

4.1.1.13 Comparison of the High and Average Achievement Groups (Urban)

The statistical data used and the results of the 't'-test of significance for the independent variables are given in Table 4.13.
Table 4.13
Statistical Indices and the Results of the 't'-tests for High
Achievement-Average Achievement Groups (Urban)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables</th>
<th>High Achievement Group (HA) (N = 193)</th>
<th>Average Achievement Group (AA) (N = 176)</th>
<th>Critical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Verbal Intelligence</td>
<td>Mean M$_1$ 54.21, SD $\sigma_1$ 11.74</td>
<td>Mean M$_2$ 45.34, SD $\sigma_2$ 15.36</td>
<td>6.19**</td>
</tr>
<tr>
<td>2</td>
<td>Non-verbal Intelligence</td>
<td>45.85, 15.95</td>
<td>35.16, 11.89</td>
<td>7.34**</td>
</tr>
<tr>
<td>3</td>
<td>Intelligence (Total)</td>
<td>98.14, 22.76</td>
<td>81.22, 19.54</td>
<td>7.68**</td>
</tr>
<tr>
<td>4</td>
<td>Fluency</td>
<td>81.69, 17.32</td>
<td>70.75, 13.72</td>
<td>6.75**</td>
</tr>
<tr>
<td>5</td>
<td>Flexibility</td>
<td>30.67, 21.26</td>
<td>19.66, 10.52</td>
<td>6.44**</td>
</tr>
<tr>
<td>6</td>
<td>Originality</td>
<td>19.72, 10.88</td>
<td>16.52, 10.81</td>
<td>2.83**</td>
</tr>
<tr>
<td>7</td>
<td>Verbal Scientific Creativity</td>
<td>109.64, 35.39</td>
<td>90.21, 20.14</td>
<td>6.55**</td>
</tr>
<tr>
<td>8</td>
<td>Non-verbal Scientific Creativity</td>
<td>22.31, 9.36</td>
<td>16.04, 8.06</td>
<td>6.91**</td>
</tr>
<tr>
<td>9</td>
<td>Scientific Creativity (Total)</td>
<td>132.08, 42.21</td>
<td>106.58, 28.88</td>
<td>6.84**</td>
</tr>
<tr>
<td>10</td>
<td>Achievement Motivation</td>
<td>43.71, 5.37</td>
<td>42.88, 6.09</td>
<td>1.38</td>
</tr>
<tr>
<td>11</td>
<td>Home Environment</td>
<td>108.07, 18.6</td>
<td>100.46, 17.3</td>
<td>4.07**</td>
</tr>
</tbody>
</table>

**shows significance at 0.01 level

(i) Table 4.13 shows that all the variables except Achievement Motivation are capable of discriminating between the HA-AA groups of Urban subjects. The discriminating variables in the order of importance are:

1. Intelligence (Total) (CR = 7.68)
2. Non-verbal Intelligence (CR = 7.34)
3. Non-verbal Scientific Creativity (CR = 6.91)
4. Scientific Creativity (Total) (CR = 6.84)
5. Fluency (CR = 6.75)
6. Verbal Scientific Creativity (CR = 6.55)
7. Flexibility (CR = 6.44)
8. Verbal Intelligence (CR = 6.19)
9. Home Environment (CR = 4.07)
10. Originality (CR = 2.83)

(ii) All these differences are significant well beyond 0.01 level. It means that the mean scores of High and Average Achievement groups of Urban subjects differ significantly with respect to the above-mentioned variables. The difference is not significant for the variable Achievement Motivation (CR = 1.38; p > 0.05). This indicates that the High and Average Achievement groups of Urban subjects do not differ significantly with respect to their Achievement Motivation.

4.1.1.14 Comparison of the Average and Low Achievement Groups (Urban)

The statistical data used and the results of the 't'-test of significance for the independent variables are given in Table 4.14.
Table 4.14
Statistical Indices and the Results of the ‘t’-tests for Average Achievement-Low Achievement Groups (Urban)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables</th>
<th>Average Achievement Group (AA) (N = 176)</th>
<th>Low Achievement Group (LA) (N = 202)</th>
<th>Critical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean $M_1$</td>
<td>SD $\sigma_1$</td>
<td>Mean $M_2$</td>
</tr>
<tr>
<td>1.</td>
<td>Verbal Intelligence</td>
<td>45.34</td>
<td>15.36</td>
<td>35.41</td>
</tr>
<tr>
<td>2.</td>
<td>Non-verbal Intelligence</td>
<td>35.16</td>
<td>11.89</td>
<td>27.12</td>
</tr>
<tr>
<td>3.</td>
<td>Intelligence (Total)</td>
<td>81.22</td>
<td>19.54</td>
<td>63.96</td>
</tr>
<tr>
<td>4.</td>
<td>Fluency</td>
<td>70.75</td>
<td>13.72</td>
<td>59.48</td>
</tr>
<tr>
<td>5.</td>
<td>Flexibility</td>
<td>19.66</td>
<td>10.52</td>
<td>12.19</td>
</tr>
<tr>
<td>6.</td>
<td>Originality</td>
<td>16.52</td>
<td>10.81</td>
<td>14.18</td>
</tr>
<tr>
<td>7.</td>
<td>Verbal Scientific Creativity</td>
<td>90.21</td>
<td>20.14</td>
<td>72.92</td>
</tr>
<tr>
<td>8.</td>
<td>Non-verbal Scientific Creativity</td>
<td>16.04</td>
<td>8.06</td>
<td>12.34</td>
</tr>
<tr>
<td>9.</td>
<td>Scientific Creativity (Total)</td>
<td>106.58</td>
<td>28.68</td>
<td>85.86</td>
</tr>
<tr>
<td>10.</td>
<td>Achievement Motivation</td>
<td>42.88</td>
<td>6.09</td>
<td>39.82</td>
</tr>
<tr>
<td>11.</td>
<td>Home Environment</td>
<td>100.46</td>
<td>17.3</td>
<td>92.60</td>
</tr>
</tbody>
</table>

**shows significance at 0.01 level
*shows significance at 0.05 level

(i) Table 4.14 shows that all the eleven variables are capable of discriminating between the AA-LA groups of Urban subjects. The discriminating variables in the order of importance are:

1. Verbal Scientific Creativity (CR = 9.08)
2. Intelligence (Total) (CR = 8.58)
3. Flexibility (CR = 8.24)
4. Fluency (CR = 8.02)
5. Scientific Creativity (Total) (CR = 7.89)
6. Non-verbal Intelligence (CR = 6.29)
7. Verbal Intelligence (CR = 6.18)
8. Non-verbal Scientific Creativity (CR = 5.02)
9. Achievement Motivation (CR = 4.52)
10. Home Environment (CR = 4.22)
11. Originality (CR = 2.36)

(ii) All these differences are significant well beyond 0.01 level except the mean difference for Achievement Motivation. The difference is significant at 0.05 level for Achievement Motivation (CR = 2.36; p < 0.05). This indicates that the mean scores of Average and Low Achievement groups of Urban subjects differ significantly with respect to all the eleven variables.

4.1.1.15 Comparison of the High and Low Achievement Groups (Urban)

The statistical data used and the results of the 't'-test of significance for the independent variables are given in Table 4.15.
Table 4.15
Statistical Indices and the Results of the 't'-tests for High Achievement-Low Achievement Groups (Urban)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables</th>
<th>High Achievement Group (HA) (N = 193)</th>
<th>Low Achievement Group (LA) (N = 202)</th>
<th>Critical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Verbal Intelligence</td>
<td>54.21 11.74</td>
<td>35.41 15.83</td>
<td>13.45**</td>
</tr>
<tr>
<td>2</td>
<td>Non-verbal Intelligence</td>
<td>45.85 15.95</td>
<td>27.12 12.93</td>
<td>12.79**</td>
</tr>
<tr>
<td>3</td>
<td>Intelligence (Total)</td>
<td>98.14 22.76</td>
<td>63.96 19.54</td>
<td>18.72**</td>
</tr>
<tr>
<td>4</td>
<td>Fluency</td>
<td>81.69 17.32</td>
<td>59.48 13.53</td>
<td>14.16**</td>
</tr>
<tr>
<td>5</td>
<td>Flexibility</td>
<td>30.67 21.26</td>
<td>12.19 6.23</td>
<td>11.61**</td>
</tr>
<tr>
<td>6</td>
<td>Originality</td>
<td>19.72 10.88</td>
<td>14.18 7.99</td>
<td>5.75**</td>
</tr>
<tr>
<td>7</td>
<td>Verbal Scientific Creativity</td>
<td>109.64 35.39</td>
<td>72.92 16.32</td>
<td>13.14**</td>
</tr>
<tr>
<td>8</td>
<td>Non-verbal Scientific Creativity</td>
<td>22.31 9.36</td>
<td>12.34 5.93</td>
<td>12.58**</td>
</tr>
<tr>
<td>9</td>
<td>Scientific Creativity (Total)</td>
<td>132.08 42.21</td>
<td>85.86 21.17</td>
<td>13.66**</td>
</tr>
<tr>
<td>10</td>
<td>Achievement Motivation</td>
<td>43.71 5.37</td>
<td>39.82 7.06</td>
<td>6.18**</td>
</tr>
<tr>
<td>11</td>
<td>Home Environment</td>
<td>108.07 18.6</td>
<td>92.60 18.91</td>
<td>8.19**</td>
</tr>
</tbody>
</table>

**shows significance at 0.01 level

(i) Table 4.15 shows that all the eleven variables are capable of discriminating between the HA-LA groups of Urban subjects. The discriminating variables in the order of importance are:

1. Intelligence (Total)  
   (CR = 18.72)
2. Fluency  
   (CR = 14.16)
3. Scientific Creativity (Total)  
   (CR = 13.66)
4. Verbal Intelligence  
   (CR = 13.45)
5. Verbal Scientific Creativity  
   (CR = 13.14)
6. Non-verbal Intelligence  
   (CR = 12.79)
7. Non-verbal Scientific Creativity (CR = 12.58)
8. Flexibility (CR = 11.61)
9. Home Environment (CR = 8.19)
10. Achievement Motivation (CR = 6.18)
11. Originality (CR = 5.75)

(ii) All the above differences are significant well beyond 0.01 level. It indicates that the mean scores of High and Low Achievement groups of Urban subjects differ significantly with respect to the above eleven variables.

4.1.1.16. Comparison of the High and Average Achievement Groups (Government)

The statistical data used and the results of the 't'-test of significance for the independent variables are given in Table 4.16.
Table 4.16
Statistical Indices and the Results of the ‘t’-tests for High Achievement-Average Achievement Groups (Government)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables</th>
<th>High Achievement Group (HA) (N = 167)</th>
<th>Average Achievement Group (AA) (N = 210)</th>
<th>Critical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean $M_1$</td>
<td>SD $\sigma_1$</td>
<td>Mean $M_2$</td>
</tr>
<tr>
<td>1.</td>
<td>Verbal Intelligence</td>
<td>52.96</td>
<td>14.52</td>
<td>43.56</td>
</tr>
<tr>
<td>2.</td>
<td>Non-verbal Intelligence</td>
<td>43.79</td>
<td>13.49</td>
<td>34.09</td>
</tr>
<tr>
<td>3.</td>
<td>Intelligence (Total)</td>
<td>96.58</td>
<td>23.46</td>
<td>77.42</td>
</tr>
<tr>
<td>4.</td>
<td>Fluency</td>
<td>86.14</td>
<td>18.94</td>
<td>72.55</td>
</tr>
<tr>
<td>5.</td>
<td>Flexibility</td>
<td>31.43</td>
<td>20.91</td>
<td>20.42</td>
</tr>
<tr>
<td>6.</td>
<td>Originality</td>
<td>20.07</td>
<td>12.31</td>
<td>18.42</td>
</tr>
<tr>
<td>7.</td>
<td>Verbal Scientific Creativity</td>
<td>110.08</td>
<td>22.34</td>
<td>91.21</td>
</tr>
<tr>
<td>8.</td>
<td>Non-verbal Scientific Creativity</td>
<td>27.43</td>
<td>11.09</td>
<td>19.82</td>
</tr>
<tr>
<td>9.</td>
<td>Scientific Creativity (Total)</td>
<td>137.64</td>
<td>45.38</td>
<td>110.73</td>
</tr>
<tr>
<td>10.</td>
<td>Achievement Motivation</td>
<td>42.76</td>
<td>6.13</td>
<td>40.29</td>
</tr>
<tr>
<td>11.</td>
<td>Home Environment</td>
<td>106.25</td>
<td>26.60</td>
<td>91.37</td>
</tr>
</tbody>
</table>

**shows significance at 0.01 level

(i) Table 4.16 shows that all the variables except Originality are capable of discriminating between the HA-AA groups of Government school subjects. The discriminating variables in the order of importance are:

1. Intelligence (Total) (CR = 8.62)
2. Verbal Scientific Creativity (CR = 8.45)
3. Non-verbal Scientific Creativity (CR = 7.28)
4. Non-verbal Intelligence (CR = 7.08)
5. Fluency (CR = 6.94)
6. Verbal Intelligence (CR = 6.36)
7. Scientific Creativity (Total)  (CR = 6.11)
8. Flexibility  (CR = 6.09)
9. Home Environment  (CR = 5.84)
10. Achievement Motivation  (CR = 3.17)

(ii) All these differences are significant well beyond 0.01 level. It indicates that the mean scores of High and Average Achievement groups of Government subjects differ significantly with respect to the above the variables. The difference is not significant for Originality (CR = 1.22; p > 0.05). It shows that the mean scores of High and Average Achievement groups are almost identical with respect to their Originality.

4.1.1.17 Comparison of the Average and Low Achievement Groups (Government)

The statistical data used and the results of the 't'-test of significance for the independent variables are given in Table 4.17.
Table 4.17
Statistical Indices and the Results of the 't'-tests for Average Achievement-Low Achievement Groups (Government)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables</th>
<th>Average Achievement Group (AA) (N = 210)</th>
<th>Low Achievement Group (LA) (N = 158)</th>
<th>Critical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean $M_1$</td>
<td>SD $\sigma_1$</td>
<td>Mean $M_2$</td>
</tr>
<tr>
<td>1.</td>
<td>Verbal Intelligence</td>
<td>43.56</td>
<td>13.94</td>
<td>32.94</td>
</tr>
<tr>
<td>2.</td>
<td>Non-verbal Intelligence</td>
<td>34.09</td>
<td>12.86</td>
<td>23.88</td>
</tr>
<tr>
<td>3.</td>
<td>Intelligence (Total)</td>
<td>77.42</td>
<td>18.56</td>
<td>56.64</td>
</tr>
<tr>
<td>4.</td>
<td>Fluency</td>
<td>72.55</td>
<td>18.81</td>
<td>58.82</td>
</tr>
<tr>
<td>5.</td>
<td>Flexibility</td>
<td>20.42</td>
<td>11.61</td>
<td>12.65</td>
</tr>
<tr>
<td>7.</td>
<td>Verbal Scientific Creativity</td>
<td>91.21</td>
<td>20.48</td>
<td>70.66</td>
</tr>
<tr>
<td>9.</td>
<td>Scientific Creativity (Total)</td>
<td>110.73</td>
<td>38.48</td>
<td>84.06</td>
</tr>
<tr>
<td>10.</td>
<td>Achievement Motivation</td>
<td>40.29</td>
<td>8.98</td>
<td>40.22</td>
</tr>
<tr>
<td>11.</td>
<td>Home Environment</td>
<td>91.37</td>
<td>21.80</td>
<td>80.52</td>
</tr>
</tbody>
</table>

**shows significance at 0.01 level

(i) Table 4.17 shows that all the variables except Achievement Motivation are capable of discriminating between the AA-LA groups of Government school subjects. The discriminating variables in the order of importance are:

1. Verbal Scientific Creativity (CR = 10.63)
2. Intelligence (Total) (CR = 10.42)
3. Flexibility (CR = 8.39)
4. Scientific Creativity (Total) (CR = 8.07)
5. Non-verbal Intelligence (CR = 8.01)
6. Verbal Intelligence \( \text{(CR} = 7.70) \)
7. Fluency \( \text{(CR} = 7.25) \)
8. Non-verbal Scientific Creativity \( \text{(CR} = 6.14) \)
9. Home Environment \( \text{(CR} = 5.08) \)
10. Originality \( \text{(CR} = 4.14) \)

(ii) All these differences are significant well beyond 0.01 level. It indicates that the mean scores of Average and Low Achievement groups of Government subjects differ significantly with respect to the above the variables. The mean difference is not significant for the variable Achievement Motivation. It shows that the mean scores of Average and Low Achievement group of Government subjects do not differ significantly with respect to their Achievement Motivation.

4.1.1.18 Comparison of the High and Low Achievement Groups (Government)

The statistical data used and the results of the ‘t’-test of significance for the independent variables are given in Table 4.18.
### Table 4.18
Statistical Indices and the Results of the ‘t’-tests for High Achievement-Low Achievement Groups (Government)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables</th>
<th>High Achievement Group (HA) (N = 167)</th>
<th>Low Achievement Group (LA) (N = 158)</th>
<th>Critical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean $M_1$</td>
<td>SD $\sigma_1$</td>
<td>Mean $M_2$</td>
</tr>
<tr>
<td>1.</td>
<td>Verbal Intelligence</td>
<td>52.96</td>
<td>14.52</td>
<td>32.94</td>
</tr>
<tr>
<td>2.</td>
<td>Non-verbal Intelligence</td>
<td>43.79</td>
<td>13.49</td>
<td>23.88</td>
</tr>
<tr>
<td>3.</td>
<td>Intelligence (Total)</td>
<td>96.58</td>
<td>23.46</td>
<td>56.64</td>
</tr>
<tr>
<td>4.</td>
<td>Fluency</td>
<td>86.14</td>
<td>18.94</td>
<td>58.82</td>
</tr>
<tr>
<td>5.</td>
<td>Flexibility</td>
<td>31.43</td>
<td>20.91</td>
<td>12.65</td>
</tr>
<tr>
<td>6.</td>
<td>Originality</td>
<td>20.07</td>
<td>12.31</td>
<td>12.60</td>
</tr>
<tr>
<td>7.</td>
<td>Verbal Scientific Creativity</td>
<td>110.08</td>
<td>22.34</td>
<td>70.66</td>
</tr>
<tr>
<td>8.</td>
<td>Non-verbal Scientific Creativity</td>
<td>27.43</td>
<td>11.09</td>
<td>14.21</td>
</tr>
<tr>
<td>9.</td>
<td>Scientific Creativity (Total)</td>
<td>137.64</td>
<td>45.38</td>
<td>84.06</td>
</tr>
<tr>
<td>10.</td>
<td>Achievement Motivation</td>
<td>42.76</td>
<td>6.13</td>
<td>40.22</td>
</tr>
<tr>
<td>11.</td>
<td>Home Environment</td>
<td>106.25</td>
<td>26.60</td>
<td>80.52</td>
</tr>
</tbody>
</table>

** shows significance at 0.01 level

(i) Table 4.18 shows that all the variables are capable of discriminating between the HA-LA groups of Government school subjects. The discriminating variables in the order of importance are:

1. Verbal Scientific Creativity \( (CR = 18.12) \)
2. Intelligence (Total) \( (CR = 16.83) \)
3. Non-verbal Intelligence \( (CR = 14.20) \)
4. Fluency \( (CR = 13.57) \)
5. Scientific Creativity (Total) \( (CR = 13.32) \)
6. Non-verbal Scientific Creativity \( (CR = 11.98) \)
7. Flexibility (CR = 10.98)
8. Home Environment (CR = 10.06)
9. Achievement Motivation (CR = 7.57)
10. Verbal Intelligence (CR = 7.02)
11. Originality (CR = 6.72)

(ii) All these differences are significant well beyond 0.01 level. It indicates that the mean scores of High and Low Achievement groups of Government school subjects differ significantly with respect to all the eleven variables.

4.1.1.19 Comparison of the High and Average Achievement Groups (Private)

The statistical data used and the results of the 't'-test of significance for the independent variables are given in Table 4.19.
Table 4.19

Statistical Indices and the Results of the 't'-tests for High Achievement-Average Achievement Groups (Private)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables</th>
<th>High Achievement Group (HA) (N = 186)</th>
<th>Average Achievement Group (AA) (N = 206)</th>
<th>Critical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean $M_1$</td>
<td>SD</td>
<td>Mean $M_2$</td>
</tr>
<tr>
<td>1.</td>
<td>Verbal Intelligence</td>
<td>53.46</td>
<td>16.76</td>
<td>44.23</td>
</tr>
<tr>
<td>2.</td>
<td>Non-verbal Intelligence</td>
<td>45.94</td>
<td>15.33</td>
<td>35.91</td>
</tr>
<tr>
<td>3.</td>
<td>Intelligence (Total)</td>
<td>98.92</td>
<td>24.32</td>
<td>79.32</td>
</tr>
<tr>
<td>4.</td>
<td>Fluency</td>
<td>79.71</td>
<td>16.42</td>
<td>64.37</td>
</tr>
<tr>
<td>5.</td>
<td>Flexibility</td>
<td>30.10</td>
<td>22.18</td>
<td>16.69</td>
</tr>
<tr>
<td>6.</td>
<td>Originality</td>
<td>20.25</td>
<td>13.18</td>
<td>13.43</td>
</tr>
<tr>
<td>7.</td>
<td>Verbal Scientific Creativity</td>
<td>107.42</td>
<td>24.21</td>
<td>84.88</td>
</tr>
<tr>
<td>9.</td>
<td>Scientific Creativity (Total)</td>
<td>130.06</td>
<td>42.48</td>
<td>94.50</td>
</tr>
<tr>
<td>10.</td>
<td>Achievement Motivation</td>
<td>43.73</td>
<td>8.06</td>
<td>40.71</td>
</tr>
<tr>
<td>11.</td>
<td>Home Environment</td>
<td>106.82</td>
<td>28.20</td>
<td>96.21</td>
</tr>
</tbody>
</table>

**shows significance at 0.01 level

(i) Table 4.19 shows that all the eleven variables are capable of discriminating between the HA-AA groups of Private school subjects.

The discriminating variables in the order of importance are:

1. Non-verbal Scientific Creativity  (CR = 14.07)
2. Fluency                         (CR = 10.73)
3. Scientific Creativity (Total)   (CR = 10.42)
4. Verbal Scientific Creativity    (CR = 9.87)
5. Intelligence (Total)            (CR = 8.23)
6. Flexibility                     (CR = 7.72)
7. Non-verbal Intelligence (CR = 6.29)
8. Originality (CR = 6.28)
9. Verbal Intelligence (CR = 5.35)
10. Home Environment (CR = 4.59)
11. Achievement Motivation (CR = 4.20)

(ii) All these differences are significant well beyond 0.01 level. It shows that the mean scores of High and Average Achievement groups of Private school subjects differ significantly with respect to the above eleven variables.

4.1.1.20 Comparison of the Average and Low Achievement Groups (Private)

The statistical data used and the results of the ‘t’-test of significance for the independent variables are given in Table 4.20.
Table 4.20
Statistical Indices and the Results of the 't'-tests for Average Achievement-Low Achievement Groups (Private)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables</th>
<th>Average Achievement Group (AA) (N = 206)</th>
<th>Low Achievement Group (LA) (N = 193)</th>
<th>Critical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean $M_1$</td>
<td>SD $\sigma_1$</td>
<td>Mean $M_2$</td>
</tr>
<tr>
<td>1.</td>
<td>Verbal Intelligence</td>
<td>44.23</td>
<td>17.32</td>
<td>37.64</td>
</tr>
<tr>
<td>2.</td>
<td>Non-verbal Intelligence</td>
<td>35.91</td>
<td>16.23</td>
<td>25.26</td>
</tr>
<tr>
<td>3.</td>
<td>Intelligence (Total)</td>
<td>79.32</td>
<td>22.63</td>
<td>62.26</td>
</tr>
<tr>
<td>4.</td>
<td>Fluency</td>
<td>64.37</td>
<td>11.06</td>
<td>53.57</td>
</tr>
<tr>
<td>5.</td>
<td>Flexibility</td>
<td>16.69</td>
<td>8.70</td>
<td>11.71</td>
</tr>
<tr>
<td>6.</td>
<td>Originality</td>
<td>13.43</td>
<td>7.09</td>
<td>11.61</td>
</tr>
<tr>
<td>7.</td>
<td>Verbal Scientific Creativity</td>
<td>84.86</td>
<td>20.69</td>
<td>66.24</td>
</tr>
<tr>
<td>8.</td>
<td>Non-verbal Scientific Creativity</td>
<td>11.01</td>
<td>6.30</td>
<td>9.36</td>
</tr>
<tr>
<td>9.</td>
<td>Scientific Creativity (Total)</td>
<td>94.50</td>
<td>19.09</td>
<td>76.90</td>
</tr>
<tr>
<td>10.</td>
<td>Achievement Motivation</td>
<td>40.71</td>
<td>5.84</td>
<td>36.62</td>
</tr>
<tr>
<td>11.</td>
<td>Home Environment</td>
<td>96.21</td>
<td>14.70</td>
<td>79.64</td>
</tr>
</tbody>
</table>

** shows significance at 0.01 level
* shows significance at 0.05 level

(i) Table 4.20 shows that all the eleven variables are capable of discriminating between the Average and Low Achievement groups of Private school subjects. The discriminating variables in the order of importance are:

1. Intelligence (Total) (CR = 13.31)
2. Verbal Scientific Creativity (CR = 10.86)
3. Home Environment (CR = 9.38)
4. Fluency (CR = 8.62)
5. Scientific Creativity (Total) (CR = 8.14)
6. Non-verbal Intelligence (CR = 7.48)
7. Achievement Motivation (CR = 6.49)
8. Flexibility (CR = 6.30)
9. Verbal Intelligence (CR = 4.02)
10. Non-verbal Scientific Creativity (CR = 3.12)
11. Originality (CR = 2.25)

(ii) All the differences are significant well beyond 0.01 level except for originality. The mean difference for originality is significant only at 0.05 level (CR = 2.25; p < 0.05). This shows that the mean scores of Average and Low Achievement groups of Private school subjects differ significantly with respect to the above eleven variables.

4.1.1.21 Comparison of the High and Low Achievement Groups (Private)

The statistical data used and the results of the 't'-test of significance for the independent variables are given in Table 4.21.
Table 4.21
Statistical Indices and the Results of the 't'-tests for High Achievement-Low Achievement Groups (Private)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables</th>
<th>High Achievement Group (HA) (N = 186)</th>
<th>Low Achievement Group (LA) (N = 193)</th>
<th>Critical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Verbal Intelligence</td>
<td>Mean $M_1$ = 53.46, SD $\sigma_1$ = 16.76</td>
<td>Mean $M_2$ = 37.64, SD $\sigma_2$ = 15.36</td>
<td>9.57**</td>
</tr>
<tr>
<td>2</td>
<td>Non-verbal Intelligence</td>
<td>Mean $M_1$ = 45.94, SD $\sigma_1$ = 15.33</td>
<td>Mean $M_2$ = 25.26, SD $\sigma_2$ = 12.04</td>
<td>14.56**</td>
</tr>
<tr>
<td>3</td>
<td>Intelligence (Total)</td>
<td>Mean $M_1$ = 98.92, SD $\sigma_1$ = 24.32</td>
<td>Mean $M_2$ = 62.26, SD $\sigma_2$ = 18.96</td>
<td>16.32**</td>
</tr>
<tr>
<td>4</td>
<td>Fluency</td>
<td>Mean $M_1$ = 79.71, SD $\sigma_1$ = 16.42</td>
<td>Mean $M_2$ = 53.57, SD $\sigma_2$ = 13.73</td>
<td>16.78**</td>
</tr>
<tr>
<td>5</td>
<td>Flexibility</td>
<td>Mean $M_1$ = 30.10, SD $\sigma_1$ = 22.18</td>
<td>Mean $M_2$ = 11.71, SD $\sigma_2$ = 7.02</td>
<td>10.79**</td>
</tr>
<tr>
<td>6</td>
<td>Originality</td>
<td>Mean $M_1$ = 20.25, SD $\sigma_1$ = 13.18</td>
<td>Mean $M_2$ = 11.61, SD $\sigma_2$ = 8.88</td>
<td>14.50**</td>
</tr>
<tr>
<td>7</td>
<td>Verbal Scientific Creativity</td>
<td>Mean $M_1$ = 107.42, SD $\sigma_1$ = 24.21</td>
<td>Mean $M_2$ = 66.24, SD $\sigma_2$ = 12.89</td>
<td>20.55**</td>
</tr>
<tr>
<td>8</td>
<td>Non-verbal Scientific Creativity</td>
<td>Mean $M_1$ = 22.67, SD $\sigma_1$ = 9.59</td>
<td>Mean $M_2$ = 9.36, SD $\sigma_2$ = 4.08</td>
<td>17.46**</td>
</tr>
<tr>
<td>9</td>
<td>Scientific Creativity (Total)</td>
<td>Mean $M_1$ = 130.06, SD $\sigma_1$ = 42.48</td>
<td>Mean $M_2$ = 76.90, SD $\sigma_2$ = 22.94</td>
<td>15.07**</td>
</tr>
<tr>
<td>10</td>
<td>Achievement Motivation</td>
<td>Mean $M_1$ = 43.73, SD $\sigma_1$ = 8.06</td>
<td>Mean $M_2$ = 36.62, SD $\sigma_2$ = 6.69</td>
<td>9.32**</td>
</tr>
<tr>
<td>11</td>
<td>Home Environment</td>
<td>Mean $M_1$ = 106.82, SD $\sigma_1$ = 28.20</td>
<td>Mean $M_2$ = 79.64, SD $\sigma_2$ = 19.99</td>
<td>10.79**</td>
</tr>
</tbody>
</table>

**shows significance at 0.01 level

(i) Table 4.21 shows that all the eleven variables are capable of discriminating between the High and Low Achievement groups of Private school subjects. The discriminating variables in the order of importance are:

1. Verbal Scientific Creativity (CR = 20.55)
2. Non-verbal Scientific Creativity (CR = 17.46)
3. Fluency (CR = 16.78)
4. Intelligence (Total) (CR = 16.32)
5. Scientific Creativity (Total) (CR = 15.07)
6. Non-verbal Intelligence (CR = 14.56)
7. Originality (CR = 14.50)
8. Home Environment (CR = 10.79)
9. Flexibility (CR = 10.79)
10. Verbal Intelligence (CR = 9.57)
11. Achievement Motivation (CR = 9.32)

(ii) All these differences are significant well beyond 0.01 level. This indicates that the mean scores of High and Low Achievement groups of Private school subjects differ significantly with respect to the above eleven variables.

4.2 CORRELATION ANALYSIS

The ‘t’-tests discussed above are evidences of the direct or indirect relationship between the variables. Confirmatory evidences of these associations are desirable to interpret the obtained findings of ‘t’-tests with greater confidence. Accordingly, the extent and nature of the association between the select experimental variables has been worked out using the Karl Pearson’s Product Moment Correlation Method.

The correlations were scrutinised for significance against the null hypothesis (r = 0). It was examined to see whether the obtained ‘r’s could be treated as significant. The absolute value of ‘r’ should exceed $1/\sqrt{N} \times 2.58$ for significance at 0.01 level and $1/\sqrt{N} \times 1.96$ for significance at 0.05 level. Hence, the limits obtained are as follows:
(i) For the Total sample (N = 1120), limit for significance at 0.01 level is 0.0770 and at 0.05 level is 0.0585.

(ii) For Boys (N = 557), limit for significance at 0.01 level is 0.1094 and at 0.05 level is 0.0830.

(iii) For Girls (N = 563), limit for significance at 0.01 level is 0.1087 and at 0.05 level is 0.0826.

(iv) For Rural sample (N = 571), limit for significance at 0.01 level is 0.1101 and at 0.05 level is 0.0820.

(v) For Urban sample (N = 549), limit for significance at 0.01 level is 0.1079 and at 0.05 level is 0.0836.

(vi) For Government school sample (N = 535), limit for significance at 0.01 level is 0.1115 and at 0.05 level is 0.0847.

(vii) For Private school sample (N = 585), limit for significance at 0.01 level is 0.1067 at 0.01 level and at 0.05 level is 0.081.

(viii) For High Achievement group (N = 353), limit for significance at 0.01 level is 0.1373 and at 0.05 level is 0.1043.

(ix) For Average Achievement group (N = 416), limit for significance at 0.01 level is 0.1265 and at 0.05 level is 0.0960.

(x) For Low Achievement group (N = 351), limit for significance at 0.01 level is 0.1377 and at 0.05 level is 0.1046.

The 0.01 confidence interval denotes the interval outside which the population 'r' would lie at the specified level of probability, viz., 0.01 level. The 0.01 confidence interval of 'r' is \( r \pm 2.58 \) SE, which means that the probability
of 0.01 that the population \( r \) falls outside the interval \( r \pm 2.58 \text{SE} r \) and the probability is 0.99 that it lies within this interval.

The percentage variance (showing the overlap of the two variables) is an index that is helpful in understanding the extent of association between the variables. It gives an indication of the amount of overlap of a variable with the other variable in respect of its total variance. The percentage variance common to the two variables is given by \( r^2 \times 100 \).

Correlation analysis is done under the following heads:

4.2.1 Coefficients of Correlation between Achievement in Science and Independent Variables

4.2.2 Coefficients of Correlation between Independent Variables

4.2.1 Coefficients of Correlation between Achievement in Science and Independent Variables

The relationship between Achievement in Science and Independent variables namely, Intelligence, Scientific Creativity, Achievement Motivation and Home Environment are discussed here.

4.2.1.1 Relationship between Achievement in Science and Intelligence

The relationship between Achievement in Science and Verbal Intelligence, Non-verbal intelligence and intelligence are given in the following tables:

1. Relationship between Achievement in Science and Verbal Intelligence

Table 4.22 shows the correlations between Achievement in Science and Verbal Intelligence for the Total sample and relevant subsamples.
Table 4.22

Product Moment Coefficients of Correlation of Achievement in Science and Verbal Intelligence for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation ‘r’</th>
<th>SEr</th>
<th>Confidence Interval of ‘r’</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.5235**</td>
<td>0.0217</td>
<td>0.4676 to 0.5794</td>
<td>27.40</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.5468**</td>
<td>0.0297</td>
<td>0.4701 to 0.6234</td>
<td>29.89</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.4241**</td>
<td>0.0345</td>
<td>0.3349 to 0.5132</td>
<td>17.99</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.5126**</td>
<td>0.0309</td>
<td>0.4329 to 0.5922</td>
<td>26.28</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.5108**</td>
<td>0.0315</td>
<td>0.4295 to 0.5921</td>
<td>26.09</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.4510**</td>
<td>0.0344</td>
<td>0.3622 to 0.5398</td>
<td>20.34</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.5321**</td>
<td>0.0296</td>
<td>0.4577 to 0.6085</td>
<td>28.31</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.3108**</td>
<td>0.0480</td>
<td>0.1868 to 0.4348</td>
<td>9.66</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.2614**</td>
<td>0.0457</td>
<td>0.1436 to 0.3792</td>
<td>6.83</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.2516**</td>
<td>0.0499</td>
<td>0.1226 to 0.3805</td>
<td>6.33</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level

Table 4.22 shows that the coefficients of correlation obtained are as follows:

(i) Total Sample

The coefficient of correlation obtained is 0.5235. It is significant at 0.01 level and the 0.01 confidence interval is from 0.4676 to 0.5794.

(ii) Boys

The coefficient of correlation obtained is 0.5468. It is significant at 0.01 level and the 0.01 confidence interval is from 0.4701 to 0.6234.

(iii) Girls

The coefficient of correlation obtained is 0.4241. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3349 to 0.5132.
(iv) Rural Subjects

The coefficient of correlation obtained is 0.5126. It is significant at 0.01 level and the 0.01 confidence interval is from 0.4329 to 0.5922.

(v) Urban Subjects

The coefficient of correlation obtained is 0.5108. It is significant at 0.01 level and the 0.01 confidence interval is from 0.4295 to 0.5921.

(vi) Government School Subjects

The coefficient of correlation obtained is 0.4510. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3622 to 0.5398.

(vii) Private School Subjects

The coefficient of correlation obtained is 0.5321. It is significant at 0.01 level and the 0.01 confidence interval is from 0.4577 to 0.6085.

(viii) High Achievement Group

The coefficient of correlation obtained is 0.3108. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1868 to 0.4348.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.2614. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1436 to 0.3792.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.2516. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1226 to 0.3805.

The following results show that Verbal Intelligence has a determining influence on one's Achievement in Science:
Interpretations

(a) For all samples, the coefficients of correlation obtained are significant at 0.01 level.

(b) The coefficients of correlation obtained are in the range of 0.2516 to 0.5468. The correlation is substantial or marked for the Total sample and subsamples of Boys, Girls, Rural, Urban, Government and Private school subjects. The correlation is low for the three achievement groups.

(c) All the obtained ‘r’ values are positive showing that any increase or decrease in verbal intelligence will be followed by a corresponding increase or decrease in Achievement in Science.

(d) The 0.01 confidence interval show the probable range of the corresponding population values.

(e) Considering the correlations are caused by common elements in both the variables as indicated by common shared variances, it may be said that nearly 27 percent of the variance of Achievement in Science is attributable to the variance in Verbal Intelligence of the subjects. In terms of common shared variance, the maximum overlap of Achievement in Science with Verbal Intelligence is about 30 percent while the minimum overlap is nearly 6 percent.
2. **Relationship between Achievement in Science and Non-verbal Intelligence**

Table 4.23 shows the correlations between Achievement in Science and Non-verbal Intelligence for the Total sample and relevant subsamples.

**Table 4.23**

Product Moment Coefficients of Correlation of Achievement in Science and Non-verbal Intelligence for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.3241**</td>
<td>0.0267</td>
<td>0.2889 to 0.3931</td>
<td>10.50</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.3815**</td>
<td>0.0362</td>
<td>0.2881 to 0.4749</td>
<td>14.55</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.2916**</td>
<td>0.0386</td>
<td>0.1921 to 0.3911</td>
<td>8.50</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.2785**</td>
<td>0.0386</td>
<td>0.1789 to 0.3781</td>
<td>7.76</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.3102**</td>
<td>0.0386</td>
<td>0.2107 to 0.4091</td>
<td>9.62</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.3051**</td>
<td>0.0392</td>
<td>0.2039 to 0.4063</td>
<td>9.31</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.3312**</td>
<td>0.0368</td>
<td>0.2362 to 0.4262</td>
<td>10.97</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.2819**</td>
<td>0.0489</td>
<td>0.1555 to 0.4083</td>
<td>7.95</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.2011**</td>
<td>0.0489</td>
<td>0.1555 to 0.4083</td>
<td>7.95</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.1914**</td>
<td>0.0514</td>
<td>0.0587 to 0.3241</td>
<td>3.66</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level**

Table 4.23 shows that the coefficients of correlation obtained are as follows:

(i) **Total Sample**

The coefficient of correlation obtained is 0.3241. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2889 to 0.3931.
(ii) **Boys**

The coefficient of correlation obtained is 0.3815. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2881 to 0.4749.

(iii) **Girls**

The coefficient of correlation obtained is 0.2916. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1921 to 0.3911.

(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.2785. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1789 to 0.3781.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.3102. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2107 to 0.4091.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.3051. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2039 to 0.4063.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.3312. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2362 to 0.4262.

(viii) **High Achievement Group**

The coefficient of correlation obtained is 0.2819. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1555 to 0.4083.
(ix) **Average Achievement Group**

The coefficient of correlation obtained is 0.2011. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0797 to 0.3225.

(x) **Low Achievement Group**

The coefficient of correlation obtained is 0.1914. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0587 to 0.3241.

**Interpretations**

The following results show that there is considerable relationship between Non-verbal Intelligence and Achievement in Science:

(a) For all samples, the coefficients of correlation obtained are significant at 0.01 level.

(b) The coefficients of correlation obtained are in the range of 0.1914 to 0.3815. The correlation may be described as low for all samples.

(c) All the obtained ’r’ values are positive showing that any increase or decrease in Non-verbal intelligence will be followed by a corresponding increase or decrease in Achievement in Science.

(d) The 0.01 confidence interval show the probable range of the corresponding population values.

(e) The percentage variance shared between the variables is 10.5%. That is nearly 11 percent of the variance of Achievement in Science is attributable to the variance in Non-verbal Intelligence of the subjects. In terms of common shared variance, the maximum overlap
of Achievement in Science with Non-verbal Intelligence is nearly 15 percent while the minimum overlap is nearly 4 percent.

3. Relationship between Achievement in Science and Intelligence (Total)

Table 4.24 shows the correlations between Achievement in Science and Intelligence (Total) for the Total sample and relevant subsamples.

Table 4.24
Product Moment Coefficients of Correlation of Achievement in Science and Intelligence (Total) for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.4614**</td>
<td>0.0235</td>
<td>0.4007 to .5221</td>
<td>21.28</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.5212**</td>
<td>0.0309</td>
<td>0.4416 to .6008</td>
<td>27.16</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.4015**</td>
<td>0.0354</td>
<td>0.3103 to .4927</td>
<td>16.12</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.4815**</td>
<td>0.0321</td>
<td>0.3986 to .5644</td>
<td>23.18</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.4212**</td>
<td>0.0351</td>
<td>0.3306 to .5118</td>
<td>17.74</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.4983**</td>
<td>0.0325</td>
<td>0.4144 to .5821</td>
<td>24.83</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.4216**</td>
<td>0.0339</td>
<td>0.3339 to .5093</td>
<td>17.77</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.3012**</td>
<td>0.0484</td>
<td>0.1763 to .4261</td>
<td>9.07</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.2814**</td>
<td>0.0451</td>
<td>0.1649 to .3979</td>
<td>7.91</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.2238**</td>
<td>0.0507</td>
<td>0.0929 to .3546</td>
<td>5.01</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level

Table 4.24 shows that the coefficients of correlation obtained are as follows:
(i) **Total Sample**

The coefficient of correlation obtained is 0.4614. It is significant at 0.01 level and the 0.01 confidence interval is from 0.4007 to 0.5221.

(ii) **Boys**

The coefficient of correlation obtained is 0.5212. It is significant at 0.01 level and the 0.01 confidence interval is from 0.4416 to 0.6008.

(iii) **Girls**

The coefficient of correlation obtained is 0.4015. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3103 to 0.4927.

(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.4815. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3986 to 0.5644.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.4212. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3306 to 0.5118.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.4983. It is significant at 0.01 level and the 0.01 confidence interval is from 0.4144 to 0.5821.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.4216. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3339 to 0.5093.
(viii) High Achievement Group

The coefficient of correlation obtained is 0.3012. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1763 to 0.4261.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.2814. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1649 to 0.3979.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.2238. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0929 to 0.3546.

Interpretations

The following results show that Intelligence has a determining influence on one's Achievement in Science:

(a) For all samples, the coefficients of correlation obtained are significant at 0.01 level.

(b) The coefficients of correlation obtained are in the range of 0.2238 to 0.5212. The correlation is substantial or marked for the Total sample and subsamples of Boys, Girls, Rural, Urban, Government and Private school subjects. The correlation is low for the three achievement groups.

(c) All the obtained ‘r’ values are positive showing that any increase or decrease in Intelligence will be followed by a corresponding increase or decrease in Achievement in Science.
(d) The 0.01 confidence interval show the probable range of the corresponding population values.

(e) The percentage variance shared between the variables is nearly 21 percent. That means 21 percent of the variance of Achievement in Science is attributable to the variance in Intelligence of the subjects. The maximum overall of Achievement in Science with Intelligence is nearly 27 percent while the minimum overlap is 5 percent.

4.2.1.2 Relationship between Achievement in Science and Scientific Creativity

The relationship between Achievement in Science and Scientific Creativity is given under the following tables:

1. Relationship between Achievement in Science and Fluency

Table 4.25 shows the correlations between Achievement in Science and Fluency for the Total sample and relevant subsamples.

Table 4.25

Product Moment Coefficients of Correlation of Achievement in Science and Fluency for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.4351**</td>
<td>0.0242</td>
<td>0.4330 to .4976</td>
<td>18.93</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.4123**</td>
<td>0.0352</td>
<td>0.3216 to .5030</td>
<td>16.99</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.4213**</td>
<td>0.0347</td>
<td>0.3319 to .5107</td>
<td>17.75</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.3935**</td>
<td>0.0354</td>
<td>0.3022 to .4848</td>
<td>15.48</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.3642**</td>
<td>0.0370</td>
<td>0.2687 to .4597</td>
<td>13.26</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.4245**</td>
<td>0.0354</td>
<td>0.3329 to .5159</td>
<td>18.02</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.4203**</td>
<td>0.0340</td>
<td>0.3325 to .5081</td>
<td>17.66</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.3010**</td>
<td>0.0482</td>
<td>0.1766 to .4267</td>
<td>9.06</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.3818**</td>
<td>0.0418</td>
<td>0.2737 to .4899</td>
<td>14.57</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.1818**</td>
<td>0.0516</td>
<td>0.0487 to .3149</td>
<td>3.31</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level
Table 4.25 shows that the coefficients of correlation obtained are as follows:

(i) **Total Sample**

The coefficient of correlation obtained is 0.4351. It is significant at 0.01 level and the 0.01 confidence interval is from 0.4330 to 0.4796.

(ii) **Boys**

The coefficient of correlation obtained is 0.4123. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3216 to 0.5030.

(iii) **Girls**

The coefficient of correlation obtained is 0.4213. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3319 to 0.5107.

(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.3935. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3022 to 0.4848.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.3642. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2687 to 0.4597.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.4245. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3329 to 0.5159.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.4203. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3325 to 0.5081.
(viii) High Achievement Group

The coefficient of correlation obtained is 0.3010. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1766 to 0.4267.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.3818. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2737 to 0.4899.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.1818. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0487 to 0.3149.

Interpretations

The following results show that Achievement in Science and Fluency are closely associated variables:

(a) For all samples, the coefficients of correlation obtained are significant at 0.01 level.

(b) The coefficients of correlation obtained are in the range of 0.1818 to 0.4351. The correlation is substantial or marked for the Total sample and subsamples of Boys, Girls, Government and Private school subjects. The correlation may be described as low or slight for subsamples of Rural, Urban, High and Average Achievement groups. For Low Achievement group, the correlation is negligible.

(c) All the obtained 'r' values are positive showing that any increase or decrease in Fluency will be followed by a corresponding increase or decrease in Achievement in Science.
(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance shared between the variables is nearly 19 percent. That means 19 percent of the variance of Achievement in Science is attributable to the variance in Fluency of the subjects. The maximum overlap of Achievement in Science with Fluency is 18.93 percent and the minimum overlap is about 3 percent.

2. Relationship between Achievement in Science and Flexibility

Table 4.26 shows the correlations between Achievement in Science and Flexibility for the Total sample and relevant subsamples.

Table 4.26

Product Moment Coefficients of Correlation of Achievement in Science and Flexibility for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SER</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.4013**</td>
<td>0.0248</td>
<td>0.3462 to 0.4744</td>
<td>16.83</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.400**</td>
<td>0.0356</td>
<td>0.3082 to 0.4918</td>
<td>16.75</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.4213**</td>
<td>0.0347</td>
<td>0.3319 to 0.5107</td>
<td>17.75</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.3935**</td>
<td>0.0354</td>
<td>0.3022 to 0.4848</td>
<td>15.48</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.4138**</td>
<td>0.0354</td>
<td>0.3225 to 0.5051</td>
<td>17.12</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.4244**</td>
<td>0.0354</td>
<td>0.3329 to 0.5159</td>
<td>18.01</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.4108**</td>
<td>0.0344</td>
<td>0.3221 to 0.4995</td>
<td>16.87</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.4242**</td>
<td>0.0436</td>
<td>0.3116 to 0.5368</td>
<td>17.99</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.2218**</td>
<td>0.0466</td>
<td>0.1015 to 0.3421</td>
<td>4.91</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.1108*</td>
<td>0.0527</td>
<td>-0.0251 to 0.2468</td>
<td>1.23</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level
* indicates significance at 0.05 level
Table 4.26 shows that the coefficients of correlation obtained are as follows:

(i) **Total Sample**

The coefficient of correlation obtained is 0.4103. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3462 to 0.4744.

(ii) **Boys**

The coefficient of correlation obtained is 0.400. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3082 to 0.4918.

(iii) **Girls**

The coefficient of correlation obtained is 0.4213. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3319 to 0.5107.

(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.3935. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3022 to 0.4848.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.4138. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3225 to 0.5051.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.4244. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3329 to 0.5159.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.4108. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3221 to 0.4995.
(viii) **High Achievement Group**

The coefficient of correlation obtained is 0.4242. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3116 to 0.5368.

(ix) **Average Achievement Group**

The coefficient of correlation obtained is 0.2218. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1015 to 0.3421.

(x) **Low Achievement Group**

The coefficient of correlation obtained is 0.1108. It is significant at 0.05 level and the 0.05 confidence interval is from -0.0251 to 0.2468.

**Interpretations**

The following results show that there is close relationship between Achievement in Science and Flexibility:

(a) The coefficients of correlation obtained are significant at 0.01 level for all samples except for the Low Achievement group.

(b) The coefficients of correlation obtained are in the range of 0.1108 to 0.4244. The correlation is substantial or marked for the Total sample and subsamples of Boys, Girls, Urban, Government and Private school and for the High Achievement group. The correlation is low for the Average Achievement group and negligible for the Low Achievement group.

(c) All the obtained ‘r’ values are positive showing that any increase or decrease in Flexibility will be followed by a corresponding increase or decrease in Achievement in Science.
(d) The 0.01 confidence interval show the probable range of the corresponding population values.

(e) The percentage variance shared between the variables is nearly 17 percent. That means nearly 17 percent of the variance of Achievement in Science is attributable to the variance in one’s Flexibility. In terms of common shared variance, the maximum overlap of Achievement in Science with Flexibility is nearly 18 percent and minimum overlap is about 1 percent.

3. Relationship between Achievement in Science and Originality

Table 4.27 shows the correlations between Achievement in Science and Originality for the Total sample and relevant subsamples.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation ‘r’</th>
<th>SEr</th>
<th>Confidence Interval of ‘r’</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.3235**</td>
<td>0.0268</td>
<td>0.2545 to 0.3925</td>
<td>10.47</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.3232**</td>
<td>0.0379</td>
<td>0.2253 to 0.4211</td>
<td>10.45</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.3835**</td>
<td>0.0359</td>
<td>0.2908 to 0.4762</td>
<td>14.71</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.3014**</td>
<td>0.0380</td>
<td>0.2032 to 0.3996</td>
<td>9.08</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.3018**</td>
<td>0.0888</td>
<td>0.2017 to 0.4019</td>
<td>9.11</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.3925**</td>
<td>0.0366</td>
<td>0.2981 to 0.4869</td>
<td>15.41</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.3851**</td>
<td>0.0352</td>
<td>0.2942 to 0.4759</td>
<td>14.83</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.2914**</td>
<td>0.0487</td>
<td>0.1657 to 0.4171</td>
<td>8.49</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.1814**</td>
<td>0.0516</td>
<td>0.0482 to 0.3146</td>
<td>3.29</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.1120*</td>
<td>0.0527</td>
<td>-0.0239 to 0.2479</td>
<td>1.25</td>
</tr>
</tbody>
</table>

** indicates significance at 0.01 level
* indicates significance at 0.05 level
Table 4.27 shows that the coefficients of correlation obtained are as follows:

(i) **Total Sample**

The coefficient of correlation obtained is 0.3235. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2545 to 0.3925.

(ii) **Boys**

The coefficient of correlation obtained is 0.3232. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2253 to 0.4211.

(iii) **Girls**

The coefficient of correlation obtained is 0.3835. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2908 to 0.4762.

(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.3014. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2032 to 0.3996.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.3018. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2017 to 0.4019.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.3925. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2981 to 0.4869.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.3851. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2942 to 0.4759.
(viii) High Achievement Group

The coefficient of correlation obtained is 0.2914. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1657 to 0.4171.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.1814. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0482 to 0.3146.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.1120. It is significant at 0.05 level and the 0.05 confidence interval is from 0.0087 to 0.2153.

Interpretations

The following results show that there is considerable relationship between Achievement in Science and Originality:

(a) The coefficients of correlation obtained are significant at 0.01 level for all sample except for the Low Achievement group.

(b) The coefficients of correlation obtained are in the range of 0.1120 to 0.3925. The correlation may be described as low or slight for all samples.

(c) All the obtained ‘r’ values are positive showing that any increase or decrease in Originality will be followed by a corresponding increase or decrease in Achievement in Science.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.
The percentage variance shared between the variables is nearly about 10 percent. That means about 10 percent of the variance of Achievement in Science is to be attributed to the variance in one's Originality. In terms of common shared variance, the maximum overlap of Achievement in Science with Originality is about 15 percent and the minimum overlap is about 1 percent.

4. **Relationship between Achievement in Science and Verbal Scientific Creativity**

Table 4.28 shows the correlations between Achievement in Science and Verbal Scientific Creativity for the Total sample and relevant subsamples.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.4732**</td>
<td>0.0232</td>
<td>0.4134 to 0.5330</td>
<td>22.39</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.4112**</td>
<td>0.0352</td>
<td>0.3204 to 0.5020</td>
<td>16.91</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.4032**</td>
<td>0.0353</td>
<td>0.3121 to 0.4943</td>
<td>16.26</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.4833**</td>
<td>0.0321</td>
<td>0.4005 to 0.5661</td>
<td>23.35</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.4111**</td>
<td>0.0355</td>
<td>0.3159 to 0.5026</td>
<td>16.90</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.4618**</td>
<td>0.0340</td>
<td>0.3740 to 0.5496</td>
<td>21.33</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.4312**</td>
<td>0.0337</td>
<td>0.3444 to 0.5180</td>
<td>18.59</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.4012**</td>
<td>0.0447</td>
<td>0.2859 to 0.5164</td>
<td>16.09</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.2001**</td>
<td>0.0471</td>
<td>0.0787 to 0.3215</td>
<td>4.00</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.1032</td>
<td></td>
<td></td>
<td>1.06</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level
Table 4.28 shows that the coefficients of correlation obtained are as follows:

(i) Total Sample

The coefficient of correlation obtained is 0.4732. It is significant at 0.01 level and the 0.01 confidence interval is from 0.4134 to 0.5330.

(ii) Boys

The coefficient of correlation obtained is 0.4112. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3204 to 0.5020.

(iii) Girls

The coefficient of correlation obtained is 0.4032. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3121 to 0.4943.

(iv) Rural Subjects

The coefficient of correlation obtained is 0.4883. It is significant at 0.01 level and the 0.01 confidence interval is from 0.4005 to 0.5661.

(v) Urban Subjects

The coefficient of correlation obtained is 0.4111. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3159 to 0.5026.

(vi) Government School Subjects

The coefficient of correlation obtained is 0.4618. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3740 to 0.5496.

(vii) Private School Subjects

The coefficient of correlation obtained is 0.4312. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3444 to 0.5180.
(viii) **High Achievement Group**

The coefficient of correlation obtained is 0.4012. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2859 to 0.5164.

(ix) **Average Achievement Group**

The coefficient of correlation obtained is 0.2007. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0787 to 0.3215.

(x) **Low Achievement Group**

The coefficient of correlation obtained is 0.1032. It is not significant at any level.

**Interpretations**

The following results show that there is close association between Achievement in Science and Verbal Scientific Creativity:

(a) The coefficients of correlation obtained are significant at 0.01 level for all sample except for the Low Achievement group. The obtained ‘r’ value is not significant for the Low Achievement group.

(b) The coefficients of correlation obtained are in the range of 0.1032 to 0.4833. The relationship may be described as substantial or marked for all samples except for the Average and Low Achievement groups. The correlation is negligible for the Average and Low Achievement groups.

(c) All the obtained ‘r’ values are positive showing that any increase or decrease in Verbal Creativity will be followed by a corresponding increase or decrease in Achievement in Science.
(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance shared between the variables is about 22 percent. That means about 22 percent of the variance of Achievement in Science is to be attributed to the variance in one's Verbal Creativity. In terms of common shared variance, the maximum overlap of Achievement in Science with Verbal Scientific Creativity is about 23 percent and the minimum overlap is about 1 percent.

5. Relationship between Achievement in Science and Non-verbal Scientific Creativity

Table 4.29 shows the correlations between Achievement in Science and Non-verbal Scientific Creativity for the Total sample and relevant subsamples.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.3218**</td>
<td>0.0267</td>
<td>0.2528 to 0.3908</td>
<td>10.35</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.2832**</td>
<td>0.0389</td>
<td>0.1826 to 0.3838</td>
<td>8.02</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.3831**</td>
<td>0.0359</td>
<td>0.2903 to 0.4759</td>
<td>14.67</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.3737**</td>
<td>0.0360</td>
<td>0.2808 to 0.4666</td>
<td>13.97</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.3832**</td>
<td>0.0364</td>
<td>0.2893 to 0.4771</td>
<td>14.68</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.3200**</td>
<td>0.0388</td>
<td>0.2199 to 0.4201</td>
<td>1.02</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.2162**</td>
<td>0.0394</td>
<td>0.1145 to 0.3179</td>
<td>4.67</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.2210**</td>
<td>0.0506</td>
<td>0.0904 to 0.3516</td>
<td>4.88</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.1912**</td>
<td>0.0472</td>
<td>0.0693 to 0.3131</td>
<td>3.66</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.1820**</td>
<td>0.0516</td>
<td>0.0489 to 0.3151</td>
<td>3.31</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level
Table 4.29 shows that the coefficients of correlation obtained are as follows:

(i) **Total Sample**

The coefficient of correlation obtained is 0.3218. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2528 to 0.3908.

(ii) **Boys**

The coefficient of correlation obtained is 0.2832. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1826 to 0.3838.

(iii) **Girls**

The coefficient of correlation obtained is 0.3831. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2903 to 0.4759.

(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.3737. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2808 to 0.4666.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.3832. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2893 to 0.4771.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.3200. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2199 to 0.4201.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.2162. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1145 to 0.3179.
(viii) High Achievement Group

The coefficient of correlation obtained is 0.2210. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0904 to 0.3516.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.1912. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0693 to 0.3131.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.1820. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0489 to 0.3151.

Interpretations

The following results show that there is considerable relationship between Achievement in Science and Non-verbal Scientific Creativity:

(a) The coefficients of correlation obtained are significant at 0.01 level.

(b) The coefficients of correlation obtained are in the range of 0.1820 to 0.3832. The relationship between the variables may be described as low.

(c) All the obtained ‘r’ values are positive showing that any increase or decrease in Non-verbal Creativity will be followed by a corresponding increase or decrease in Achievement in Science.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance shared between the variables is about 10 percent. This shows that 10 percent of the variance of Achievement...
in Science is to be attributed to the variance in one’s Non-verbal Scientific Creativity. In terms of common shared variance, the maximum overlap of Achievement in Science with Non-verbal Scientific Creativity is about 15 percent and the minimum overlap is roughly 3 percent.

6. Relationship between Achievement in Science and Scientific Creativity (Total)

Table 4.30 shows the correlations between Achievement in Science and Scientific Creativity (Total) for the Total sample and relevant subsamples.

Table 4.30
Product Moment Coefficients of Correlation of Achievement in Science and Scientific Creativity (Total) for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.4832**</td>
<td>0.0229</td>
<td>0.4241 to 0.5423</td>
<td>23.35</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.4258**</td>
<td>0.0347</td>
<td>0.3363 to 0.5153</td>
<td>18.13</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.4532**</td>
<td>0.0335</td>
<td>0.3688 to 0.5396</td>
<td>20.54</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.4701**</td>
<td>0.0326</td>
<td>0.3859 to 0.5542</td>
<td>22.09</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.4452**</td>
<td>0.0342</td>
<td>0.3569 to 0.5335</td>
<td>19.82</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.4839**</td>
<td>0.0331</td>
<td>0.3985 to 0.5693</td>
<td>23.41</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.4430**</td>
<td>0.0332</td>
<td>0.3573 to 0.5287</td>
<td>19.82</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.3832**</td>
<td>0.0454</td>
<td>0.2660 to 0.5004</td>
<td>14.68</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.2121**</td>
<td>0.0468</td>
<td>0.0913 to 0.3329</td>
<td>4.49</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.1039</td>
<td></td>
<td></td>
<td>1.07</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level

Table 4.30 shows that the coefficients of correlation obtained are as follows:
(i) **Total Sample**

The coefficient of correlation obtained is 0.4832. It is significant at 0.01 level and the 0.01 confidence interval is from 0.4241 to 0.5423.

(ii) **Boys**

The coefficient of correlation obtained is 0.4258. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3363 to 0.5153.

(iii) **Girls**

The coefficient of correlation obtained is 0.4532. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3668 to 0.5396.

(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.4701. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3859 to 0.5542.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.4452. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3569 to 0.5335.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.4839. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3985 to 0.5693.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.4430. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3573 to 0.5287.
(viii) High Achievement Group

The coefficient of correlation obtained is 0.3832. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2660 to 0.5004.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.2121. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0913 to 0.3329.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.1039. It is not significant at any level.

Interpretations

The following results show that Achievement in Science is closely associated Scientific Creativity (Total):

(a) The coefficients of correlation obtained are significant at 0.01 level for all samples except for the Low Achievement group. The obtained ‘r’ value is not significant for the Low Achievement group.

(b) The coefficients of correlation obtained are in the range of 0.1039 to 0.4839. The relationship may be described as substantial or marked for the Total sample, Boys, Girls, Rural, Urban, Government and Private school subjects. The relationship is low or slight for the High and Average Achievement groups. The ‘r’ is negligible for the Low Achievement group.
(c) All the obtained 'r' values are positive showing that any increase or decrease in Scientific Creativity will be followed by a corresponding increase or decrease in Achievement in Science.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance shared between the variables is about 23.35 percent. That means, about 23 percent of the variance of Achievement in Science is to be attributed to the variance in one's Scientific Creativity. In terms of common shared variance, the maximum overlap of Achievement in Science with Scientific Creativity (Total) is 23.41 percent and the minimum overlap is about 1 percent.

4.2.1.3 Relationship between Achievement in Science and Achievement Motivation

Table 4.31 shows the correlations between Achievement in Science and Achievement Motivation for the Total sample and relevant subsamples.
Table 4.31
Product Moment Coefficients of Correlation of Achievement in Science
and Achievement Motivation for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation ‘r’</th>
<th>SEr</th>
<th>Confidence Interval of ‘r’</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.1818**</td>
<td>0.0289</td>
<td>0.1073 to 0.2563</td>
<td>3.30</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.1921**</td>
<td>0.0408</td>
<td>0.0866 to 0.2974</td>
<td>3.69</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.1664**</td>
<td>0.0409</td>
<td>0.0607 to 0.2721</td>
<td>2.77</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.1312**</td>
<td>0.0411</td>
<td>0.0251 to 0.2371</td>
<td>1.72</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.1415**</td>
<td>0.0418</td>
<td>0.0336 to 0.2494</td>
<td>2.00</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.1325**</td>
<td>0.0425</td>
<td>0.0229 to 0.2421</td>
<td>1.76</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.1145**</td>
<td>0.0408</td>
<td>0.0092 to 0.2197</td>
<td>1.31</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.2012**</td>
<td>0.0511</td>
<td>0.0694 to 0.3329</td>
<td>4.04</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.1215*</td>
<td>0.0483</td>
<td>-0.0031 to 0.2461</td>
<td>1.48</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.1093*</td>
<td>0.0527</td>
<td>-0.0266 to 0.2452</td>
<td>1.19</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level
*indicates significance at 0.05 level

Table 4.31 shows that the coefficients of correlation obtained are as follows:

(i) **Total Sample**

The coefficient of correlation obtained is 0.1818. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1073 to 0.2563.

(ii) **Boys**

The coefficient of correlation obtained is 0.1921. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0866 to 0.2974.
(iii) Girls

The coefficient of correlation obtained is 0.1664. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0607 to 0.2721.

(iv) Rural Subjects

The coefficient of correlation obtained is 0.1312. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0251 to 0.2373.

(v) Urban Subjects

The coefficient of correlation obtained is 0.1415. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0336 to 0.2494.

(vi) Government School Subjects

The coefficient of correlation obtained is 0.1325. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0229 to 0.2421.

(vii) Private School Subjects

The coefficient of correlation obtained is 0.1145. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0092 to 0.2195.

(viii) High Achievement Group

The coefficient of correlation obtained is 0.2012. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0694 to 0.3329.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.1215. It is significant at 0.05 level and the 0.05 confidence interval is from -0.0031 to 0.2461.
Analysis of Data

(x) Low Achievement Group

The coefficient of correlation obtained is 0.1093. It is significant at 0.05 level and the 0.05 confidence interval is from -0.0266 to 0.2452.

Interpretations

The following results show that there is low relationship between Achievement in Science and Achievement Motivation:

(a) The coefficients of correlation obtained are significant at 0.01 level for all samples except for the Average and Low Achievement group. The 'r' values of Average and Low Achievement groups are significant at 0.05 level.

(b) The coefficients of correlation obtained are in the range of 0.1093 to 0.2012. The relationship may be described as very low.

(c) All the obtained 'r' values are positive showing that any increase or decrease in Achievement Motivation will be followed by a corresponding increase or decrease in Achievement in Science.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance shared between the variables is about 4 percent. That means, nearly 4 percent of the variance of Achievement in Science is to be attributed to the variance in one's Achievement Motivation. In terms of common shared variance, the maximum overlap of Achievement in Science with Achievement Motivation is 3.69 percent and the minimum overlap is about 1 percent.
4.2.1.4 Relationship between Achievement in Science and Home Environment

Table 4.32 shows the correlations between Achievement in Science and Home Environment for the Total sample and relevant subsamples.

Table 4.32
Product Moment Coefficients of Correlation of Achievement in Science and Home Environment for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.4814**</td>
<td>0.0229</td>
<td>0.4222 to 0.5406</td>
<td>23.17</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.5018**</td>
<td>0.0317</td>
<td>0.4200 to 0.5836</td>
<td>25.18</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.4210**</td>
<td>0.0347</td>
<td>0.3315 to 0.5105</td>
<td>17.72</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.5120**</td>
<td>0.0309</td>
<td>0.4323 to 0.5917</td>
<td>26.21</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.4012**</td>
<td>0.0358</td>
<td>0.3088 to 0.4936</td>
<td>16.09</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.4245**</td>
<td>0.0354</td>
<td>0.331 to 0.5159</td>
<td>18.02</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.4819**</td>
<td>0.0317</td>
<td>0.4000 to 0.5638</td>
<td>23.22</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.5314**</td>
<td>0.0382</td>
<td>0.4329 to 0.6299</td>
<td>28.24</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.4215**</td>
<td>0.0403</td>
<td>0.3175 to 0.5255</td>
<td>17.77</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.4930**</td>
<td>0.0404</td>
<td>0.3888 to 0.5972</td>
<td>24.30</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level

Table 4.32 shows that the coefficients of correlation obtained are as follows:

(i) Total Sample

The coefficient of correlation obtained is 0.4814. It is significant at 0.01 level and the 0.01 confidence interval is from 0.4222 to 0.5406.

(ii) Boys

The coefficient of correlation obtained is 0.5018. It is significant at 0.01 level and the 0.01 confidence interval is from 0.4200 to 0.5836.
(iii) Girls

The coefficient of correlation obtained is 0.4210. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3315 to 0.5105.

(iv) Rural Subjects

The coefficient of correlation obtained is 0.5120. It is significant at 0.01 level and the 0.01 confidence interval is from 0.4323 to 0.5917.

(v) Urban Subjects

The coefficient of correlation obtained is 0.4012. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3088 to 0.4936.

(vi) Government School Subjects

The coefficient of correlation obtained is 0.4245. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3331 to 0.5159.

(vii) Private School Subjects

The coefficient of correlation obtained is 0.4819. It is significant at 0.01 level and the 0.01 confidence interval is from 0.4000 to 0.5638.

(viii) High Achievement Group

The coefficient of correlation obtained is 0.5314. It is significant at 0.01 level and the 0.01 confidence interval is from 0.4329 to 0.6299.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.4215. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3175 to 0.5255.
Low Achievement Group

The coefficient of correlation obtained is 0.4930. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3888 to 0.5972.

Interpretations

The following results show that Home Environment has a determining influence on one's Achievement in Science:

(a) The coefficients of correlation obtained are significant at 0.01 level for all samples.

(b) The coefficients of correlation obtained are in the range of 0.4210 to 0.5314. The relationship between the variables may be described as substantial or marked.

(c) All the obtained ‘r’ values are positive showing that any increase or decrease in Home Environment will be followed by a corresponding increase or decrease in Achievement in Science.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance shared between the variables is about 23.17 percent. That means, nearly 23 percent of the variance of Achievement in Science is to be attributed to the variance in one’s Home Environment. In terms of common shared variance, the maximum overlap of Achievement in Science with Home Environment is about 28 percent and the minimum overlap is about 16 percent.
4.2.2 Relationship between Independent Variables

The relationship between the variables Intelligence, Scientific Creativity, Achievement Motivation and Home Environment are discussed below.

4.2.2.1 Relationship between Intelligence and Scientific Creativity

The relationship between Intelligence and scientific Creativity are given in the following tables:

1. Relationship between Verbal Intelligence and Fluency

Table 4.33 shows the correlations of Verbal Intelligence and Fluency for the Total sample and relevant subsamples.

Table 4.33
Product Moment Coefficients of Correlation of Verbal Intelligence and Fluency for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation ‘r’</th>
<th>SEr</th>
<th>Confidence Interval of ‘r’</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Total</td>
<td>0.4418**</td>
<td>0.0240</td>
<td>0.3798 to 0.5038</td>
<td>19.52</td>
</tr>
<tr>
<td>2</td>
<td>Boys</td>
<td>0.4201**</td>
<td>0.0349</td>
<td>0.3301 to 0.5101</td>
<td>17.65</td>
</tr>
<tr>
<td>3</td>
<td>Girls</td>
<td>0.4190**</td>
<td>0.0347</td>
<td>0.3294 to 0.5086</td>
<td>17.56</td>
</tr>
<tr>
<td>4</td>
<td>Rural</td>
<td>0.4030**</td>
<td>0.0351</td>
<td>0.3126 to 0.4934</td>
<td>16.24</td>
</tr>
<tr>
<td>5</td>
<td>Urban</td>
<td>0.3989**</td>
<td>0.0359</td>
<td>0.3063 to 0.4915</td>
<td>15.91</td>
</tr>
<tr>
<td>6</td>
<td>Government</td>
<td>0.4312**</td>
<td>0.0352</td>
<td>0.3186 to 0.5220</td>
<td>18.59</td>
</tr>
<tr>
<td>7</td>
<td>Private</td>
<td>0.4203**</td>
<td>0.0340</td>
<td>0.3325 to 0.5081</td>
<td>17.67</td>
</tr>
<tr>
<td>8</td>
<td>High Ach. Group</td>
<td>0.2815**</td>
<td>0.0490</td>
<td>0.1551 to 0.4079</td>
<td>7.92</td>
</tr>
<tr>
<td>9</td>
<td>Average Ach. Group</td>
<td>0.3108**</td>
<td>0.0443</td>
<td>0.1965 to 0.4251</td>
<td>9.66</td>
</tr>
<tr>
<td>10</td>
<td>Low Ach. Group</td>
<td>0.2018**</td>
<td>0.0512</td>
<td>0.0697 to 0.3339</td>
<td>4.07</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level
Table 4.33 shows that the coefficients of correlation obtained are as follows:

(i) **Total Sample**

The coefficient of correlation obtained is 0.4418. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3798 to 0.5038.

(ii) **Boys**

The coefficient of correlation obtained is 0.4201. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3301 to 0.5101.

(iii) **Girls**

The coefficient of correlation obtained is 0.4190. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3294 to 0.5086.

(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.4030. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3126 to 0.4934.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.3989. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3063 to 0.4915.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.4312. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3186 to 0.5220.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.4203. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3325 to 0.5081.
(viii) **High Achievement Group**

The coefficient of correlation obtained is 0.2815. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1551 to 0.4079.

(ix) **Average Achievement Group**

The coefficient of correlation obtained is 0.3108. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1965 to 0.4257.

(x) **Low Achievement Group**

The coefficient of correlation obtained is 0.2018. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0697 to 0.3339.

**Interpretations**

The following results show that Verbal Intelligence has close relationship with Fluency:

(a) The coefficients of correlation obtained are significant at 0.01 level for all samples.

(b) The coefficients of correlation obtained are in the range of 0.2018 to 0.4418. The relationship between the variables may be described as substantial or marked for the Total sample and subsamples of Boys, Girls, Rural, Government and Private schools.

(c) All the obtained ‘r’ values are positive showing that any increase or decrease in Fluency will be attended by a corresponding increase or decrease in Verbal Intelligence.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.
(e) The percentage variance shared between the variables is 19.52 percent. That is, roughly 20 percent of the variance of Verbal Intelligence is to be attributed to the variance in one's Fluency. In terms of common shared variance, the maximum overlap between the variables is about 20 percent and minimum overlap is about 4 percent.

2. **Relationship between Verbal Intelligence and Flexibility**

Table 4.34 shows the correlations of Verbal Intelligence and Flexibility for the Total sample and relevant subsamples.

**Table 4.34**

**Product Moment Coefficients of Correlation of Verbal Intelligence and Flexibility for the Total Sample and Subsamples**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Total</td>
<td>0.3832**</td>
<td>0.0255</td>
<td>0.3179 to 0.4484</td>
<td>14.68</td>
</tr>
<tr>
<td>2</td>
<td>Boys</td>
<td>0.4008**</td>
<td>0.0356</td>
<td>0.3090 to 0.4926</td>
<td>16.06</td>
</tr>
<tr>
<td>3</td>
<td>Girls</td>
<td>0.3737**</td>
<td>0.0363</td>
<td>0.2802 to 0.4672</td>
<td>13.97</td>
</tr>
<tr>
<td>4</td>
<td>Rural</td>
<td>0.3555**</td>
<td>0.0366</td>
<td>0.2612 to 0.4498</td>
<td>12.64</td>
</tr>
<tr>
<td>5</td>
<td>Urban</td>
<td>0.3833**</td>
<td>0.0364</td>
<td>0.2894 to 0.4772</td>
<td>14.69</td>
</tr>
<tr>
<td>6</td>
<td>Government</td>
<td>0.3257**</td>
<td>0.0386</td>
<td>0.2259 to 0.4254</td>
<td>10.61</td>
</tr>
<tr>
<td>7</td>
<td>Private</td>
<td>0.3992**</td>
<td>0.0348</td>
<td>0.3095 to 0.4889</td>
<td>15.94</td>
</tr>
<tr>
<td>8</td>
<td>High Ach. Group</td>
<td>0.2302**</td>
<td>0.0504</td>
<td>0.1002 to 0.3602</td>
<td>5.29</td>
</tr>
<tr>
<td>9</td>
<td>Average Ach. Group</td>
<td>0.2814**</td>
<td>0.0451</td>
<td>0.1649 to 0.3979</td>
<td>7.92</td>
</tr>
<tr>
<td>10</td>
<td>Low Ach. Group</td>
<td>0.2212**</td>
<td>0.0508</td>
<td>0.2106 to 0.3522</td>
<td>4.89</td>
</tr>
</tbody>
</table>

*indicates significance at 0.01 level*

Table 4.34 shows that the coefficients of correlation obtained are as follows:
(i) **Total Sample**

The coefficient of correlation obtained is 0.3832. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3179 to 0.4484.

(ii) **Boys**

The coefficient of correlation obtained is 0.4008. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3090 to 0.4926.

(iii) **Girls**

The coefficient of correlation obtained is 0.3737. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2802 to 0.4672.

(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.3555. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2612 to 0.4498.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.3833. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2894 to 0.4772.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.3257. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2259 to 0.4254.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.3992. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3095 to 0.4889.
(viii) High Achievement Group

The coefficient of correlation obtained is 0.2302. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1002 to 0.3602.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.2814. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1649 to 0.3979.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.2212. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2106 to 0.3522.

Interpretations

The following results show that Verbal Intelligence and Flexibility are related to some extent:

(a) For all samples, the coefficients of correlation obtained are significant at 0.01 level.

(b) The coefficients of correlation obtained are in the range of 0.2212 to 0.4008. The relationship between the variables may be explained as low or slight.

(c) All the obtained ‘r’ values are positive showing that any increase or decrease in Flexibility will be attended by a corresponding increase or decrease in Verbal Intelligence.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.
(e) The percentage variance shared between the variables is about 15 percent. That shows that about 15 percent of the variance of Verbal Intelligence is to be attributed to the variance in one's Flexibility. In terms of common shared variance, the maximum overlap of Verbal Intelligence with Flexibility is 16 percent and minimum overlap is nearly 5 percent.

3. Relationship between Verbal Intelligence and Originality

Table 4.35 shows the correlations of Verbal Intelligence and Originality for the Total sample and relevant subsamples.

Table 4.35
Product Moment Coefficients of Correlation of Verbal Intelligence and Originality for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Total</td>
<td>0.2892**</td>
<td>0.0294</td>
<td>0.2186 to 0.3598</td>
<td>8.36</td>
</tr>
<tr>
<td>2</td>
<td>Boys</td>
<td>0.3014**</td>
<td>0.0385</td>
<td>0.2020 to 0.4008</td>
<td>9.08</td>
</tr>
<tr>
<td>3</td>
<td>Girls</td>
<td>0.2009**</td>
<td>0.0404</td>
<td>0.0966 to 0.3052</td>
<td>4.03</td>
</tr>
<tr>
<td>4</td>
<td>Rural</td>
<td>0.2230**</td>
<td>0.0398</td>
<td>0.1204 to 0.3256</td>
<td>4.97</td>
</tr>
<tr>
<td>5</td>
<td>Urban</td>
<td>0.2212**</td>
<td>0.0406</td>
<td>0.1165 to 0.3259</td>
<td>4.89</td>
</tr>
<tr>
<td>6</td>
<td>Government</td>
<td>0.2019**</td>
<td>0.0415</td>
<td>0.049 to 0.3089</td>
<td>4.08</td>
</tr>
<tr>
<td>7</td>
<td>Private</td>
<td>0.1998**</td>
<td>0.0397</td>
<td>0.0974 to 0.3022</td>
<td>3.99</td>
</tr>
<tr>
<td>8</td>
<td>High Ach. Group</td>
<td>0.1814**</td>
<td>0.0515</td>
<td>0.0486 to 0.3142</td>
<td>3.29</td>
</tr>
<tr>
<td>9</td>
<td>Average Ach. Group</td>
<td>0.2012**</td>
<td>0.0470</td>
<td>0.0798 to 0.3225</td>
<td>4.05</td>
</tr>
<tr>
<td>10</td>
<td>Low Ach. Group</td>
<td>0.1213*</td>
<td>0.0526</td>
<td>0.0182 to 0.2244</td>
<td>1.47</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level
*indicates significance at 0.05 level

Table 4.35 shows that the coefficients of correlation obtained are as follows:
(i) **Total Sample**

The coefficient of correlation obtained is 0.2892. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2186 to 0.3598.

(ii) **Boys**

The coefficient of correlation obtained is 0.3014. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2020 to 0.4008.

(iii) **Girls**

The coefficient of correlation obtained is 0.2009. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0966 to 0.3052.

(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.2230. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1204 to 0.3256.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.2212. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1165 to 0.3259.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.2019. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0949 to 0.3089.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.1998. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0974 to 0.3022.
(viii) **High Achievement Group**

The coefficient of correlation obtained is 0.1814. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0486 to 0.3142.

(ix) **Average Achievement Group**

The coefficient of correlation obtained is 0.2012. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0798 to 0.3225.

(x) **Low Achievement Group**

The coefficient of correlation obtained is 0.1213. It is significant at 0.05 level and the 0.05 confidence interval is from 0.0182 to 0.2244.

**Interpretations**

The following results show that there exists slight relationship between Verbal Intelligence and Originality:

(a) The coefficients of correlation obtained for all samples are significant at 0.01 level except for the Low Achievement group, whose ‘r’ is significant at 0.05 level.

(b) The coefficients of correlation obtained are in the range of 0.1213 to 0.3014. The relationship between the variables may be explained as low or slight.

(c) All the obtained ‘r’ values are positive showing that any increase or decrease in originality will be followed by a corresponding increase or decrease in Verbal Intelligence.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.
(e) The percentage variance shared between the variables is about 8 percent, which means 8 percent of the variance in the Verbal Intelligence is to be attributed to the variance in one’s Originality. In terms of common shared variance, the maximum overlap of Verbal Intelligence with Originality is about 9 percent and minimum overlap is 1.47 percent.

4. Relationship between Verbal Intelligence and Verbal Scientific Creativity

Table 4.36 shows the correlations of Verbal Intelligence and Verbal Scientific Creativity for the Total sample and relevant subsamples.

**Table 4.36**

Product Moment Coefficients of Correlation of Verbal Intelligence and Verbal Scientific Creativity for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Total</td>
<td>0.4012**</td>
<td>0.0251</td>
<td>0.3365 to 0.4659</td>
<td>16.09</td>
</tr>
<tr>
<td>2</td>
<td>Boys</td>
<td>0.4180**</td>
<td>0.0349</td>
<td>0.3278 to 0.5082</td>
<td>17.47</td>
</tr>
<tr>
<td>3</td>
<td>Girls</td>
<td>0.3919**</td>
<td>0.0357</td>
<td>0.2999 to 0.4839</td>
<td>15.36</td>
</tr>
<tr>
<td>4</td>
<td>Rural</td>
<td>0.3985**</td>
<td>0.0352</td>
<td>0.3077 to 0.4893</td>
<td>15.88</td>
</tr>
<tr>
<td>5</td>
<td>Urban</td>
<td>0.4212**</td>
<td>0.0351</td>
<td>0.3306 to 0.5118</td>
<td>17.74</td>
</tr>
<tr>
<td>6</td>
<td>Government</td>
<td>0.3812**</td>
<td>0.0369</td>
<td>0.2859 to 0.4765</td>
<td>14.53</td>
</tr>
<tr>
<td>7</td>
<td>Private</td>
<td>0.3785**</td>
<td>0.0354</td>
<td>0.2871 to 0.4699</td>
<td>14.33</td>
</tr>
<tr>
<td>8</td>
<td>High Ach. Group</td>
<td>0.3923**</td>
<td>0.0450</td>
<td>0.2761 to 0.5085</td>
<td>15.39</td>
</tr>
<tr>
<td>9</td>
<td>Average Ach. Group</td>
<td>0.4012**</td>
<td>0.0411</td>
<td>0.2951 to 0.5073</td>
<td>16.09</td>
</tr>
<tr>
<td>10</td>
<td>Low Ach. Group</td>
<td>0.2324**</td>
<td>0.0505</td>
<td>0.1021 to 0.3626</td>
<td>5.40</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level**

Table 4.36 shows that the coefficients of correlation obtained are as follows:
(i) **Total Sample**

The coefficient of correlation obtained is 0.4012. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3365 to 0.4659.

(ii) **Boys**

The coefficient of correlation obtained is 0.4180. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3278 to 0.5082.

(iii) **Girls**

The coefficient of correlation obtained is 0.3919. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2999 to 0.4839.

(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.3985. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3077 to 0.4893.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.4212. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3306 to 0.5118.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.3812. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2859 to 0.4765.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.3785. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2871 to 0.4699.
(viii) High Achievement Group

The coefficient of correlation obtained is 0.3923. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2761 to 0.5085.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.4012. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2951 to 0.5073.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.2324. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1021 to 0.3626.

Interpretations

The following results show that there is considerable association between Verbal Intelligence and Verbal Scientific Creativity:

(a) For all samples, the coefficients of correlation obtained are significant at 0.01 level.

(b) The coefficients of correlation obtained are in the range of 0.2324 to 0.4212. The relationship between the variables may be described as low or slight.

(c) All the obtained ‘r’ values are positive showing that any increase or decrease in Verbal Scientific Creativity will be followed by a corresponding increase or decrease in Verbal Intelligence.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.
The percentage variance shared between the variables is about roughly 16 percent. That shows, about 16 percent of the variance of Verbal Intelligence is to be attributed to the variance in one’s Verbal Scientific Creativity. In terms of common shared variance, the maximum overlap between the variables is nearly 18 percent and minimum overlap is 5 percent.

5. Relationship between Verbal Intelligence and Non-verbal Scientific Creativity

Table 4.37 shows the correlations of Verbal Intelligence and Non-verbal Creativity for the Total sample and relevant subsamples.

Table 4.37
Product Moment Coefficients of Correlation of Verbal Intelligence and Non-verbal Scientific Creativity for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation ‘r’</th>
<th>SEr</th>
<th>Confidence Interval of ‘r’</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.3208**</td>
<td>0.0268</td>
<td>0.2516 to 0.3899</td>
<td>10.29</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.3215**</td>
<td>0.0379</td>
<td>0.2235 to 0.4195</td>
<td>10.34</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.2903**</td>
<td>0.0386</td>
<td>0.1907 to 0.3899</td>
<td>8.42</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.2852**</td>
<td>0.0384</td>
<td>0.1860 to 0.3844</td>
<td>8.13</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.3212**</td>
<td>0.0383</td>
<td>0.2224 to 0.4199</td>
<td>10.32</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.2904**</td>
<td>0.0396</td>
<td>0.1883 to 0.3925</td>
<td>8.43</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.2495**</td>
<td>0.0388</td>
<td>0.1494 to 0.3495</td>
<td>6.23</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.3014**</td>
<td>0.0484</td>
<td>0.1766 to 0.4262</td>
<td>9.08</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.3210**</td>
<td>0.0439</td>
<td>0.2075 to 0.4344</td>
<td>10.30</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.2985**</td>
<td>0.0486</td>
<td>0.1731 to 0.4239</td>
<td>8.91</td>
</tr>
</tbody>
</table>

**Indicates significance at 0.01 level
Table 4.37 shows that the coefficients of correlation obtained are as follows:

(i) **Total Sample**

   The coefficient of correlation obtained is 0.3208. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2516 to 0.3899.

(ii) **Boys**

   The coefficient of correlation obtained is 0.3215. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2235 to 0.4195.

(iii) **Girls**

   The coefficient of correlation obtained is 0.2903. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1907 to 0.3899.

(iv) **Rural Subjects**

   The coefficient of correlation obtained is 0.2852. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1860 to 0.3844.

(v) **Urban Subjects**

   The coefficient of correlation obtained is 0.3212. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2224 to 0.4199.

(vi) **Government School Subjects**

   The coefficient of correlation obtained is 0.2904. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1883 to 0.3925.

(vii) **Private School Subjects**

   The coefficient of correlation obtained is 0.2495. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1494 to 0.3495.
(viii) High Achievement Group

The coefficient of correlation obtained is 0.3014. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1766 to 0.4262.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.3210. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2075 to 0.4344.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.2985. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1731 to 0.4239.

Interpretations

The following results show that relationship between Verbal Intelligence and Non-verbal Scientific Creativity is considerable:

(a) The coefficients of correlation obtained are significant at 0.01 level for all samples.

(b) The coefficients of correlation obtained are in the range of 0.2495 to 0.3215. The relationship between the variables may be described as low or slight.

(c) All the obtained 'r' values are positive showing that any increase or decrease in Non-verbal Creativity will be followed by a corresponding increase or decrease in Verbal Intelligence.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.
(e) The percentage variance shared between the variables is about 10 percent. This means, 10 percent of the variance of Verbal Intelligence is to be attributed to the variance in one's Non-verbal Scientific Creativity. In terms of common shared variance, the maximum overlap of Verbal Intelligence with Non-verbal Scientific Creativity is 10 percent and minimum overlap is about 8 percent.

6. Relationship between Verbal Intelligence and Scientific Creativity (Total)

Table 4.38 shows the correlations of Verbal Intelligence and Creativity (Total) for the Total sample and relevant subsamples.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.4200**</td>
<td>0.0246</td>
<td>0.3565 to 0.4835</td>
<td>17.64</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.4139**</td>
<td>0.0351</td>
<td>0.3233 to 0.5045</td>
<td>17.13</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.3928**</td>
<td>0.0356</td>
<td>0.3008 to 0.4848</td>
<td>15.43</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.4232**</td>
<td>0.0344</td>
<td>0.3346 to 0.5118</td>
<td>17.90</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.4110**</td>
<td>0.0355</td>
<td>0.3195 to 0.5025</td>
<td>16.89</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.4018**</td>
<td>0.0363</td>
<td>0.3083 to 0.4953</td>
<td>16.14</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.3799**</td>
<td>0.0354</td>
<td>0.2886 to 0.4712</td>
<td>14.43</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.3982**</td>
<td>0.0448</td>
<td>0.2827 to 0.5137</td>
<td>15.86</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.3818**</td>
<td>0.0419</td>
<td>0.2737 to 0.4899</td>
<td>14.58</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.2727**</td>
<td>0.0494</td>
<td>0.1452 to 0.4002</td>
<td>7.44</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level
Table 4.38 shows that the coefficients of correlation obtained are as follows:

(i) Total Sample

The coefficient of correlation obtained is 0.4200. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3565 to 0.4835.

(ii) Boys

The coefficient of correlation obtained is 0.4139. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3233 to 0.5045.

(iii) Girls

The coefficient of correlation obtained is 0.3928. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3008 to 0.4848.

(iv) Rural Subjects

The coefficient of correlation obtained is 0.4232. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3346 to 0.5118.

(v) Urban Subjects

The coefficient of correlation obtained is 0.4110. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3195 to 0.5025.

(vi) Government School Subjects

The coefficient of correlation obtained is 0.4018. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3083 to 0.4953.

(vii) Private School Subjects

The coefficient of correlation obtained is 0.3799. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2886 to 0.4712.
(viii) High Achievement Group

The coefficient of correlation obtained is 0.3982. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2827 to 0.5137.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.3818. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2737 to 0.4899.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.2727. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1452 to 0.4002.

Interpretations

The above results show that Verbal Intelligence and Scientific Creativity are closely related variables.

(a) The coefficients of correlation obtained are significant at 0.01 level for all samples.

(b) The coefficients of correlation obtained are in the range of 0.3727 to 0.4232. The relationship between the variables may be described as substantial or marked for the Total sample and subsamples of Boys, Rural, Urban and Government schools. The relationship is low for subsamples of Girls, Private schools and High, Average and Low Achievement groups.

(c) All the obtained ‘r’ values are positive showing that any increase or decrease in Creativity (Total) will be followed by a corresponding increase or decrease in Verbal Intelligence.
(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance shared between the variables is nearly 18 percent. This means, 18 percent of the variance of Verbal Intelligence is to be attributed to the variance in one's Scientific Creativity. In terms of common shared variance, the maximum overlap between the variables is 18 percent and minimum overlap is about 7 percent.

7. **Relationship between Non-verbal Intelligence and Fluency**

Table 4.39 shows the correlations of Non-verbal Intelligence and Fluency for the Total sample and relevant subsamples.

 **Table 4.39**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation ‘r’</th>
<th>SEr</th>
<th>Confidence Interval of ‘r’</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Total</td>
<td>0.3835**</td>
<td>0.0255</td>
<td>0.3177 to 0.4493</td>
<td>14.70</td>
</tr>
<tr>
<td>2</td>
<td>Boys</td>
<td>0.4012**</td>
<td>0.0356</td>
<td>0.3095 to 0.4929</td>
<td>16.09</td>
</tr>
<tr>
<td>3</td>
<td>Girls</td>
<td>0.3732**</td>
<td>0.363</td>
<td>0.2796 to 0.4668</td>
<td>13.93</td>
</tr>
<tr>
<td>4</td>
<td>Rural</td>
<td>0.3985**</td>
<td>0.0352</td>
<td>0.3077 to 0.4893</td>
<td>15.88</td>
</tr>
<tr>
<td>5</td>
<td>Urban</td>
<td>0.3642**</td>
<td>0.0370</td>
<td>0.2687 to 0.4597</td>
<td>13.26</td>
</tr>
<tr>
<td>6</td>
<td>Government</td>
<td>0.3518**</td>
<td>0.0379</td>
<td>0.2541 to 0.4495</td>
<td>12.38</td>
</tr>
<tr>
<td>7</td>
<td>Private</td>
<td>0.3737**</td>
<td>0.0356</td>
<td>0.2819 to 0.4655</td>
<td>13.97</td>
</tr>
<tr>
<td>8</td>
<td>High Ach. Group</td>
<td>0.2031**</td>
<td>0.0510</td>
<td>0.1075 to 0.3348</td>
<td>4.12</td>
</tr>
<tr>
<td>9</td>
<td>Average Ach. Group</td>
<td>0.2212**</td>
<td>0.0466</td>
<td>0.1009 to 0.3415</td>
<td>4.89</td>
</tr>
<tr>
<td>10</td>
<td>Low Ach. Group</td>
<td>0.1818**</td>
<td>0.0516</td>
<td>0.0487 to 0.3149</td>
<td>3.31</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level**
Table 4.39 shows that the coefficients of correlation obtained are as follows:

(i) **Total Sample**

The coefficient of correlation obtained is 0.3835. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3177 to 0.4493.

(ii) **Boys**

The coefficient of correlation obtained is 0.4012. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3095 to 0.4929.

(iii) **Girls**

The coefficient of correlation obtained is 0.3732. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2796 to 0.4668.

(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.3985. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3077 to 0.4893.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.3642. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2687 to 0.4597.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.3518. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2541 to 0.4495.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.3737. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2819 to 0.4655.
(viii) **High Achievement Group**

The coefficient of correlation obtained is 0.2031. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1076 to 0.3348.

(ix) **Average Achievement Group**

The coefficient of correlation obtained is 0.2212. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1009 to 0.3415.

(x) **Low Achievement Group**

The coefficient of correlation obtained is 0.1818. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0487 to 0.3149.

**Interpretations**

The following results show that there exists considerable relationship between Non-verbal Intelligence and Fluency:

(a) The coefficients of correlation obtained are significant at 0.01 level for all samples.

(b) The coefficients of correlation obtained are in the range of 0.1818 to 0.4012. The relationship between the variables may be considered as low or slight.

(c) All the obtained coefficients of correlation are positive showing that any increase or decrease in Fluency will be followed by a corresponding increase or decrease in Non-verbal Intelligence.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.
(e) The percentage variance obtained shows that nearly 15 percent of the variance of Non-verbal intelligence is attributable to the variance in Fluency. In terms of common shared variance, the maximum overlap between the variables is nearly 16 percent and minimum overlap is about 3 percent.

8. Relationship between Non-verbal Intelligence and Flexibility

Table 4.40 shows the correlations of Non-verbal Intelligence and Flexibility for the Total sample and relevant subsamples.

**Table 4.40**

Product Moment Coefficients of Correlation of Non-verbal Intelligence and Flexibility for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation ‘r’</th>
<th>SEr</th>
<th>Confidence Interval of ‘r’</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.3732**</td>
<td>0.0257</td>
<td>0.3068 to 0.4395</td>
<td>13.92</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.3523**</td>
<td>0.0371</td>
<td>0.2565 to 0.4481</td>
<td>12.41</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.3414**</td>
<td>0.0372</td>
<td>0.2453 to 0.4375</td>
<td>11.66</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.3018**</td>
<td>0.0380</td>
<td>0.2037 to 0.3999</td>
<td>9.11</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.3812**</td>
<td>0.0365</td>
<td>0.2871 to 0.4753</td>
<td>14.53</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.3212**</td>
<td>0.0383</td>
<td>0.2224 to 0.4199</td>
<td>10.32</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.3008**</td>
<td>0.0376</td>
<td>0.2038 to 0.3978</td>
<td>9.05</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.220**</td>
<td>0.0506</td>
<td>0.0893 to 0.3507</td>
<td>4.84</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.1815**</td>
<td>0.0474</td>
<td>0.0592 to 0.3038</td>
<td>3.29</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.1421**</td>
<td>0.0523</td>
<td>0.0072 to 0.2770</td>
<td>2.02</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level

Table 4.40 shows that the coefficients of correlation obtained are as follows:
(i) Total Sample

The coefficient of correlation obtained is 0.3732. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3068 to 0.4395.

(ii) Boys

The coefficient of correlation obtained is 0.3523. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2565 to 0.4481.

(iii) Girls

The coefficient of correlation obtained is 0.3414. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2453 to 0.4375.

(iv) Rural Subjects

The coefficient of correlation obtained is 0.3018. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2037 to 0.3999.

(v) Urban Subjects

The coefficient of correlation obtained is 0.3812. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2871 to 0.4353.

(vi) Government School Subjects

The coefficient of correlation obtained is 0.3212. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2224 to 0.4199.

(vii) Private School Subjects

The coefficient of correlation obtained is 0.3008. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2038 to 0.3978.
(viii) High Achievement Group

The coefficient of correlation obtained is 0.220. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0893 to 0.3507.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.1815. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0592 to 0.3038.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.1421. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0072 to 0.2770.

Interpretations

The following results show that there is considerable relationship between Non-verbal Intelligence and Flexibility:

(a) The coefficients of correlation obtained are significant at 0.01 level for all samples.

(b) The coefficients of correlation obtained are in the range of 0.1421 to 0.3812. The relationship between the variables may be explained as low or slight for all samples except for two subsamples (AA and LA groups). The relationship between the variables is negligible for the Average Achievement group and Low Achievement group.

(c) All the obtained coefficients of correlation are positive showing that any increase or decrease in Flexibility will be attended by a corresponding increase or decrease in Non-verbal Intelligence.
(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance obtained shows that nearly 14 percent of the variance of Non-verbal Intelligence is attributable to the variance in Flexibility. In terms of common shared variance, the maximum overlap between the variables is nearly 14 percent and minimum overlap is roughly 2 percent.

9. **Relationship between Non-verbal Intelligence and Originality**

Table 4.41 shows the correlations of Non-verbal Intelligence and Originality for the Total sample and relevant subsamples.

**Table 4.41**

Product Moment Coefficients of Correlation of Non-verbal Intelligence and Originality for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.2980**</td>
<td>0.0272</td>
<td>0.2278 to 0.3682</td>
<td>8.88</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.2758**</td>
<td>0.0391</td>
<td>0.1748 to 0.3768</td>
<td>7.61</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.2632**</td>
<td>0.0392</td>
<td>0.1619 to 0.3644</td>
<td>6.93</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.2952**</td>
<td>0.0382</td>
<td>0.1966 to 0.3938</td>
<td>8.71</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.2710**</td>
<td>0.0395</td>
<td>0.1689 to 0.3730</td>
<td>7.34</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.2200**</td>
<td>0.0411</td>
<td>0.1138 to 0.3261</td>
<td>4.84</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.2802**</td>
<td>0.0381</td>
<td>0.1819 to 0.3785</td>
<td>7.85</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.1235*</td>
<td>0.0524</td>
<td>0.0207 to 0.2262</td>
<td>1.82</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.1614**</td>
<td>0.0478</td>
<td>0.0382 to 0.2846</td>
<td>2.60</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.1332*</td>
<td>0.0524</td>
<td>0.0304 to 0.2355</td>
<td>1.77</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level

*indicates significance at 0.05 level
Table 4.41 shows that the coefficients of correlation obtained are as follows:

(i) **Total Sample**

The coefficient of correlation obtained is 0.2980. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2278 to 0.3682.

(ii) **Boys**

The coefficient of correlation obtained is 0.2758. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1748 to 0.3768.

(iii) **Girls**

The coefficient of correlation obtained is 0.2632. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1619 to 0.3644.

(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.2952. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1966 to 0.3928.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.2710. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1689 to 0.3720.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.2200. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1138 to 0.3261.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.2802. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1819 to 0.3785.
(viii) High Achievement Group

The coefficient of correlation obtained is 0.1235. It is significant at 0.05 level and the 0.05 confidence interval is from 0.0116 to 0.2587.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.1614. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0382 to 0.2846.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.1332. It is significant at 0.05 level and the 0.05 confidence interval is from 0.0304 to 0.2355.

Interpretations

The following results show that Non-verbal Intelligence and Originality are related to some extent:

(a) The coefficients of correlation obtained are significant at 0.01 level for all samples except for the subsamples of High Achievement and Low Achievement groups.

(b) The coefficients of correlation obtained are in the range of 0.1235 to 0.2980. For the Total sample and subsamples of Boys, Girls, Rural, urban, Government and Private schools, the coefficients of correlation are low or slight. For the three Achievement groups (HA, AA and LA groups), the ‘r’ values obtained are negligible or indifferent.
(c) All the obtained ‘r’ values are positive showing that any increase or decrease in Originality will be followed by a corresponding increase or decrease in Non-verbal Intelligence.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance obtained shows that nearly 9 percent of the variance of Non-verbal Intelligence is attributable to the variance in originality. In terms of common shared variance, the maximum overlap between the variables is nearly 9 percent and minimum overlap is nearly 2 percent.

10. Relationship between Non-verbal Intelligence and Verbal Scientific Creativity

Table 4.42 shows the correlations of Non-verbal Intelligence and Verbal Scientific Creativity for the Total sample and relevant subsamples.

Table 4.42
Product Moment Coefficients of Correlation of Non-verbal Intelligence and Verbal Scientific Creativity for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation ‘r’</th>
<th>SEr</th>
<th>Confidence Interval of ‘r’</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.3735**</td>
<td>0.0257</td>
<td>0.1828 to 0.4395</td>
<td>13.93</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.3112**</td>
<td>0.0383</td>
<td>0.2125 to 0.4099</td>
<td>9.68</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.3032**</td>
<td>0.0383</td>
<td>0.2045 to 0.4019</td>
<td>9.19</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.3833**</td>
<td>0.0357</td>
<td>0.2912 to 0.4754</td>
<td>14.69</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.3111**</td>
<td>0.0385</td>
<td>0.2116 to 0.4106</td>
<td>9.68</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.3618**</td>
<td>0.0376</td>
<td>0.2649 to 0.4587</td>
<td>13.09</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.3312**</td>
<td>0.0368</td>
<td>0.2362 to 0.4262</td>
<td>10.97</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.3012**</td>
<td>0.0484</td>
<td>0.1763 to 0.4261</td>
<td>9.07</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.2001**</td>
<td>0.0470</td>
<td>0.0787 to 0.3215</td>
<td>4.0</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.1032</td>
<td></td>
<td></td>
<td>1.07</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level
Table 4.42 shows that the coefficients of correlation obtained are as follows:

(i) **Total Sample**

The coefficient of correlation obtained is 0.3735. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1828 to 0.4395.

(ii) **Boys**

The coefficient of correlation obtained is 0.3112. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2125 to 0.4099.

(iii) **Girls**

The coefficient of correlation obtained is 0.3032. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2045 to 0.4019.

(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.3833. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2912 to 0.4754.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.3111. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2116 to 0.4106.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.3618. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2649 to 0.4587.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.3312. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2362 to 0.4262.
(viii) **High Achievement Group**

The coefficient of correlation obtained is 0.3012. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1763 to 0.4261.

(ix) **Average Achievement Group**

The coefficient of correlation obtained is 0.2001. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0787 to 0.3215.

(x) **Low Achievement Group**

The coefficient of correlation obtained is 0.1032. It is not significant at any level.

**Interpretations**

The following results show that there exists low relationship between Non-verbal Intelligence and Verbal Scientific Creativity:

(a) The coefficient of correlation obtained is not significant for Low Achievement group. For all other samples, the obtained 'r' values are significant at 0.01 level.

(b) The significant coefficients of correlation obtained are in the range of 0.2001 to 0.3883. The relationship between the variables may be described as low or slight.

(c) All the obtained coefficients of correlation are positive showing that any increase or decrease in Non-verbal Intelligence will be followed by a corresponding change in Verbal Scientific Creativity.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.
(e) The percentage variance obtained shows that nearly 14 percent of the variance in Non-verbal Intelligence is attributable to the variance in one's Verbal Scientific Creativity. In terms of common shared variance, the maximum overlap is nearly 15 percent and the minimum overlap is 1.07 percent.

11. Relationship between Non-verbal Intelligence and Non-verbal Scientific Creativity

Table 4.43 shows the correlations of Non-verbal Intelligence and Non-verbal Scientific Creativity for the Total sample and relevant subsamples.

Table 4.43

Product Moment Coefficients of Correlation of Non-verbal Intelligence and Non-verbal Scientific Creativity for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Total</td>
<td>0.3218**</td>
<td>0.0268</td>
<td>0.2527 to 0.3909</td>
<td>10.36</td>
</tr>
<tr>
<td>2</td>
<td>Boys</td>
<td>0.2832**</td>
<td>0.0389</td>
<td>0.1828 to 0.3836</td>
<td>8.02</td>
</tr>
<tr>
<td>3</td>
<td>Girls</td>
<td>0.3731**</td>
<td>0.0363</td>
<td>0.2795 to 0.4666</td>
<td>13.92</td>
</tr>
<tr>
<td>4</td>
<td>Rural</td>
<td>0.3235**</td>
<td>0.0375</td>
<td>0.2268 to 0.4201</td>
<td>10.47</td>
</tr>
<tr>
<td>5</td>
<td>Urban</td>
<td>0.3200**</td>
<td>0.0383</td>
<td>0.2211 to 0.4188</td>
<td>10.24</td>
</tr>
<tr>
<td>6</td>
<td>Government</td>
<td>0.2162**</td>
<td>0.0412</td>
<td>0.1099 to 0.3225</td>
<td>4.67</td>
</tr>
<tr>
<td>7</td>
<td>Private</td>
<td>0.2210**</td>
<td>0.0506</td>
<td>0.0904 to 0.3516</td>
<td>4.88</td>
</tr>
<tr>
<td>8</td>
<td>High Ach. Group</td>
<td>0.1912**</td>
<td>0.0472</td>
<td>0.079 to 0.3131</td>
<td>3.66</td>
</tr>
<tr>
<td>9</td>
<td>Average Ach. Group</td>
<td>0.1820**</td>
<td>0.0515</td>
<td>0.0491 to 0.3148</td>
<td>3.31</td>
</tr>
<tr>
<td>10</td>
<td>Low Ach. Group</td>
<td>0.1009</td>
<td>0.0766</td>
<td>0.0491 to 0.3148</td>
<td>1.00</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level

Table 4.43 shows that the coefficients of correlation obtained are as follows:

(i) Total Sample

The coefficient of correlation obtained is 0.3218. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2527 to 0.3909.
(ii) **Boys**

The coefficient of correlation obtained is 0.2832. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1828 to 0.3836.

(iii) **Girls**

The coefficient of correlation obtained is 0.3731. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2795 to 0.4666.

(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.3235. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2268 to 0.4201.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.3200. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2211 to 0.4188.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.2162. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1099 to 0.3225.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.2210. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0904 to 0.3516.

(viii) **High Achievement Group**

The coefficient of correlation obtained is 0.1912. It is significant at 0.01 level and the 0.01 confidence interval is from 0.079 to 0.3131.
(ix) **Average Achievement Group**

The coefficient of correlation obtained is 0.1820. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0491 to 0.3148.

(x) **Low Achievement Group**

The coefficient of correlation obtained is 0.1009. It is not significant at any level.

**Interpretations**

The following results show that there exists a low relationship between Non-verbal Intelligence and Non-verbal Scientific Creativity:

(a) The coefficient of correlation obtained is not significant for Low Achievement group. For all other samples, the obtained 'r' values are significant at 0.01 level.

(b) The significant coefficients of correlation obtained are in the range of 0.1820 to 0.3731. The relationship between the variables may be described as low or slight.

(c) All the obtained coefficients of correlation are positive showing that any increase or decrease in Non-verbal Scientific Creativity will be followed by a corresponding change in Non-verbal Intelligence.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance obtained shows that nearly 10 percent of the variance of Non-verbal Intelligence is attributable to the variance in one's Non-verbal Scientific Creativity. In terms of common shared
variance, the maximum overlap between the variables is nearly 14 percent and minimum overlap is 1 percent.

12. Relationship between Non-verbal Intelligence and Scientific Creativity (Total)

Table 4.44 shows the correlations of Non-verbal Intelligence and Scientific Creativity (Total) for the Total sample and relevant subsamples.

Table 4.44
Product Moment Coefficients of Correlation of Non-verbal Intelligence and Scientific Creativity (Total) for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.3514**</td>
<td>0.0262</td>
<td>0.2838 to 0.4189</td>
<td>12.35</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.3983**</td>
<td>0.0356</td>
<td>0.3063 to 0.4903</td>
<td>15.86</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.3825**</td>
<td>0.0359</td>
<td>0.2897 to 0.4753</td>
<td>14.63</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.3800**</td>
<td>0.0358</td>
<td>0.2876 to 0.4724</td>
<td>14.44</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.3531**</td>
<td>0.0374</td>
<td>0.2567 to 0.4495</td>
<td>12.47</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.3612**</td>
<td>0.0376</td>
<td>0.2642 to 0.4582</td>
<td>13.05</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.3601**</td>
<td>0.0359</td>
<td>0.2673 to 0.4529</td>
<td>13.03</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.1985**</td>
<td>0.0511</td>
<td>0.0666 to 0.3304</td>
<td>3.94</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.2031**</td>
<td>0.0470</td>
<td>0.0818 to 0.3244</td>
<td>4.12</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.2121**</td>
<td>0.0509</td>
<td>0.0806 to 0.3436</td>
<td>4.49</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level

Table 4.44 shows that the coefficients of correlation obtained are as follows:

(i) Total Sample

The coefficient of correlation obtained is 0.3514. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2838 to 0.4189.
(ii) Boys

The coefficient of correlation obtained is 0.3983. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3063 to 0.4903.

(iii) Girls

The coefficient of correlation obtained is 0.3825. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2897 to 0.4753.

(iv) Rural Subjects

The coefficient of correlation obtained is 0.3800. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2876 to 0.4724.

(v) Urban Subjects

The coefficient of correlation obtained is 0.3531. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2567 to 0.4495.

(vi) Government School Subjects

The coefficient of correlation obtained is 0.3612. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2642 to 0.4582.

(vii) Private School Subjects

The coefficient of correlation obtained is 0.3601. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2673 to 0.4529.

(viii) High Achievement Group

The coefficient of correlation obtained is 0.1985. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0666 to 0.3304.
(ix) **Average Achievement Group**

The coefficient of correlation obtained is 0.2031. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0818 to 0.3244.

(x) **Low Achievement Group**

The coefficient of correlation obtained is 0.2121. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0806 to 0.3436.

**Interpretations**

The following results show that there is considerable relationship between Non-verbal Intelligence and Scientific Creativity:

(a) The coefficients of correlation obtained are significant at 0.01 level for all samples.

(b) The coefficients of correlation obtained are in the range of 0.1985 to 0.3983. The relationship can be explained as low or slight.

(c) All the obtained 'r' values are positive showing that any increase or decrease in Scientific Creativity will be followed by a corresponding increase or decrease in Non-verbal Intelligence.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance obtained shows that about 12 percent of the variance of Non-verbal Intelligence is attributable to the variance in Scientific Creativity. In terms of common shared variance, the maximum overlap between the variables is nearly 16 percent and the minimum overlap is about 4 percent.
13. **Relationship between Intelligence (Total) and Fluency**

Table 4.45 shows the correlation of Intelligence (Total) and Fluency for the Total sample and relevant subsamples.

**Table 4.45**

**Product Moment Coefficients of Correlation of Intelligence (Total) and Fluency for the Total Sample and Subsamples**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Total</td>
<td>0.3983**</td>
<td>0.0251</td>
<td>0.3334 to 0.4632</td>
<td>15.86</td>
</tr>
<tr>
<td>2</td>
<td>Boys</td>
<td>0.4212**</td>
<td>0.0349</td>
<td>0.3313 to 0.5111</td>
<td>17.74</td>
</tr>
<tr>
<td>3</td>
<td>Girls</td>
<td>0.3985**</td>
<td>0.0355</td>
<td>0.3070 to 0.4899</td>
<td>15.88</td>
</tr>
<tr>
<td>4</td>
<td>Rural</td>
<td>0.3214**</td>
<td>0.0375</td>
<td>0.2246 to 0.4182</td>
<td>10.33</td>
</tr>
<tr>
<td>5</td>
<td>Urban</td>
<td>0.3483**</td>
<td>0.0375</td>
<td>0.2515 to 0.4451</td>
<td>12.13</td>
</tr>
<tr>
<td>6</td>
<td>Government</td>
<td>0.3880**</td>
<td>0.0387</td>
<td>0.2932 to 0.4828</td>
<td>15.05</td>
</tr>
<tr>
<td>7</td>
<td>Private</td>
<td>0.4200**</td>
<td>0.0341</td>
<td>0.3321 to 0.5079</td>
<td>17.84</td>
</tr>
<tr>
<td>8</td>
<td>High Ach. Group</td>
<td>0.2212**</td>
<td>0.0506</td>
<td>0.0905 to 0.3518</td>
<td>4.89</td>
</tr>
<tr>
<td>9</td>
<td>Average Ach. Group</td>
<td>0.1835**</td>
<td>0.0474</td>
<td>0.0613 to 0.3057</td>
<td>3.37</td>
</tr>
<tr>
<td>10</td>
<td>Low Ach. Group</td>
<td>0.1919**</td>
<td>0.0514</td>
<td>0.0593 to 0.3245</td>
<td>3.68</td>
</tr>
</tbody>
</table>

*indicates significance at 0.01 level

Table 4.45 shows that the coefficients of correlation obtained are as follows:

(i) **Total Sample**

The coefficient of correlation obtained is 0.3983. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2334 to 0.4632.

(ii) **Boys**

The coefficient of correlation obtained is 0.4212. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3313 to 0.5111.
(iii) **Girls**

The coefficient of correlation obtained is 0.3985. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3070 to 0.4899.

(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.3214. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2246 to 0.4182.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.3483. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2515 to 0.4451.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.3880. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2932 to 0.4828.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.4200. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3321 to 0.5079.

(viii) **High Achievement Group**

The coefficient of correlation obtained is 0.2212. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0905 to 0.3518.

(ix) **Average Achievement Group**

The coefficient of correlation obtained is 0.1835. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0613 to 0.3057.
(x) **Low Achievement Group**

The coefficient of correlation obtained is 0.1919. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0593 to 0.3245.

**Interpretations**

The following results show that Intelligence (Total) and Fluency are closely related variables:

(a) The coefficients of correlations obtained are significant at 0.01 level for all samples.

(b) The coefficients of correlation obtained are in the range of 0.1835 to 0.4212. The relationship between the variables may be described as substantial or marked for the subsamples Boys and private school subjects. For all other samples, the relationship may be considered as low or slight.

(c) All the coefficients of correlation obtained are positive showing that any increase or decrease in Fluency will be followed by a corresponding increase or decrease in Intelligence (total) and vice versa.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance obtained shows that nearly 16 percent of the variance of Intelligence (Total) is attributable to the variance in one's Fluency. In terms of common shared variance, the maximum
overlap between the variables is about 18 percent and minimum overlap is about 3 percent.

14. Relationship between Intelligence (Total) and Flexibility

Table 4.46 shows the correlation of Intelligence (Total) and Flexibility for the Total sample and relevant subsamples.

Table 4.46
Product Moment Coefficients of Correlation of Intelligence (Total) and Flexibility for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.3751**</td>
<td>0.0257</td>
<td>0.3089 to 0.4413</td>
<td>14.07</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.3853**</td>
<td>0.0361</td>
<td>0.2922 to 0.4784</td>
<td>14.85</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.3920**</td>
<td>0.0357</td>
<td>0.2999 to 0.4840</td>
<td>15.37</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.3432**</td>
<td>0.0369</td>
<td>0.2479 to 0.4385</td>
<td>11.78</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.4014**</td>
<td>0.0358</td>
<td>0.3090 to 0.4938</td>
<td>16.11</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.3725**</td>
<td>0.0372</td>
<td>0.2764 to 0.4686</td>
<td>13.88</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.3835**</td>
<td>0.0353</td>
<td>0.2935 to 0.4745</td>
<td>14.70</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.2018**</td>
<td>0.0510</td>
<td>0.0700 to 0.3335</td>
<td>4.07</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.2012**</td>
<td>0.0470</td>
<td>0.0798 to 0.3226</td>
<td>4.05</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.2004**</td>
<td>0.0512</td>
<td>0.0682 to 0.3326</td>
<td>4.02</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level

Table 4.46 shows that the coefficients of correlation obtained are as follows:

(i) Total Sample

The coefficient of correlation obtained is 0.3751. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3089 to 0.4413.
(ii) Boys

The coefficient of correlation obtained is 0.3853. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2922 to 0.4784.

(iii) Girls

The coefficient of correlation obtained is 0.3920. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2999 to 0.4840.

(iv) Rural Subjects

The coefficient of correlation obtained is 0.3432. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2479 to 0.4385.

(v) Urban Subjects

The coefficient of correlation obtained is 0.4014. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3090 to 0.4938.

(vi) Government School Subjects

The coefficient of correlation obtained is 0.3725. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2764 to 0.4686.

(vii) Private School Subjects

The coefficient of correlation obtained is 0.3835. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2925 to 0.4745.

(viii) High Achievement Group

The coefficient of correlation obtained is 0.2018. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0700 to 0.3335.
(ix) **Average Achievement Group**

The coefficient of correlation obtained is 0.2012. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0798 to 0.3226.

(x) **Low Achievement Group**

The coefficient of correlation obtained is 0.2004. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0682 to 0.3326.

**Interpretations**

The following results show that the relationship between Intelligence (Total) and Flexibility can be considered as low:

(a) The coefficients of correlations obtained are significant at 0.01 level for all samples.

(b) The coefficients of correlation obtained are in the range of 0.2012 to 0.4014. The relationship between the variables may be described as low or slight.

(c) All the coefficients of correlation obtained are positive showing that any increase or decrease in Flexibility will be followed by a corresponding increase or decrease in Intelligence (total).

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance obtained shows that 14 percent of the variance of Intelligence (Total) is attributable to the variance in Flexibility. In terms of common shared variance, the maximum overlap between the variables is about 15 percent and minimum overlap is 4 percent.
15. Relationship between Intelligence (Total) and Originality

Table 4.47 shows the correlation of Intelligence (Total) and Originality of the Total sample and relevant subsamples.

**Table 4.47**

Product Moment Coefficients of Correlation of Intelligence (Total) and Originality for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of ‘r’</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.2853**</td>
<td>0.0494</td>
<td>0.1579 to 0.4126</td>
<td>8.14</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.295**</td>
<td>0.0387</td>
<td>0.1952 to 0.3948</td>
<td>8.70</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.2828**</td>
<td>0.0368</td>
<td>0.1828 to 0.3828</td>
<td>7.99</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.2751**</td>
<td>0.0387</td>
<td>0.1753 to 0.3749</td>
<td>7.57</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.3012**</td>
<td>0.0388</td>
<td>0.2011 to 0.4013</td>
<td>9.07</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.282**</td>
<td>0.0398</td>
<td>0.1793 to 0.3847</td>
<td>7.95</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.2428**</td>
<td>0.0390</td>
<td>0.1424 to 0.3432</td>
<td>5.89</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.1815**</td>
<td>0.0515</td>
<td>0.0487 to 0.3143</td>
<td>3.29</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.1737**</td>
<td>0.0475</td>
<td>0.0510 to 0.2964</td>
<td>3.01</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.1089*</td>
<td>0.0527</td>
<td>0.0052 to 0.2123</td>
<td>1.19</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level**

*indicates significance at 0.05 level

Table 4.47 shows that the coefficients of correlation obtained are as follows:

(i) **Total Sample**

The coefficient of correlation obtained is 0.2853. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1579 to 0.4126.

(ii) **Boys**

The coefficient of correlation obtained is 0.295. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1952 to 0.3948.
(iii) Girls

The coefficient of correlation obtained is 0.2828. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1828 to 0.3828.

(iv) Rural Subjects

The coefficient of correlation obtained is 0.2751. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1753 to 0.3749.

(v) Urban Subjects

The coefficient of correlation obtained is 0.3012. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2011 to 0.4013.

(vi) Government School Subjects

The coefficient of correlation obtained is 0.282. It is significant at 0.01 level and the 0.01 confidence interval is from 0.793 to 0.3847.

(vii) Private School Subjects

The coefficient of correlation obtained is 0.2428. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1424 to 0.3432.

(viii) High Achievement Group

The coefficient of correlation obtained is 0.1815. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0487 to 0.3143.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.1737. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0510 to 0.2964.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.1089. It is significant at 0.05 level and the 0.05 confidence interval is from 0.0052 to 0.2123.
Interpretations

The following results show that Intelligence (Total) is influenced by Originality to a little extent:

(a) The coefficients of correlations obtained are significant at 0.01 level except for one subsample. The coefficient of correlation obtained for Low Achievement group is significant at 0.05 level.

(b) The obtained coefficients of correlation are in the range of 0.1089 to 0.3012. The relationship between the variables may be explained as low or slight.

(c) All the coefficients of correlation obtained are positive showing that any increase or decrease in Originality will be followed by a corresponding increase or decrease in Intelligence (total).

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance obtained shows that about 8 percent of the variance of Intelligence (Total) is attributable to the variance of Originality. In terms of common shared variance, the maximum overlap between the variables is about 9 percent and minimum overlap is about 1 percent.

16. Relationship between Intelligence (Total) and Verbal Scientific Creativity

Table 4.48 shows the correlation of Intelligence (Total) and Verbal Scientific Creativity for the Total sample and relevant subsamples.
Table 4.48
Product Moment Coefficients of Correlation of Intelligence (Total) and Verbal Scientific Creativity for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.3985**</td>
<td>0.0251</td>
<td>0.2312 to 0.5658</td>
<td>15.88</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.3725**</td>
<td>0.0365</td>
<td>0.2784 to 0.4606</td>
<td>13.88</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.3251**</td>
<td>0.0377</td>
<td>0.2278 to 0.4224</td>
<td>10.57</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.3014**</td>
<td>0.0380</td>
<td>0.2032 to 0.3996</td>
<td>9.08</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.3812**</td>
<td>0.0365</td>
<td>0.2871 to 0.4753</td>
<td>14.53</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.3602**</td>
<td>0.0376</td>
<td>0.2631 to 0.4573</td>
<td>12.97</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.3887**</td>
<td>0.0351</td>
<td>0.2918 to 0.4792</td>
<td>15.11</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.3235**</td>
<td>0.0477</td>
<td>0.2005 to 0.4464</td>
<td>10.47</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.3932**</td>
<td>0.0414</td>
<td>0.2863 to 0.5001</td>
<td>15.46</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.2080**</td>
<td>0.0511</td>
<td>0.1089 to 0.5249</td>
<td>4.33</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level

Table 4.48 shows that the coefficients of correlation obtained are as follows:

(i) Total Sample

The coefficient of correlation obtained is 0.3985. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2312 to 0.5658.

(ii) Boys

The coefficient of correlation obtained is 0.3725. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2784 to 0.4606.

(iii) Girls

The coefficient of correlation obtained is 0.3251. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2298 to 0.4224.
(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.3014. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2032 to 0.3996.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.3812. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2871 to 0.4753.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.3602. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2631 to 0.4573.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.3887. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2981 to 0.4792.

(viii) **High Achievement Group**

The coefficient of correlation obtained is 0.3235. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2005 to 0.4464.

(ix) **Average Achievement Group**

The coefficient of correlation obtained is 0.3932. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2863 to 0.5001.

(x) **Low Achievement Group**

The coefficient of correlation obtained is 0.2080. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1089 to 0.5249.
Interpretations

The following results show that there exists a low relationship between Intelligence (Total) and Verbal Scientific Creativity:

(a) All the obtained coefficients of correlation are significant at 0.01 level.

(b) The coefficients of correlation obtained are in the range of 0.2080 to 0.3985. The relationship between the variables may be described as low or slight.

(c) All the obtained coefficients of correlation are positive showing that any increase or decrease in Verbal Scientific Creativity will be attended by a corresponding increase or decrease in Intelligence (total).

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance obtained shows that nearly 16 percent of the variance of Intelligence (Total) is attributable to the variance in one's Verbal Scientific Creativity. In terms of common shared variance, the maximum overlap between the variables is nearly 16 percent and minimum overlap is about 4 percent.

17. Relationship between Intelligence (Total) and Non-verbal Scientific Creativity

Table 4.49 shows the correlation of Intelligence (Total) and Non-verbal Scientific Creativity for the Total sample and relevant subsamples.
Table 4.49

Product Moment Coefficients of Correlation of Intelligence (Total) and Non-verbal Scientific Creativity for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.4001**</td>
<td>0.0251</td>
<td>0.3353 to 0.4649</td>
<td>16.0</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.4103**</td>
<td>0.0352</td>
<td>0.3194 to 0.5012</td>
<td>16.83</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.3831**</td>
<td>0.0359</td>
<td>0.2903 to 0.4759</td>
<td>16.68</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.3685**</td>
<td>0.0362</td>
<td>0.2752 to 0.4618</td>
<td>13.58</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.4012**</td>
<td>0.0358</td>
<td>0.3088 to 0.4936</td>
<td>16.09</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.3921**</td>
<td>0.0366</td>
<td>0.2977 to 0.4865</td>
<td>15.37</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.3039**</td>
<td>0.0375</td>
<td>0.2072 to 0.4007</td>
<td>9.24</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.3832**</td>
<td>0.0454</td>
<td>0.2660 to 0.5004</td>
<td>14.68</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.2002**</td>
<td>0.0471</td>
<td>0.0788 to 0.3216</td>
<td>4.01</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.1779**</td>
<td>0.0517</td>
<td>0.0445 to 0.3113</td>
<td>3.16</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level

Table 4.49 shows that the coefficients of correlation obtained are as follows:

(i) **Total Sample**

The coefficient of correlation obtained is 0.4001. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3353 to 0.4649.

(ii) **Boys**

The coefficient of correlation obtained is 0.4103. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3194 to 0.5012.

(iii) **Girls**

The coefficient of correlation obtained is 0.3831. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2903 to 0.4759.
(iv) Rural Subjects

The coefficient of correlation obtained is 0.3685. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2752 to 0.4618.

(v) Urban Subjects

The coefficient of correlation obtained is 0.4012. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3088 to 0.4936.

(vi) Government School Subjects

The coefficient of correlation obtained is 0.3921. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2977 to 0.4865.

(vii) Private School Subjects

The coefficient of correlation obtained is 0.3039. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2072 to 0.4007.

(viii) High Achievement Group

The coefficient of correlation obtained is 0.3832. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2660 to 0.5004.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.2002. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0788 to 0.3216.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.1779. It is significant at 0.05 level and the 0.01 confidence interval is from 0.0445 to 0.3113.
Interpretations

The following results show that there is considerable relationship between Intelligence (Total) and Non-verbal Scientific Creativity:

(a) All coefficients of correlation obtained are significant at 0.01 level for all samples.

(b) The coefficients of correlation obtained are in the range of 0.1789 to 0.4103. The relationship between the variables may be described as low or slight for all samples except for Boys. The relationship is substantial or marked for Boys.

(c) All the obtained coefficients of correlation are positive showing that any increase or decrease in Non-verbal Scientific Creativity will be attended by a corresponding change in Intelligence (total).

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance obtained shows that 16 percent of the variance of Intelligence (Total) is attributable to the variance in one’s Non-verbal Scientific Creativity. In terms of common shared variance, the maximum overlap between the variables is nearly 17 percent and minimum overlap is about 3 percent.

18. Relationship between Intelligence (Total) and Scientific Creativity (Total)

Table 4.50 shows the correlation of Intelligence (Total) and Scientific Creativity (Total) for the Total sample and relevant subsamples.
Table 4.50

Product Moment Coefficients of Correlation of Intelligence (Total) and Scientific Creativity (Total) for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.4185**</td>
<td>0.0246</td>
<td>0.3549 to 0.4821</td>
<td>17.51</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.4102**</td>
<td>0.0352</td>
<td>0.3913 to 0.5011</td>
<td>16.83</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.4012**</td>
<td>0.0354</td>
<td>0.3099 to 0.4924</td>
<td>16.09</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.3739**</td>
<td>0.0359</td>
<td>0.2810 to 0.4667</td>
<td>13.98</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.3985**</td>
<td>0.0359</td>
<td>0.3058 to 0.4911</td>
<td>15.88</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.3851**</td>
<td>0.0368</td>
<td>0.2901 to 0.4801</td>
<td>14.83</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.3918**</td>
<td>0.0349</td>
<td>0.2991 to 0.4821</td>
<td>15.35</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.2304**</td>
<td>0.0504</td>
<td>0.1004 to 0.3604</td>
<td>5.31</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.1984**</td>
<td>0.0471</td>
<td>0.0769 to 0.3199</td>
<td>3.94</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.1795**</td>
<td>0.0517</td>
<td>0.0463 to 0.3128</td>
<td>3.22</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level

Table 4.50 shows that the coefficients of correlation obtained are as follows:

(i) **Total Sample**

The coefficient of correlation obtained is 0.4185. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3549 to 0.4821.

(ii) **Boys**

The coefficient of correlation obtained is 0.4102. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3193 to 0.5011.

(iii) **Girls**

The coefficient of correlation obtained is 0.4012. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3099 to 0.4924.
(iv) Rural Subjects

The coefficient of correlation obtained is 0.3739. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2810 to 0.4667.

(v) Urban Subjects

The coefficient of correlation obtained is 0.3985. It is significant at 0.01 level and the 0.01 confidence interval is from 0.3058 to 0.4911.

(vi) Government School Subjects

The coefficient of correlation obtained is 0.3851. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2901 to 0.4801.

(vii) Private School Subjects

The coefficient of correlation obtained is 0.3918. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2991 to 0.4821.

(viii) High Achievement Group

The coefficient of correlation obtained is 0.2304. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1004 to 0.3604.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.1984. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0769 to 0.3199.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.1795. It is significant at 0.05 level and the 0.01 confidence interval is from 0.0463 to 0.3128.
Interpretations

The following results show that Intelligence (Total) and Scientific Creativity are closely associated variables:

(a) All coefficients of correlation obtained are significant at 0.01 level for all samples.

(b) The coefficients of correlation are in the range of 0.1795 to 0.4185. The relationship between the variables may be described as substantial or marked for Total sample and Boys. For all other subsamples, the relationship may be described as low or slight.

(c) All the obtained coefficients of correlation are positive showing that any increase or decrease in Scientific Creativity will be followed by a corresponding increase or decrease in Intelligence (total).

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance obtained shows that nearly 18 percent of the variance of Intelligence (Total) is attributable to the variance in one's Scientific Creativity. In terms of common shared variance, the maximum overlap between the variables is nearly 17 percent and minimum overlap is about 3 percent.

4.2.2.2 Relationship between Intelligence and Achievement Motivation

The relationship between Intelligence and Achievement Motivation is discussed under the following the tables:
1. Relationship between Verbal Intelligence and Achievement Motivation

Table 4.51 shows the correlations of Verbal Intelligence and Achievement Motivation for the Total sample and relevant subsamples.

Table 4.51

Product Moment Coefficients of Correlation of Verbal Intelligence and Achievement Motivation for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.1138**</td>
<td>0.0294</td>
<td>0.0377 to 0.1896</td>
<td>1.29</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.1123**</td>
<td>0.0418</td>
<td>0.0045 to 0.2202</td>
<td>1.26</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.1081**</td>
<td>0.417</td>
<td>0.0264 to 0.1897</td>
<td>1.17</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.1030*</td>
<td>0.0417</td>
<td>0.0264 to 0.1897</td>
<td>1.17</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.1051*</td>
<td>0.0422</td>
<td>0.0223 to 0.1878</td>
<td>1.10</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.1212**</td>
<td>0.0426</td>
<td>0.0113 to 0.2311</td>
<td>1.47</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.1181*</td>
<td>0.0408</td>
<td>0.0382 to 0.1980</td>
<td>1.39</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.0981</td>
<td>0.0527</td>
<td></td>
<td>0.96</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.1102*</td>
<td>0.484</td>
<td>0.0153 to 0.2051</td>
<td>1.21</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.0124</td>
<td></td>
<td></td>
<td>0.02</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level

*indicates significance at 0.05 level

Table 4.51 shows that the coefficients of correlation obtained are as follows:

(i) Total Sample

The coefficient of correlation obtained is 0.1138. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0377 to 0.1898.
(ii) Boys

The coefficient of correlation obtained is 0.1123. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0045 to 0.2202.

(iii) Girls

The coefficient of correlation obtained is 0.1081. It is significant at 0.05 level and the 0.05 confidence interval is from 0.0264 to 0.1897.

(iv) Rural Subjects

The coefficient of correlation obtained is 0.1030. It is significant at 0.05 level and the 0.05 confidence interval is from 0.0218 to 0.1842.

(v) Urban Subjects

The coefficient of correlation obtained is 0.1051. It is significant at 0.05 level and the 0.05 confidence interval is from 0.0223 to 0.1878.

(vi) Government School Subjects

The coefficient of correlation obtained is 0.1212. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0113 to 0.2311.

(vii) Private School Subjects

The coefficient of correlation obtained is 0.1181. It is significant at 0.05 level and the 0.05 confidence interval is from 0.0382 to 0.1980.

(viii) High Achievement Group

The coefficient of correlation obtained is 0.0981. It is not significant at any level.
(ix) **Average Achievement Group**

The coefficient of correlation obtained is 0.1102. It is significant at 0.05 level and the 0.05 confidence interval is from 0.0153 to 0.2051.

(x) **Low Achievement Group**

The coefficient of correlation obtained is 0.0124. It is not significant at any level.

**Interpretations**

The following results indicate a very slight association between Verbal Intelligence and Achievement Motivation:

(a) The coefficients of correlation obtained are significant at 0.01 level for the Total sample and subsamples of Boys and Government schools. The ‘r’s are significant at 0.05 level for subsamples of Girls, Rural, Urban, Private schools and Average Achievement groups. The obtained ‘r’s are not significant for High and Low Achievement groups.

(b) The coefficients of correlation obtained are in the range of 0.0124 to 0.1181. The relationship between the variables may be considered as very low.

(c) All the obtained ‘r’ values are positive showing that any increase or decrease in Achievement Motivation will be followed by a corresponding increase or decrease in Verbal Intelligence.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.
(e) The obtained percentage variance shows that only 1 percent of the variance of Verbal Intelligence is attributable to the variance in one's Achievement Motivation.

**4.2.3.8 Relationship between Non-verbal Intelligence and Achievement Motivation**

Table 4.52 shows the correlations of Non-verbal Intelligence and Achievement Motivation for the Total sample and relevant subsamples.

**Table 4.52**

Product Moment Coefficients of Correlation of Non-verbal Intelligence and Achievement Motivation for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.1432**</td>
<td>0.0293</td>
<td>0.0653 to 0.2187</td>
<td>2.05</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.1200**</td>
<td>0.0418</td>
<td>0.0123 to 0.2277</td>
<td>1.44</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.1332**</td>
<td>0.0414</td>
<td>0.0264 to 0.2400</td>
<td>1.77</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.1185**</td>
<td>0.0413</td>
<td>0.0121 to 0.2249</td>
<td>1.40</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.1312**</td>
<td>0.0419</td>
<td>0.0229 to 0.2394</td>
<td>1.72</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.1451**</td>
<td>0.0423</td>
<td>0.0359 to 0.2543</td>
<td>2.11</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.1504**</td>
<td>0.0404</td>
<td>0.0461 to 0.2546</td>
<td>2.26</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.1011</td>
<td></td>
<td></td>
<td>1.02</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.0783</td>
<td></td>
<td></td>
<td>0.61</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.0218</td>
<td></td>
<td></td>
<td>0.04</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level**

Table 4.52 shows that the coefficients of correlation obtained are as follows:
(i) **Total Sample**

The coefficient of correlation obtained is 0.1432. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0653 to 0.2187.

(ii) **Boys**

The coefficient of correlation obtained is 0.1200. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0123 to 0.2227.

(iii) **Girls**

The coefficient of correlation obtained is 0.1332. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0264 to 0.2400.

(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.1185. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0121 to 0.2249.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.1312. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0229 to 0.2394.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.1451. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0359 to 0.2543.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.1504. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0461 to 0.2546.
(viii) High Achievement Group

The coefficient of correlation obtained is 0.1011. It is not significant at any level.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.0783. It is not significant at any level.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.0218. It is not significant at any level.

Interpretations

The following results show that there is negligible relationship between Non-verbal Intelligence and Achievement Motivation.

(a) The coefficients of correlation obtained are not significant for the three Achievement groups (HA, AA and LA groups). The obtained 'r' values are significant at 0.01 level for all other samples.

(b) The significant coefficients of correlation are in the range of 0.1185 to 0.1504. The relationship between the variables is to be considered as very low.

(c) All the obtained 'r' values are positive showing that any increase or decrease in Achievement Motivation will be followed by a corresponding increase or decrease in Non-verbal Intelligence.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.
The obtained percentage variance shows that only 2 percent of the variance of Achievement Motivation is attributable to the variance in Non-verbal Intelligence.

3. **Relationship between Intelligence (Total) and Achievement Motivation**

Table 4.53 shows the correlation of Intelligence (Total) and Achievement Motivation for the Total sample and relevant subsamples.

**Table 4.53**

**Product Moment Coefficients of Correlation of Intelligence (Total) and Achievement Motivation for the Total Sample and Subsamples**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation ‘r’</th>
<th>SEr</th>
<th>Confidence Interval of ‘r’</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.1214**</td>
<td>0.0294</td>
<td>0.0454 to 0.1974</td>
<td>1.47</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.1198**</td>
<td>0.0418</td>
<td>0.0121 to 0.2275</td>
<td>1.44</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.1211**</td>
<td>0.0415</td>
<td>0.0143 to 0.2285</td>
<td>1.47</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.1185**</td>
<td>0.0413</td>
<td>0.0120 to 0.2249</td>
<td>1.40</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.1203**</td>
<td>0.0421</td>
<td>0.0118 to 0.2249</td>
<td>1.45</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.1312**</td>
<td>0.0425</td>
<td>0.0216 to 0.2408</td>
<td>1.72</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.1385**</td>
<td>0.0406</td>
<td>0.0339 to 0.2431</td>
<td>1.92</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.1002</td>
<td></td>
<td></td>
<td>1.0</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.0933</td>
<td></td>
<td></td>
<td>0.87</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.0223</td>
<td></td>
<td></td>
<td>0.05</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level**

Table 4.53 shows that the coefficients of correlation obtained are as follows:
(i) **Total Sample**

The coefficient of correlation obtained is 0.1214. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0484 to 0.1974.

(ii) **Boys**

The coefficient of correlation obtained is 0.1198. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0121 to 0.2275.

(iii) **Girls**

The coefficient of correlation obtained is 0.1211. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0143 to 0.2285.

(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.1185. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0120 to 0.2240.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.1203. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0118 to 0.2288.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.1312. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0216 to 0.2408.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.1385. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0339 to 0.2431.
(viii) High Achievement Group

The coefficient of correlation obtained is 0.1002. It is not significant at any level.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.0933. It is not significant at any level.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.0223. It is not significant at any level.

Interpretations

The following results show that the relationship between Intelligence (total) and Achievement Motivation is low:

(a) The coefficients of correlation obtained are significant at 0.01 level for the Total sample and subsamples of Boys, Girls, Rural, Urban, Government and Private schools. The obtained 'r's are not significant for the three Achievement groups (HA, AA and LA groups).

(b) The significant coefficients of correlation obtained are in the range of 0.1185 to 0.1385. Though these 'r' values are negligible, their significance shows that there exists a true relationship between the two variables.

(c) All the 'r's are positive showing that any increase or decrease in Achievement Motivation will be attended by a corresponding increase or decrease in Intelligence (total).
(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance obtained shows that only 1.92 percent of the variance of Achievement Motivation is attributable to the variance in one's Intelligence (total).

4.2.2.3 Relationship between Intelligence and Home Environment

The relationship between Intelligence and Home Environment is discussed under the following tables:

1. Relationship between Verbal Intelligence and Home Environment

Table 4.54 shows the correlations of Verbal Intelligence and Home Environment for the Total sample and relevant subsamples.

**Table 4.54**

Product Moment Coefficients of Correlation of Verbal Intelligence and Home Environment for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.2385**</td>
<td>0.0282</td>
<td>0.1658 to 0.3112</td>
<td>5.69</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.2203**</td>
<td>0.0403</td>
<td>0.1163 to 0.3243</td>
<td>4.85</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.2111**</td>
<td>0.0403</td>
<td>0.1072 to 0.3149</td>
<td>4.46</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.2432**</td>
<td>0.0394</td>
<td>0.1416 to 0.3448</td>
<td>5.91</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.2208**</td>
<td>0.0406</td>
<td>0.1161 to 0.3255</td>
<td>4.88</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.2191**</td>
<td>0.0412</td>
<td>0.1129 to 0.3253</td>
<td>4.80</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.2083**</td>
<td>0.0396</td>
<td>0.1063 to 0.3103</td>
<td>4.34</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.2121**</td>
<td>0.0508</td>
<td>0.0809 to 0.3432</td>
<td>4.49</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.2121**</td>
<td>0.0508</td>
<td>0.0809 to 0.3432</td>
<td>4.49</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.2994**</td>
<td>0.0486</td>
<td>0.1740 to 0.4248</td>
<td>8.96</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level**
Table 4.54 shows that the coefficients of correlation obtained are as follows:

(i) **Total Sample**

The coefficient of correlation obtained is 0.2385. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1658 to 0.3112.

(ii) **Boys**

The coefficient of correlation obtained is 0.2203. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1163 to 0.3243.

(iii) **Girls**

The coefficient of correlation obtained is 0.2111. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1072 to 0.3149.

(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.2432. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1416 to 0.3448.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.2208. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1161 to 0.3255.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.2191. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1129 to 0.3253.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.2083. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1063 to 0.3103.
(viii) High Achievement Group

The coefficient of correlation obtained is 0.2121. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0809 to 0.3432.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.1882. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0662 to 0.3102.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.2994. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1740 to 0.4248.

Interpretations

The following results show that Verbal Intelligence and Home Environment are related to some extent:

(a) For all samples, the coefficients of correlation obtained are significant at 0.01 level.
(b) The coefficients of correlation obtained are in the range of 0.1882 to 0.2994. The relationship between the variables can be considered as low or slight.
(c) All the obtained 'r' values are positive showing that any increase or decrease in Home Environment will be followed by a corresponding increase or decrease in Verbal Intelligence.
(d) The 0.01 confidence intervals show the probable range of the corresponding population values.
(e) The percentage variance obtained shows that nearly 6 percent of the variance of Verbal Intelligence is attributable to the variance in one's Home Environment of the subjects. In terms of common shared variance, the maximum overlap of Verbal Intelligence with Home Environment is nearly 9 percent and minimum overlap is nearly 4 percent.

2. Relationship between Non-verbal Intelligence and Home Environment

Table 4.55 shows the correlations of Non-verbal Intelligence Home Environment for the Total sample and relevant subsamples.

Table 4.55
Product Moment Coefficients of Correlation of Non-verbal Intelligence and Home Environment for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.2142**</td>
<td>0.0285</td>
<td>0.1406 to 0.2878</td>
<td>4.59</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.2083**</td>
<td>0.0405</td>
<td>0.1037 to 0.3129</td>
<td>4.34</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.2281**</td>
<td>0.0399</td>
<td>0.1250 to 0.3312</td>
<td>5.20</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.1985**</td>
<td>0.0405</td>
<td>0.0941 to 0.3028</td>
<td>3.94</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.2099**</td>
<td>0.0408</td>
<td>0.1046 to 0.3152</td>
<td>4.41</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.2120**</td>
<td>0.0413</td>
<td>0.1054 to 0.3186</td>
<td>4.48</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.2030**</td>
<td>0.0396</td>
<td>0.1007 to 0.3053</td>
<td>4.12</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.1083*</td>
<td>0.0526</td>
<td>0.0052 to 0.2113</td>
<td>1.17</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.1232*</td>
<td>0.0482</td>
<td>0.0287 to 0.2177</td>
<td>1.52</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.2142**</td>
<td>0.0509</td>
<td>0.0828 to 0.3458</td>
<td>4.59</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level
*indicates significance at 0.05 level

Table 4.55 shows that the coefficients of correlation obtained are as follows:
(i) **Total Sample**

The coefficient of correlation obtained is 0.2142. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1406 to 0.2878.

(ii) **Boys**

The coefficient of correlation obtained is 0.2083. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1037 to 0.3129.

(iii) **Girls**

The coefficient of correlation obtained is 0.2281. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1250 to 0.3312.

(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.1985. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0941 to 0.3029.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.2099. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1046 to 0.3152.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.2120. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1054 to 0.3186.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.2030. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1007 to 0.3053.
(viii) High Achievement Group

The coefficient of correlation obtained is 0.1083. It is significant at 0.05 level and the 0.05 confidence interval is from 0.0052 to 0.2113.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.1232. It is significant at 0.05 level and the 0.05 confidence interval is from 0.0287 to 0.2177.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.2142. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0828 to 0.3456.

Interpretations

The following results show that Non-verbal Intelligence is slightly influenced by Home Environment:

(a) The coefficients of correlation obtained for the High Achievement and Average Achievement groups are significant at 0.05 level. All other 'r's are significant at 0.01 level.

(b) The coefficients of correlation obtained are in the range of 0.1083 to 0.2281. The relationship between the variables is low or slight.

(c) All the obtained 'r' values are positive showing that any increase or decrease in Home Environment will be followed by a corresponding increase or decrease in Non-verbal Intelligence.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.
(e) The obtained percentage variance shows that nearly 5 percent of the variance of Non-verbal Intelligence is attributable to the variance in Home Environment. In terms of common shared variance, the maximum overlap between the variables is nearly 5 percent and minimum overlap is about 1 percent.

3. Relationship between Intelligence (Total) and Home Environment

Table 4.56 shows the correlation of Intelligence (Total) and Home Environment for the Total sample and relevant subsamples.

Table 4.56
Product Moment Coefficients of Correlation of Intelligence (Total) and Home Environment for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Total</td>
<td>0.2080**</td>
<td>0.0286</td>
<td>0.1342 to 0.2818</td>
<td>4.33</td>
</tr>
<tr>
<td>2</td>
<td>Boys</td>
<td>0.2132**</td>
<td>0.0404</td>
<td>0.1089 to 0.3175</td>
<td>4.55</td>
</tr>
<tr>
<td>3</td>
<td>Girls</td>
<td>0.2191**</td>
<td>0.0401</td>
<td>0.1156 to 0.3226</td>
<td>4.80</td>
</tr>
<tr>
<td>4</td>
<td>Rural</td>
<td>0.2322**</td>
<td>0.0396</td>
<td>0.1300 to 0.3343</td>
<td>5.39</td>
</tr>
<tr>
<td>5</td>
<td>Urban</td>
<td>0.2085**</td>
<td>0.0408</td>
<td>0.1269 to 0.3138</td>
<td>4.35</td>
</tr>
<tr>
<td>6</td>
<td>Government</td>
<td>0.2131**</td>
<td>0.0413</td>
<td>0.1086 to 0.3196</td>
<td>4.54</td>
</tr>
<tr>
<td>7</td>
<td>Private</td>
<td>0.2048**</td>
<td>0.0396</td>
<td>0.1026 to 0.3069</td>
<td>4.19</td>
</tr>
<tr>
<td>8</td>
<td>High Ach. Group</td>
<td>0.1883**</td>
<td>0.0513</td>
<td>0.0558 to 0.3208</td>
<td>3.55</td>
</tr>
<tr>
<td>9</td>
<td>Average Ach. Group</td>
<td>0.1713**</td>
<td>0.0475</td>
<td>0.0485 to 0.2941</td>
<td>2.93</td>
</tr>
<tr>
<td>10</td>
<td>Low Ach. Group</td>
<td>0.2431**</td>
<td>0.0502</td>
<td>0.1136 to 0.3726</td>
<td>5.91</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level

Table 4.56 shows that the coefficients of correlation obtained are as follows:

(i) Total Sample

The coefficient of correlation obtained is 0.2080. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1342 to 0.2818.
(ii) Boys

The coefficient of correlation obtained is 0.2132. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1089 to 0.3175.

(iii) Girls

The coefficient of correlation obtained is 0.2191. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1156 to 0.3226.

(iv) Rural Subjects

The coefficient of correlation obtained is 0.2322. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1300 to 0.3343.

(v) Urban Subjects

The coefficient of correlation obtained is 0.2085. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1269 to 0.3138.

(vi) Government School Subjects

The coefficient of correlation obtained is 0.2131. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1066 to 0.3196.

(vii) Private School Subjects

The coefficient of correlation obtained is 0.2048. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1026 to 0.3069.

(viii) High Achievement Group

The coefficient of correlation obtained is 0.1883. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0558 to 0.3208.
(ix) Average Achievement Group

The coefficient of correlation obtained is 0.1713. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0485 to 0.2941.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.2431. It is significant at 0.05 level and the 0.01 confidence interval is from 0.1136 to 0.3726.

Interpretations

The following results show that Intelligence (Total) and Home Environment are associated variables:

(a) The coefficients of correlation obtained are significant at 0.01 level for all samples.

(b) The coefficients of correlation are in the range of 0.1713 to 0.2322. The relationship between the variables may be described as low or slight.

(c) All the obtained coefficients of correlation are positive showing that any increase or decrease in Home Environment will be followed by a corresponding increase or decrease in Intelligence (total).

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance obtained shows that about 4 percent of the variance of Intelligence (Total) is attributable to the variance in one's Home Environment. In terms of common shared variance, the
maximum overlap between the variables is about 5 percent and minimum overlap is nearly 3 percent.

4.2.2.4 The relationship between Scientific Creativity and Achievement Motivation

The relationship between Scientific Creativity and Achievement Motivation is given under the following tables:

1. **Relationship between Fluency and Achievement Motivation**

Table 4.57 shows the correlations of Fluency and Achievement Motivation for the Total sample and relevant subsamples.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.1818**</td>
<td>0.0289</td>
<td>0.1073 to 0.2563</td>
<td>3.30</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.1921**</td>
<td>0.0408</td>
<td>0.0868 to 0.2974</td>
<td>3.69</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.1664**</td>
<td>0.0409</td>
<td>0.0607 to 0.2721</td>
<td>2.77</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.1312**</td>
<td>0.0411</td>
<td>0.0251 to 0.2373</td>
<td>1.72</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.1415**</td>
<td>0.0418</td>
<td>0.0336 to 0.2494</td>
<td>2.0</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.1325**</td>
<td>0.0425</td>
<td>0.0229 to 0.2421</td>
<td>1.76</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.1145**</td>
<td>0.0366</td>
<td>0.0200 to 0.2089</td>
<td>1.31</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.2014**</td>
<td>0.0516</td>
<td>0.0697 to 0.3331</td>
<td>4.06</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.1816**</td>
<td>0.0474</td>
<td>0.0593 to 0.3039</td>
<td>3.20</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.1614**</td>
<td>0.0519</td>
<td>0.0047 to 0.2955</td>
<td>2.60</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level

Table 4.57 shows that the coefficients of correlation obtained are as follows:
(i) Total Sample

The coefficient of correlation obtained is 0.1818. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1073 to 0.2563.

(ii) Boys

The coefficient of correlation obtained is 0.1921. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0868 to 0.2974.

(iii) Girls

The coefficient of correlation obtained is 0.1664. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0607 to 0.2721.

(iv) Rural Subjects

The coefficient of correlation obtained is 0.1312. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0251 to 0.2373.

(v) Urban Subjects

The coefficient of correlation obtained is 0.1415. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0336 to 0.2494.

(vi) Government School Subjects

The coefficient of correlation obtained is 0.1325. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0229 to 0.2421.

(vii) Private School Subjects

The coefficient of correlation obtained is 0.1145. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0200 to 0.2089.
(viii) **High Achievement Group**

The coefficient of correlation obtained is 0.2014. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0697 to 0.3331.

(ix) **Average Achievement Group**

The coefficient of correlation obtained is 0.1816. It is significant at 0.01 level. The 0.01 confidence interval is from 0.0593 to 0.3093.

(x) **Low Achievement Group**

The coefficient of correlation obtained is 0.1614. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0047 to 0.2995.

**Interpretations**

The following results show that there exists a very low relationship between Fluency and Achievement Motivation:

(a) The coefficients of correlation obtained are significant at 0.01 level for all samples.

(b) The coefficients of correlation obtained are in the range of 0.1145 to 0.2014. Though the values of ‘r’ are negligible, their significance indicate that there exists a true relationship between the two variables.

(c) All the coefficients of correlation obtained are positive showing that any increase or decrease in Achievement Motivation will be followed by a corresponding slight change in one's Fluency.

(d) The 0.01 confidence intervals show the probability of the corresponding population values.
(e) The percentage variance obtained shows that about 3 percent of the variance of Fluency is attributable to Achievement Motivation. In terms of common shared variance, the maximum overlap is nearly 4 percent and minimum overlap is about 1 percent.

2. Relationship between Flexibility and Achievement Motivation

Table 4.58 shows the correlations of Flexibility and Achievement Motivation for the Total sample and relevant subsamples.

**Table 4.58**

Product Moment Coefficients of Correlation of Flexibility and Achievement Motivation for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.1183**</td>
<td>0.0374</td>
<td>0.0219 to 0.2747</td>
<td>1.39</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.1214**</td>
<td>0.0417</td>
<td>0.0137 to 0.2291</td>
<td>1.47</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.1031*</td>
<td>0.0417</td>
<td>0.0213 to 0.1848</td>
<td>1.06</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.0981*</td>
<td>0.0414</td>
<td>0.0169 to 0.1793</td>
<td>0.96</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.0814</td>
<td>0.0424</td>
<td></td>
<td>0.66</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.1018*</td>
<td>0.0428</td>
<td>0.0179 to 0.1857</td>
<td>1.04</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.0980*</td>
<td>0.0409</td>
<td>0.0177 to 0.1783</td>
<td>0.96</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.1982**</td>
<td>0.0511</td>
<td>0.0663 to 0.3301</td>
<td>3.92</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.1232*</td>
<td>0.0483</td>
<td>0.0286 to 0.2178</td>
<td>1.52</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.0201</td>
<td>0.0533</td>
<td></td>
<td>0.04</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level
*indicates significance at 0.05 level

Table 4.58 shows that the coefficients of correlation obtained are as follows:
(i) Total Sample

The coefficient of correlation obtained is 0.1183. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0219 to 0.2747.

(ii) Boys

The coefficient of correlation obtained is 0.1214. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0137 to 0.2291.

(iii) Girls

The coefficient of correlation obtained is 0.1031. It is significant at 0.05 level and the 0.05 confidence interval is from 0.0213 to 0.1848.

(iv) Rural Subjects

The coefficient of correlation obtained is 0.0981. It is significant at 0.05 level and the 0.05 confidence interval is from 0.0169 to 0.1793.

(v) Urban Subjects

The coefficient of correlation obtained is 0.0814. It is not significant at any level.

(vi) Government School Subjects

The coefficient of correlation obtained is 0.1018. It is significant at 0.05 level and the 0.05 confidence interval is from 0.0179 to 0.1857.

(vii) Private School Subjects

The coefficient of correlation obtained is 0.0980. It is significant at 0.05 level and the 0.05 confidence interval is from 0.0177 to 0.1783.
(viii) High Achievement Group

The coefficient of correlation obtained is 0.1982. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0663 to 0.3301.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.1232. It is significant at 0.05 level and the 0.05 confidence interval is from 0.0286 to 0.2178.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.0201. It is not significant at any level.

Interpretations

The following results show that the relationship between Flexibility and Achievement Motivation is very low:

(a) The coefficients of correlation obtained are significant at 0.01 level for the Total sample, Boys and High Achievement group. The coefficients of correlation obtained are significant at 0.05 level for Girls, Rural, Government, Private and for High Achievement group. The obtained correlation is not significant for Urban subjects and Low Achievement group.

(b) The coefficients of correlation are in the range of 0.0980 to 0.1982. The relationship between the variables may be described as negligible.
(c) The coefficients of correlation obtained are positive showing that any increase or decrease in Achievement Motivation will be attended by a corresponding slight change in Flexibility and vice versa.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance obtained shows that only 4 percent of the variance of Flexibility is attributable to the variance in one's Achievement Motivation.

3. **Relationship between Originality and Achievement Motivation**

Table 4.59 shows the correlations of Originality and Achievement Motivation for the Total sample and relevant subsamples.

**Table 4.59**

*Product Moment Coefficients of Correlation of Originality and Achievement Motivation for the Total Sample and Subsamples*

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.0312</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.0224</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.0155</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.0121</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.0283</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.0192</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.0214</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.1012</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.0932</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.0221</td>
</tr>
</tbody>
</table>
From the table, it is evident that none of the coefficients of correlation are significant. The obtained ‘r’ values are negligible. This indicates that there is no relationship between Originality and Achievement Motivation.

4. Relationship between Verbal Scientific Creativity and Achievement Motivation

Table 4.60 shows the correlations of Verbal Scientific Creativity and Achievement Motivation for the Total sample and relevant subsamples.

**Table 4.60**

Product Moment Coefficients of Correlation of Verbal Scientific Creativity Achievement Motivation for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation ‘r’</th>
<th>SEr</th>
<th>Confidence Interval of ‘r’</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Total</td>
<td>0.1057**</td>
<td>0.0417</td>
<td>0.0291 to 0.1811</td>
<td>1.10</td>
</tr>
<tr>
<td>2</td>
<td>Boys</td>
<td>0.1212**</td>
<td>0.0417</td>
<td>0.0135 to 0.2289</td>
<td>1.46</td>
</tr>
<tr>
<td>3</td>
<td>Girls</td>
<td>0.1138**</td>
<td>0.0416</td>
<td>0.0065 to 0.2211</td>
<td>1.29</td>
</tr>
<tr>
<td>4</td>
<td>Rural</td>
<td>0.1238**</td>
<td>0.0412</td>
<td>0.0175 to 0.2301</td>
<td>1.53</td>
</tr>
<tr>
<td>5</td>
<td>Urban</td>
<td>0.1032*</td>
<td>0.0422</td>
<td>0.0056 to 0.2121</td>
<td>1.06</td>
</tr>
<tr>
<td>6</td>
<td>Government</td>
<td>0.1081*</td>
<td>0.0427</td>
<td>0.0021 to 0.2183</td>
<td>1.16</td>
</tr>
<tr>
<td>7</td>
<td>Private</td>
<td>0.1180**</td>
<td>0.0407</td>
<td>0.0129 to 0.2231</td>
<td>1.39</td>
</tr>
<tr>
<td>8</td>
<td>High Ach. Group</td>
<td>0.0981</td>
<td>0.0527</td>
<td></td>
<td>0.96</td>
</tr>
<tr>
<td>9</td>
<td>Average Ach. Group</td>
<td>0.1231*</td>
<td>0.0482</td>
<td>0.0013 to 0.2475</td>
<td>0.15</td>
</tr>
<tr>
<td>10</td>
<td>Low Ach. Group</td>
<td>0.1032</td>
<td>0.0528</td>
<td></td>
<td>1.06</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level
*indicates significance at 0.05 level

Table 4.60 shows that the coefficients of correlation obtained are as follows:
(i) **Total Sample**

The coefficient of correlation obtained is 0.1051. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0291 to 0.1811.

(ii) **Boys**

The coefficient of correlation obtained is 0.1212. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0135 to 0.2289.

(iii) **Girls**

The coefficient of correlation obtained is 0.1138. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0065 to 0.2211.

(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.1238. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0175 to 0.2301.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.1032. It is significant at 0.05 level and the 0.05 confidence interval is from 0.0056 to 0.2121.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.1081. It is significant at 0.05 level and the 0.05 confidence interval is from 0.0021 to 0.2183.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.1180. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0129 to 0.2231.
(viii) High Achievement Group

The coefficient of correlation obtained is 0.0981. It is not significant at any level.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.1231. It is significant at 0.05 level. The 0.05 confidence interval is from 0.0013 to 0.2475.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.1032. It is not significant at any level.

Interpretations

The following results show that there exists a very low relationship between Verbal Scientific Creativity and Achievement Motivation:

(a) The coefficients of correlation obtained are significant at 0.01 level for the Total sample and subsamples of Boys, Girls, Rural and Private schools. The obtained ‘r’s are significant at 0.05 level for subsamples of Urban, Government schools and Average Achievement group. The obtained ‘r’s are not significant for High and Low Achievement groups.

(b) The significant coefficients of correlation obtained are in the range of 0.1032 to 0.1238. Even though the ‘r’ values are negligible, its significance indicate a very low association between the variables.
(c) All the coefficients of correlation are positive showing that any increase in Achievement Motivation will be followed by a corresponding slight change in Verbal Scientific Creativity.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance obtained shows that only 1 percent of Verbal Scientific Creativity is attributable to the variance in one's Achievement Motivation.

5. Relationship between Non-verbal Scientific Creativity and Achievement Motivation

Table 4.61 shows the correlations of Non-verbal Scientific Creativity and Achievement Motivation for the Total sample and relevant subsamples.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.0814**</td>
<td>0.0296</td>
<td>0.0050 to 0.1578</td>
<td>0.66</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.0332</td>
<td>0.0423</td>
<td></td>
<td>0.11</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.0723</td>
<td>0.0416</td>
<td></td>
<td>0.52</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.0812</td>
<td>0.0414</td>
<td></td>
<td>0.66</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.0987*</td>
<td>0.0423</td>
<td>0.0102 to 0.2080</td>
<td>0.97</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.0884*</td>
<td>0.0429</td>
<td>0.0223 to 0.1990</td>
<td>0.78</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.0704</td>
<td>0.0411</td>
<td></td>
<td>0.49</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.1014</td>
<td>0.0525</td>
<td></td>
<td>1.24</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.0813</td>
<td>0.0485</td>
<td></td>
<td>1.03</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.0333</td>
<td>0.0533</td>
<td></td>
<td>0.11</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level
*indicates significance at 0.05 level
Table 4.61 shows that the coefficients of correlation obtained are as follows:

(i) **Total Sample**

The coefficient of correlation obtained is 0.0814. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0050 to 0.1378.

(ii) **Boys**

The coefficient of correlation obtained is 0.0332. It is not significant at any level.

(iii) **Girls**

The coefficient of correlation obtained is 0.0723. It is not significant at any level.

(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.0812. It is not significant at any level.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.0987. It is significant at 0.05 level. The 0.05 confidence interval is from 0.0102 to 0.2080.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.0884. It is significant at 0.05 level. The 0.05 confidence interval is from 0.0223 to 0.1990.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.0704. It is not significant at any level.
(viii) High Achievement Group

The coefficient of correlation obtained is 0.1014. It is not significant at any level.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.0813. It is not significant at any level.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.0333. It is not significant at any level.

Interpretations

The following results show that the relationship between Non-verbal Scientific Creativity and Achievement Motivation is very low:

(a) The coefficients of correlation obtained are significant at 0.01 level for the Total sample. The obtained ‘r’s are significant at 0.05 level for subsamples of Urban and Government schools. The obtained ‘r’s are not significant for Boys, Girls, Rural and Private school subjects and for the three Achievement groups (HA, AA and LA groups).

(b) The significant coefficients of correlation are in the range of 0.0814 to 0.1014. The obtained ‘r’ values are too small to be considered.

6. Relationship between Scientific Creativity (Total) and Achievement Motivation

Table 4.62 shows the correlations of Scientific Creativity and Achievement Motivation for the Total sample and relevant subsamples.
Table 4.62
Product Moment Coefficients of Correlation of Scientific Creativity and Achievement Motivation for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.1185**</td>
<td>0.0294</td>
<td>0.0427 to 0.1943</td>
<td>1.40</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.1018*</td>
<td>0.0263</td>
<td>0.0141 to 0.2095</td>
<td>1.48</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.0985*</td>
<td>0.0417</td>
<td>0.0167 to 0.2061</td>
<td>0.97</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.0801</td>
<td>0.0406</td>
<td></td>
<td>1.22</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.1075*</td>
<td>0.0422</td>
<td>0.0013 to 0.2163</td>
<td>1.18</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.0994*</td>
<td>0.0428</td>
<td>0.0110 to 0.2098</td>
<td>0.99</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.1022*</td>
<td>0.0407</td>
<td>0.0028 to 2072</td>
<td>1.49</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.0803</td>
<td>0.0529</td>
<td></td>
<td>0.64</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.1010*</td>
<td>0.0485</td>
<td>0.0241 to 0.2261</td>
<td>1.02</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.1001</td>
<td>0.0526</td>
<td></td>
<td>1.00</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level
*indicates significance at 0.05 level

Table 4.62 shows that the coefficients of correlation obtained are as follows:

(i) **Total Sample**

The coefficient of correlation obtained is 0.1185. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0427 to 0.1943.

(ii) **Boys**

The coefficient of correlation obtained is 0.1018. It is significant at 0.05 level. The 0.05 confidence interval is from 0.0063 to 0.2095.

(iii) **Girls**

The coefficient of correlation obtained is 0.0985. It is significant at 0.05 level. The 0.05 confidence interval is from 0.0167 to 0.2061.
(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.0801. It is not significant at any level.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.1075. It is significant at 0.05 level. The 0.05 confidence interval is from 0.0013 to 0.2163.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.0994. It is significant at 0.05 level. The 0.05 confidence interval is from 0.0110 to 0.2098.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.1022. It is significant at 0.05 level. The 0.05 confidence interval is from 0.0028 to 0.2072.

(viii) **High Achievement Group**

The coefficient of correlation obtained is 0.0803. It is not significant at any level.

(ix) **Average Achievement Group**

The coefficient of correlation obtained is 0.1010. It is significant at 0.05 level and the 0.05 confidence interval is from 0.0241 to 0.2261.

(x) **Low Achievement Group**

The coefficient of correlation obtained is 0.1001. It is not significant at any level.
Interpretations

The following results show that there is very low relationship between
Scientific Creativity (Total) and Achievement Motivation:

(a) The coefficients of correlation obtained are significant at 0.01 level for
the Total sample only. The obtained 'r's are significant at 0.05 level
for Boys, Girls, Urban, Government and Private school subjects and
for average achievement group. The obtained 'r's are not significant
for Rural subjects and two Achievement groups (HA, and LA groups).

(b) The significant coefficients of correlation obtained are in the range of
0.0985 to 0.1185. The 'r' values are too small to be considered.

4.2.2.5 Relationship between Scientific Creativity and Home Environment

The relationship between Scientific Creativity and Home Environment
is given under the following tables:

1. Relationship between Fluency and Home Environment

Table 4.63 shows the correlations of Fluency and Home Environment
for the Total sample and relevant subsamples.
Table 4.63

Product Moment Coefficients of Correlation of Fluency and Home Environment for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.2843**</td>
<td>0.0275</td>
<td>0.2134 to 0.3552</td>
<td>8.08</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.2525**</td>
<td>0.0397</td>
<td>0.1501 to 0.3549</td>
<td>6.38</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.2323**</td>
<td>0.0399</td>
<td>0.1294 to 0.3351</td>
<td>5.39</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.2203**</td>
<td>0.0398</td>
<td>0.1176 to 0.3230</td>
<td>4.85</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.2012**</td>
<td>0.0415</td>
<td>0.0839 to 0.3184</td>
<td>4.05</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.2114**</td>
<td>0.0413</td>
<td>0.0964 to 0.3264</td>
<td>4.47</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.2245**</td>
<td>0.0393</td>
<td>0.1232 to 0.3258</td>
<td>5.04</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.2048**</td>
<td>0.0509</td>
<td>0.0732 to 0.3364</td>
<td>4.19</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.2185**</td>
<td>0.0466</td>
<td>0.0980 to 0.3389</td>
<td>4.77</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.1907**</td>
<td>0.0514</td>
<td>0.0579 to 0.3234</td>
<td>3.64</td>
</tr>
</tbody>
</table>

**Indicates significance at 0.01 level

Table 4.63 shows that the coefficients of correlation obtained are as follows:

(i) **Total Sample**

The coefficient of correlation obtained is 0.2843. It is significant at 0.01 level and the 0.01 confidence interval is from 0.2134 to 0.3552.

(ii) **Boys**

The coefficient of correlation obtained is 0.2525. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1501 to 0.3549.

(iii) **Girls**

The coefficient of correlation obtained is 0.2323. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1294 to 0.3351.
(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.2203. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1176 to 0.3230.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.2012. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0839 to 0.3184.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.2114. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0964 to 0.3264.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.2245. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1232 to 0.3258.

(viii) **High Achievement Group**

The coefficient of correlation obtained is 0.2048. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0732 to 0.3364.

(ix) **Average Achievement Group**

The coefficient of correlation obtained is 0.2185. It is significant at 0.01 level. The 0.01 confidence interval is from 0.0980 to 0.3389.

(x) **Low Achievement Group**

The coefficient of correlation obtained is 0.1907. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0579 to 0.3234.
Interpretations

The following results show that there exists a considerable relationship between Fluency and Home Environment:

(a) The coefficients of correlation obtained are significant at 0.01 level for all samples.

(b) The coefficients of correlation obtained are in the range of 0.1907 to 0.2843. The relationship between the variables may be described as low or slight.

(c) All the coefficients of correlation obtained are positive showing that an increase or decrease in one variable will be followed by a corresponding change in the other variable.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance obtained shows that about 8 percent of the variance of Fluency is attributable to the variance in one's Home Environment. In terms of common shared variance, the maximum overlap between the variables is about 8 percent and minimum overlap is nearly 4 percent.

2. Relationship between Flexibility and Home Environment

Table 4.64 shows the correlations of Flexibility and Home Environment for the Total sample and relevant subsamples.
Table 4.64
Product Moment Coefficients of Correlation of Flexibility and Home Environment for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.2385**</td>
<td>0.0282</td>
<td>0.1658 to 0.3112</td>
<td>5.69</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.2203**</td>
<td>0.0403</td>
<td>0.1163 to 0.3243</td>
<td>4.85</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.2211**</td>
<td>0.0400</td>
<td>0.1176 to 0.3245</td>
<td>4.89</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.2432**</td>
<td>0.0394</td>
<td>0.1416 to 0.3448</td>
<td>5.91</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.2208**</td>
<td>0.0406</td>
<td>0.1161 to 0.3255</td>
<td>4.88</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.2191**</td>
<td>0.0412</td>
<td>0.1129 to 0.3253</td>
<td>4.80</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.2083**</td>
<td>0.0395</td>
<td>0.1063 to 0.3103</td>
<td>4.34</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.2102**</td>
<td>0.0508</td>
<td>0.0789 to 0.3414</td>
<td>4.42</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.1121**</td>
<td>0.0484</td>
<td>0.0128 to 0.2370</td>
<td>1.26</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.1882**</td>
<td>0.0515</td>
<td>0.0554 to 0.3210</td>
<td>3.54</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level

Table 4.64 shows that the coefficients of correlation obtained are as follows:

(i) **Total Sample**

The coefficient of correlation obtained is 0.2385. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1658 to 0.3112.

(ii) **Boys**

The coefficient of correlation obtained is 0.2203. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1163 to 0.3243.

(iii) **Girls**

The coefficient of correlation obtained is 0.2211. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1176 to 0.3245.
(iv) Rural Subjects

The coefficient of correlation obtained is 0.2432. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1416 to 0.3448.

(v) Urban Subjects

The coefficient of correlation obtained is 0.2208. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1161 to 0.3255.

(vi) Government School Subjects

The coefficient of correlation obtained is 0.2191. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1129 to 0.3253.

(vii) Private School Subjects

The coefficient of correlation obtained is 0.2083. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1063 to 0.3103.

(viii) High Achievement Group

The coefficient of correlation obtained is 0.2102. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0789 to 0.3414.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.1121. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0128 to 0.2370.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.1882. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0554 to 0.3210.
Interpretations

The following results show the existence of a true relationship between Flexibility and Home Environment:

(a) The coefficients of correlation obtained are significant at 0.01 level for all samples.

(b) The coefficients of correlation obtained are in the range of 0.1121 to 0.2432. The relationship between the variables is described as low or slight.

(c) The coefficients of correlation obtained are positive for all samples showing that any increase or decrease in Home Environment will be attended by a corresponding increase or decrease in Scientific Creativity.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance obtained shows that nearly 6 percent of the variance of Flexibility is attributable to the variance in one's Home Environment. In terms of common shared variance, the maximum overlap between the variables is nearly 6 percent and minimum overlap is about 1 percent.

3. Relationship between Originality and Home Environment

Table 4.65 shows the correlations of Originality and Home Environment for the Total sample and relevant subsamples.
Table 4.65
Product Moment Coefficients of Correlation of Originality and Home Environment for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Total</td>
<td>0.1235**</td>
<td>0.0293</td>
<td>0.0478 to 0.1992</td>
<td>1.52</td>
</tr>
<tr>
<td>2</td>
<td>Boys</td>
<td>0.1173**</td>
<td>0.0418</td>
<td>0.0095 to 0.2251</td>
<td>1.38</td>
</tr>
<tr>
<td>3</td>
<td>Girls</td>
<td>0.1081*</td>
<td>0.0416</td>
<td>0.0264 to 0.1897</td>
<td>1.17</td>
</tr>
<tr>
<td>4</td>
<td>Rural</td>
<td>0.1325**</td>
<td>0.0411</td>
<td>0.0264 to 0.2385</td>
<td>1.76</td>
</tr>
<tr>
<td>5</td>
<td>Urban</td>
<td>0.1185**</td>
<td>0.0421</td>
<td>0.0099 to 0.2270</td>
<td>1.40</td>
</tr>
<tr>
<td>6</td>
<td>Government</td>
<td>0.1421**</td>
<td>0.0423</td>
<td>0.0329 to 0.2513</td>
<td>2.02</td>
</tr>
<tr>
<td>7</td>
<td>Private</td>
<td>0.1210*</td>
<td>0.0406</td>
<td>0.0412 to 0.2008</td>
<td>1.46</td>
</tr>
<tr>
<td>8</td>
<td>High Ach. Group</td>
<td>0.0814</td>
<td>0.0532</td>
<td></td>
<td>0.66</td>
</tr>
<tr>
<td>9</td>
<td>Average Ach. Group</td>
<td>0.1021*</td>
<td>0.0485</td>
<td>0.0071 to 0.1971</td>
<td>1.04</td>
</tr>
<tr>
<td>10</td>
<td>Low Ach. Group</td>
<td>0.1031</td>
<td>0.0528</td>
<td></td>
<td>1.06</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level
*indicates significance at 0.05 level

Table 4.65 shows that the coefficients of correlation obtained are as follows:

(i) **Total Sample**

The coefficient of correlation obtained is 0.1235. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0478 to 0.1992.

(ii) **Boys**

The coefficient of correlation obtained is 0.1173. It is significant at 0.05 level and the 0.05 confidence interval is from 0.0095 to 0.2251.

(iii) **Girls**

The coefficient of correlation obtained is 0.1081. It is significant at 0.05 level and the 0.01 confidence interval is from 0.0264 to 0.1897.
(iv) Rural Subjects

The coefficient of correlation obtained is 0.1325. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0264 to 0.1897.

(v) Urban Subjects

The coefficient of correlation obtained is 0.1185. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0099 to 0.2270.

(vi) Government School Subjects

The coefficient of correlation obtained is 0.1421. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0329 to 0.2513.

(vii) Private School Subjects

The coefficient of correlation obtained is 0.1210. It is significant at 0.05 level and the 0.05 confidence interval is from 0.0412 to 0.2008.

(viii) High Achievement Group

The coefficient of correlation obtained is 0.0814. It is not significant at any level.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.1021. It is significant at 0.05 level. The 0.05 confidence interval is from 0.0071 to 0.1971.

(x) Low Achievement Group

The coefficient of correlation obtained is 0.1031. It is not significant at any level.
Interpretations

The following results show that there is very low relationship between Originality and Home Environment:

(a) The coefficients of correlation obtained are significant at 0.01 level for the Total sample and subsamples of Boys, Rural, Urban and Government schools. The obtained 'r's are significant at 0.05 level for Girls, Private school subjects and Average Achievement group. The obtained 'r's are not significant for High and Low Achievement groups.

(b) The significant coefficients of correlation are in the range of 0.1021 to 0.1325. Though the 'r' values are negligible, its significance indicate a very low association between the variables.

(c) The coefficients of correlation are positive showing that any increase or decrease in Home Environment will be followed by a corresponding slight change in Originality.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance obtained shows that only 2 percent of the variance of Originality is to be attributed to the variance in one's Home Environment.
4. Relationship between Verbal Scientific Creativity and Home Environment

Table 4.66 shows the correlations of Verbal Scientific Creativity and Home Environment for the Total sample and relevant subsamples.

**Table 4.66**

Product Moment Coefficients of Correlation of Verbal Scientific Creativity and Home Environment for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation ‘r’</th>
<th>SEr</th>
<th>Confidence Interval of ‘r’</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.2080**</td>
<td>0.0404</td>
<td>0.1344 to 0.2815</td>
<td>4.33</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.2132**</td>
<td>0.0404</td>
<td>0.1089 to 0.3175</td>
<td>4.54</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.2191**</td>
<td>0.0401</td>
<td>0.1156 to 0.3266</td>
<td>4.80</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.2322**</td>
<td>0.0396</td>
<td>0.1300 to 0.3343</td>
<td>5.39</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.2085**</td>
<td>0.0408</td>
<td>0.1032 to 0.3138</td>
<td>4.35</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.2100**</td>
<td>0.0413</td>
<td>0.1035 to 0.3165</td>
<td>4.41</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.2084**</td>
<td>0.0395</td>
<td>0.1065 to 0.3103</td>
<td>4.34</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.1883**</td>
<td>0.0513</td>
<td>0.0559 to 0.3207</td>
<td>3.55</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.2115**</td>
<td>0.0468</td>
<td>0.0907 to 0.3323</td>
<td>4.47</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.2121**</td>
<td>0.0509</td>
<td>0.0806 to 0.3436</td>
<td>4.49</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level**

Table 4.66 shows that the coefficients of correlation obtained are as follows:

(i) Total Sample

The coefficient of correlation obtained is 0.2080. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1344 to 0.2815.
(ii) **Boys**

The coefficient of correlation obtained is 0.2132. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1089 to 0.3175.

(iii) **Girls**

The coefficient of correlation obtained is 0.2191. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1156 to 0.3226.

(iv) **Rural Subjects**

The coefficient of correlation obtained is 0.2322. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1300 to 0.3343.

(v) **Urban Subjects**

The coefficient of correlation obtained is 0.2085. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1032 to 0.3138.

(vi) **Government School Subjects**

The coefficient of correlation obtained is 0.2100. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1035 to 0.3165.

(vii) **Private School Subjects**

The coefficient of correlation obtained is 0.2084. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1065 to 0.3103.

(viii) **High Achievement Group**

The coefficient of correlation obtained is 0.1883. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0559 to 0.3207.
(ix) **Average Achievement Group**

The coefficient of correlation obtained is 0.2115. It is significant at 0.01 level. The 0.01 confidence interval is from 0.0907 to 0.3323.

(x) **Low Achievement Group**

The coefficient of correlation obtained is 0.2121. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0806 to 0.3436.

**Interpretations**

The following results indicate that there is considerable relationship between Verbal Scientific Creativity and Home Environment:

(a) The coefficients of correlation obtained are significant at 0.01 level for all samples.

(b) The coefficients of correlation obtained are in the range of 0.1883 to 0.2322. The relationship between the variables can be explained as low or slight.

(c) All the coefficients of correlation are positive showing that any increase in Home Environment will cause a corresponding change in one's Verbal Scientific Creativity.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance obtained shows that about 4 percent of the variance of Verbal Scientific Creativity is attributable to the variance in one's Home Environment. In terms of common shared variance,
the maximum overlap between the variables is nearly 5 percent and minimum overlap is nearly 4 percent.

5. Relationship between Non-verbal Scientific Creativity and Home Environment

Table 4.67 shows the correlations of Non-verbal Scientific Creativity and Home Environment for the Total sample and relevant subsamples.

Table 4.67
Product Moment Coefficients of Correlation of Non-verbal Scientific Creativity and Home Environment for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.2012**</td>
<td>0.0286</td>
<td>0.1274 to 0.2749</td>
<td>4.05</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.1985**</td>
<td>0.0407</td>
<td>0.0934 to 0.3035</td>
<td>3.94</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.2121**</td>
<td>0.0402</td>
<td>0.1083 to 0.3159</td>
<td>4.49</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.1873**</td>
<td>0.0403</td>
<td>0.0831 to 0.2914</td>
<td>3.51</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.177**</td>
<td>0.0413</td>
<td>0.0711 to 0.2843</td>
<td>3.16</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.2100**</td>
<td>0.0412</td>
<td>0.1035 to 0.3165</td>
<td>4.41</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.1985**</td>
<td>0.0397</td>
<td>0.061 to 0.3009</td>
<td>3.94</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.1735**</td>
<td>0.0516</td>
<td>0.0404 to 0.3066</td>
<td>3.01</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.1235*</td>
<td>0.0483</td>
<td>0.0011 to 0.2481</td>
<td>1.53</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.1105*</td>
<td>0.0527</td>
<td>0.255 to 0.2465</td>
<td>1.22</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level
*indicates significance at 0.05 level

Table 4.67 shows that the coefficients of correlation obtained are as follows:

(i) Total Sample

The coefficient of correlation obtained is 0.2012. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1274 to 0.2749.
(ii) Boys

The coefficient of correlation obtained is 0.1985. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0934 to 0.3035.

(iii) Girls

The coefficient of correlation obtained is 0.2121. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1083 to 0.3159.

(iv) Rural Subjects

The coefficient of correlation obtained is 0.1873. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0831 to 0.2914.

(v) Urban Subjects

The coefficient of correlation obtained is 0.1777. It is significant at 0.01 level. The 0.01 confidence interval is from 0.0711 to 0.2843.

(vi) Government School Subjects

The coefficient of correlation obtained is 0.2100. It is significant at 0.01 level. The 0.01 confidence interval is from 0.1035 to 0.3165.

(vii) Private School Subjects

The coefficient of correlation obtained is 0.1985. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0961 to 0.3009.

(viii) High Achievement Group

The coefficient of correlation obtained is 0.1735. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0404 to 0.3066.
(ix) **Average Achievement Group**

The coefficient of correlation obtained is 0.1235. It is significant at 0.05 level and the 0.05 confidence interval is from 0.0011 to 0.2481.

(x) **Low Achievement Group**

The coefficient of correlation obtained is 0.1105. It is significant at 0.05 level and the 0.05 confidence interval is from 0.0255 to 0.2465.

**Interpretations**

The following results show that there exists low relationship between Non-verbal Scientific Creativity and Home Environment:

(a) The coefficients of correlation obtained are significant at 0.01 level for all sample except for the two Achievement groups (AA and LA groups). The obtained 'r's are significant at 0.05 level for Average and Low Achievement groups.

(b) The coefficients of correlation are in the range 0.1105 to 0.2121. The relationship between the variables may be described as low or slight.

(c) All the coefficients of correlation are positive showing that any increase or decrease in Home Environment will be followed by a corresponding slight change in Non-verbal Scientific Creativity.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance obtained shows that about 4% of the variance of Non-verbal Scientific Creativity is attributable to one's Home Environment.
6. Relationship between Scientific Creativity (Total) and Home Environment

Table 4.68 shows the correlations of Scientific Creativity and Home Environment for the Total sample and relevant subsamples.

**Table 4.68**

**Product Moment Coefficients of Correlation of Scientific Creativity and Home Environment for the Total Sample and Subsamples**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of 'r'</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.2124**</td>
<td>0.0285</td>
<td>0.1390 to 0.2858</td>
<td>4.5</td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.2081**</td>
<td>0.0405</td>
<td>0.1036 to 0.3127</td>
<td>4.33</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.1983**</td>
<td>0.0405</td>
<td>0.0938 to 0.3029</td>
<td>3.90</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.2212**</td>
<td>0.0398</td>
<td>0.1185 to 0.3239</td>
<td>4.89</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.1812**</td>
<td>0.0413</td>
<td>0.0747 to 0.2877</td>
<td>3.28</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.1943**</td>
<td>0.0416</td>
<td>0.0871 to 0.3015</td>
<td>3.78</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.1781**</td>
<td>0.0399</td>
<td>0.0749 to 0.2813</td>
<td>3.17</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.1888**</td>
<td>0.0513</td>
<td>0.0564 to 0.3212</td>
<td>3.56</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.2018**</td>
<td>0.0470</td>
<td>0.0805 to 0.3231</td>
<td>4.07</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.2214**</td>
<td>0.0508</td>
<td>0.0905 to 0.3523</td>
<td>4.58</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level**

Table 4.68 shows that the coefficients of correlation obtained are as follows:

(i) **Total Sample**

The coefficient of correlation obtained is 0.2124. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1390 to 0.2858.
(ii) Boys

The coefficient of correlation obtained is 0.2081. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1036 to 0.3127.

(iii) Girls

The coefficient of correlation obtained is 0.1983. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0938 to 0.3027.

(iv) Rural Subjects

The coefficient of correlation obtained is 0.2212. It is significant at 0.01 level and the 0.01 confidence interval is from 0.1185 to 0.3239.

(v) Urban Subjects

The coefficient of correlation obtained is 0.1812. It is significant at 0.01 level. The 0.01 confidence interval is from 0.0747 to 0.2877.

(vi) Government School Subjects

The coefficient of correlation obtained is 0.1943. It is significant at 0.01 level. The 0.01 confidence interval is from 0.0871 to 0.3015.

(vii) Private School Subjects

The coefficient of correlation obtained is 0.1781. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0749 to 0.2813.

(viii) High Achievement Group

The coefficient of correlation obtained is 0.1888. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0564 to 0.3212.
(ix) **Average Achievement Group**

The coefficient of correlation obtained is 0.2018. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0805 to 0.3231.

(x) **Low Achievement Group**

The coefficient of correlation obtained is 0.2214. It is significant at 0.01 level and the 0.01 confidence interval is from 0.0905 to 0.3523.

**Interpretations**

The following results show the existence of a considerable relationship between Scientific Creativity and Home Environment:

(a) The coefficients of correlation obtained are significant at 0.01 level for all samples.

(b) The obtained ‘r’ values are in the range 0.1812 to 0.2214. The relationship between the variables is low or slight.

(c) The coefficients of correlation obtained are positive showing that any increase or decrease in Home Environment will be followed by a corresponding increase in Scientific Creativity and vice versa.

(d) The 0.01 confidence intervals show the probable range of the corresponding population values.

(e) The percentage variance obtained shows that about 5 percent of the variance of Scientific Creativity is attributable to one’s Home Environment. In terms of common shared variance, the maximum overlap between the variables is nearly 5 percent and minimum overlap is about 3 percent.
4.2.2.6 Relationship between Achievement Motivation and Home Environment

Table 4.69 shows the correlations of Achievement Motivation and Home Environment for the Total sample and relevant subsamples.

Table 4.69
Product Moment Coefficients of Correlation of Achievement Motivation and Home Environment for the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample</th>
<th>Correlation 'r'</th>
<th>SEr</th>
<th>Confidence Interval of ‘r’</th>
<th>Percentage Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total</td>
<td>0.0765</td>
<td>0.0296</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Boys</td>
<td>0.0428</td>
<td>0.0423</td>
<td></td>
<td>0.18</td>
</tr>
<tr>
<td>3.</td>
<td>Girls</td>
<td>0.0818</td>
<td>0.0419</td>
<td></td>
<td>0.67</td>
</tr>
<tr>
<td>4.</td>
<td>Rural</td>
<td>0.0915*</td>
<td>0.0415</td>
<td>0.0156 to 0.1986</td>
<td>0.83</td>
</tr>
<tr>
<td>5.</td>
<td>Urban</td>
<td>0.0523</td>
<td>0.0426</td>
<td></td>
<td>0.27</td>
</tr>
<tr>
<td>6.</td>
<td>Government</td>
<td>0.0993*</td>
<td>0.0428</td>
<td>0.0111 to 0.2097</td>
<td>0.99</td>
</tr>
<tr>
<td>7.</td>
<td>Private</td>
<td>0.0812*</td>
<td>0.0410</td>
<td>0.0245 to 0.1869</td>
<td>0.66</td>
</tr>
<tr>
<td>8.</td>
<td>High Ach. Group</td>
<td>0.1018</td>
<td>0.0526</td>
<td></td>
<td>1.036</td>
</tr>
<tr>
<td>9.</td>
<td>Average Ach. Group</td>
<td>0.0718</td>
<td>0.0487</td>
<td></td>
<td>0.51</td>
</tr>
<tr>
<td>10.</td>
<td>Low Ach. Group</td>
<td>0.0983</td>
<td>0.0529</td>
<td></td>
<td>0.97</td>
</tr>
</tbody>
</table>

*indicates significance at 0.05 level

Table 4.69 shows that the coefficients of correlation obtained are as follows:

(i) Total Sample

The coefficient of correlation obtained is 0.0765. It is not significant at any level.

(ii) Boys

The coefficient of correlation obtained is 0.0928. It is not significant at any level.
(iii) Girls

The coefficient of correlation obtained is 0.0818. It is not significant at any level.

(iv) Rural Subjects

The coefficient of correlation obtained is 0.0915. It is significant at 0.05 level. The 0.05 level confidence interval is from 0.0156 to 0.1986.

(v) Urban Subjects

The coefficient of correlation obtained is 0.0523. It is not significant at any level.

(vi) Government School Subjects

The coefficient of correlation obtained is 0.0993. It is significant at 0.05 level. The 0.05 confidence interval is from 0.0111 to 0.2097.

(vii) Private School Subjects

The coefficient of correlation obtained is 0.0812. It is significant at 0.05 level. The 0.05 confidence interval is from 0.0245 to 0.1869.

(viii) High Achievement Group

The coefficient of correlation obtained is 0.1018. It is not significant at any level.

(ix) Average Achievement Group

The coefficient of correlation obtained is 0.0718. It is not significant at any level.
Analysis of Data

(x) Low Achievement Group

The coefficient of correlation obtained is 0.0983. It is not significant at any level.

Interpretations

The following results indicate that the relationship between Achievement Motivation and Home Environment is negligible:

(a) The coefficients of correlation obtained are significant at 0.05 level for Rural, Government and Private school subsamples. The obtained 'r's are not significant for the Total sample, Boys, Girls, Urban subjects and for the three Achievement groups (HA, AA and LA groups).

(b) The significant coefficients of correlation obtained are in the range of 0.0812 to 0.0993. The 'r' values are negligible or indifferent.

4.3 PREDICTION OF ACHIEVEMENT IN SCIENCE FROM THE MULTIPLE REGRESSION EQUATION

To develop a Multiple Regression Equation for predicting the criterion variable, viz., Achievement in Science, the best predictor variables are to be isolated. The Correlation analysis clearly indicates that Achievement in Science is closely associated with Intelligence, Scientific Creativity and Home Environment whereas the influence of Achievement Motivation is less. So the variables Intelligence, Scientific Creativity and Home Environment are selected as the best predictor variables.

The Regression Equation has been developed by the following procedures:
Criterion variable to be predicted $X_1 = $ Achievement in Science
Predictor variables $X_2 = $ Intelligence
$X_3 = $ Scientific Creativity
$X_4 = $ Home Environment

The statistical indices relating to these variables are given below.

**Table 4.70**

**Mean and Standard Deviation**

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Variables</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Achievement in Science</td>
<td>$M_1$</td>
<td>$\sigma_1$</td>
</tr>
<tr>
<td>2.</td>
<td>Intelligence</td>
<td>$M_2$</td>
<td>$\sigma_2$</td>
</tr>
<tr>
<td>3.</td>
<td>Scientific Creativity</td>
<td>$M_3$</td>
<td>$\sigma_3$</td>
</tr>
<tr>
<td>4.</td>
<td>Home Environment</td>
<td>$M_4$</td>
<td>$\sigma_4$</td>
</tr>
</tbody>
</table>

**Table 4.71**

**Inter correlations of the Variables**

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Achievement in Science</td>
<td>.....</td>
<td>0.4614</td>
<td>0.4832</td>
<td>0.4814</td>
</tr>
<tr>
<td>2.</td>
<td>Intelligence</td>
<td>.....</td>
<td>0.4185</td>
<td>0.2132</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Scientific Creativity</td>
<td>.....</td>
<td>0.2124</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Home Environment</td>
<td>.....</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**First Order Partial Correlations**

$r_{12.3} = 0.3259 \quad r_{23.1} = 0.2518 \quad r_{34.1} = -0.0263$

$r_{13.2} = 0.36 \quad r_{24.1} = -0.2589 \quad r_{34.2} = 0.1410$
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\[ r_{14.2} = 0.4442 \quad r_{24.3} = 0.4427 \]

\[ r_{14.3} = 0.1745 \]

**Second Order Partial Correlations**

\[ r_{12.34} = 0.2809 \quad r_{23.14} = 0 \quad r_{34.12} = -0.0203 \]

\[ r_{13.24} = 0.3344 \quad r_{24.13} = -0.2607 \]

\[ r_{14.23} = 0.4257 \]

**Third Order Partial Standard Deviations**

\[ \sigma_{1.234} = 11.52 \]

\[ \sigma_{2.341} = 15.64 \]

\[ \sigma_{3.412} = 19.06 \]

\[ \sigma_{4.123} = 16.14 \]

**Partial Regression Coefficients**

\[ b_{12.34} = 0.021 \]

\[ b_{13.244} = 0.020 \]

\[ b_{14.32} = 0.030 \]

**4.3.1 The Regression Equation**

The general Regression equation of the criterion variable \( X_1 \) in terms of the Predictor variables \( X_2, X_3, \) and \( X_4 \) in the deviation form is

\[ X_1 = b_{12.34} X_2 + b_{13.24} X_3 + b_{14.23} X_4 \text{ (Garrett, p.412)} \]

This equation in the score form is

\[ X_1 - M_1 = b_{12.34} (X_2 - M_2) + b_{13.24} (X_3 - M_3) + b_{14.23} (X_4 - M_4) \]
This is simplified as

\[ X_1 = b_{12.34} X_2 + b_{13.24} X_3 + b_{14.23} X_4 + K \] whose is a constant.

Substituting the values in the above equation of the score form, the equation is

\[ X_1 - 34.49 = 0.021 (X_2 - 75.24) + 0.02 (X_3 - 92.06) + 0.03 + (X_4 - 90.01) \]
i.e.,

\[ X_1 = 0.02 X_2 + 0.02 X_3 + 0.03 X_4 + 28.44 \]

This equation helps us to predict Achievement in Science from known values of \( X_2 \) (Intelligence), \( X_3 \) (Scientific Creativity) and \( X_4 \) (Home Environment).

4.3.2 The Coefficient of Multiple Correlation

The Multiple Coefficient of correlation 'R' of the variable \( X_1 \) in relation with variables \( X_2, X_3 \) and \( X_4 \) is given by

\[ R_{1 (234)} = 1 - \frac{\sigma_{1.234}^2}{\sigma_2^2} \]
i.e., \[ R_{1 (234)} = 0.66 \]

The value of 'R' shows that there is a very high association between \( X_1 \) and \( X_2, X_3, X_4 \) combined using the weights given in the prediction equation.

4.3.3 The Standard Error of Multiple R

Standard error of 'R' is given by

\[ SE_R = \frac{1 - R^2}{\sqrt{N - m}} \]
Here, \( R = 0.66; \ N = 1120; \ m = 4 \)

This \( SE_R = 0.02 \)

The 0.99 confidence interval for the population \( R \) is \( 0.66 \pm 2.58 \times .02 \), i.e., from 0.61 to 0.71. This shows that the coefficient of Multiple Correlation obtained is highly significant.

4.3.4 Multiple \( R \) in terms of \( \beta \) Coefficients

\( R^2_{1 \ (234)} \) gives the proportion of the variance of the criterion measure \((X_1)\) attributable to the joint action of the variables \( X_2, X_3 \) and \( X_4 \). In terms of \( \beta \) coefficients and the zero order \( r \)'s.

\[
R^2_{1 \ (234)} = \beta_{12.34} r_{12} + \beta_{13.24} r_{13} + \beta_{14.23} r_{14}
\]

Where \( \beta_{12.34}, \beta_{13.24} \) and \( \beta_{14.23} \) are the partial regression coefficients.

\[
\beta_{12.34} = \frac{b_{12.34}}{\sigma_1} = 0.26
\]

\[
\beta_{13.24} = \frac{b_{13.24}}{\sigma_1} = 0.29
\]

\[
\beta_{14.23} = \frac{b_{14.23}}{\sigma_1} = 0.38
\]

Thus,

\[
R^2_{1 \ (234)} = 0.12 + 0.14 + 0.18 = 0.44
\]

So that \( R_{1 \ (234)} = 0.66 \)
This shows that 44% of the variance of Achievement in Science can be attributed to the differences in the predictor variables, viz., Intelligence, Scientific Creativity and Home Environment. More specifically,

- 12% is the contribution of Intelligence
- 14% is the contribution of Scientific Creativity
- 18% is the contribution of Home Environment to the variance in Achievement in Science.

The remaining 56% of the variance of Achievement in Science can be attributed to variables not included in this study.