CHAPTER - V

SYSTEMATIZATION ANALYSIS AND INTERPRETATION OF DATA

5.1 Introduction
5.2 Determination of the extent of Ability in English of the Students
5.3 Item Wise Analysis of Disabilities faced by the students
5.4 Statistical Method Used for analysis of Data
5.5 Analysis of Data
CHAPTER V
SYSTEMATIZATION, ANALYSIS AND INTERPRETATION OF DATA

5.1 Introduction

Achievement test in English developed by the present researcher was administered in four schools. Out of four schools, one was rural co-ed school, one was exclusively metropolitan boys’ school and two were exclusively metropolitan girls’ school. The test was administered on two hundred students. The test was administered on the students of Class IX only.

5.2 Determination of the Extent of Ability in English of the Students.

The data were collected from the students and the scores obtained by each student in achievement test in English. The Achievement Test was administered to test four skills, content knowledge, interactions between strategies and content organization and Retention. The mean and SD and the distribution of scores in achievement test of all the students (N=100+100) was found to be respectively. Similarly distribution of scores in achievement test of the experimental group and control group from four schools were shown respectively in tables. The mean and SD of such distribution were found out separately and were given in the table respectively.

5.3 Item wise Analyses of Disabilities Faced by the Students.

Item-difficulty, item-discrimination and item-total-correlation of the achievement test in English.

The difficulty value and discriminating values of the respective items showed Table No. 1 with confidence the accuracy with which the test-items had been finally selected. Moreover, it was generally that the higher and lower difficulty values of the test items corresponded to the lower discriminating values on an arrange it was seen that the items with mediocre difficulty values discriminated mostly. This result corresponded to the principles of discriminating values in relation to the difficulty values.
5.4. Statistical Method Used for Analysis of Data

To test the homogeneity of the scores the researcher made an Achievement Test to administer it upon the students of Class IX who were selected as her sample. The questions of achievement test were based on the syllabus of Class VIII so that the Class IX students can easily answer the questions. As already said, only 4 schools were made two groups in each school and 25 students were randomly selected in each group. Therefore, there are Group -1 =25 and Group -2=25 in School-1,


<table>
<thead>
<tr>
<th></th>
<th>G₁=N=25</th>
<th>G₂=N=25</th>
<th>F</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>S₁</td>
<td>M₁=61.2</td>
<td>M₂=52.05</td>
<td>F=1.12</td>
<td>Not Significant</td>
</tr>
<tr>
<td></td>
<td>SD₁=7.3</td>
<td>SD₂=6.91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S₂</td>
<td>M₃=54.8</td>
<td>M₄=47.6</td>
<td>F=0.8</td>
<td>Not Significant</td>
</tr>
<tr>
<td></td>
<td>SD₃=4.83</td>
<td>SD₄=5.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S₃</td>
<td>M₅=55.2</td>
<td>M₆=47.79</td>
<td>F=2.1</td>
<td>Not Significant</td>
</tr>
<tr>
<td></td>
<td>SD₅=5.85</td>
<td>SD₆=4.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S₄</td>
<td>M₇=51.6</td>
<td>M₈=44.5</td>
<td>F=0.83</td>
<td>Not Significant</td>
</tr>
<tr>
<td></td>
<td>SD₇=3.72</td>
<td>SD₈=4.08</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Analysis of Homogeneity

School - 1

\[ F = \frac{SD_{12}^2}{SD_{22}^2} \begin{pmatrix} (7.3)^2 \\ (6.9)^2 \end{pmatrix} = 1.12 \]

**Interpretation**

The value of F is not significant. So both the groups of School 1 are homogenous on the basis of Pre-Test Scores.

School - 2

\[ F = \frac{SD_{42}^2}{SD_{42}^2} \begin{pmatrix} (4.83)^2 \\ (5.4)^2 \end{pmatrix} = 0.8 \]

**Interpretation**

The value of F is not significant. So both the groups of School 2 are homogenous on the basis of Pre-Test Scores.

School - 3

\[ F = \frac{SD_{62}^2}{SD_{62}^2} \begin{pmatrix} (5.85)^2 \\ (4.03)^2 \end{pmatrix} = 2.1 \]

**Interpretation**

The value of F is not significant. So both the groups of School 3 are homogenous on the basis of Pre-Test Scores.

School - 4

\[ F = \frac{SD_{82}^2}{SD_{82}^2} \begin{pmatrix} (3.72)^2 \\ (4.08)^2 \end{pmatrix} = 0.83 \]

**Interpretation**

The value of F is not significant. So both the groups of School 4 are homogenous on the basis of Pre-Test Scores.
5.5. Analysis of Data

5.5.1 . Analysis of Data pertaining to H1:

[Hypothesis 1 : The achievements of students treated through Direct Method and Bilingual Method do not differ significantly .]

Overall

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₁=100</td>
<td>M₁=50.75</td>
<td>SD₁=6.53</td>
<td>0.91</td>
<td>7.39</td>
<td>1=2.60 at 0.01 level</td>
</tr>
<tr>
<td>Direct</td>
<td>N₂=100</td>
<td>M₂=43.95</td>
<td>SD₂=6.4</td>
<td></td>
<td></td>
<td>Therefore, highly significant</td>
</tr>
</tbody>
</table>

Overall Analysis

Mean

Bilingual Method 50.75
Direct Method 43.95

5.1 Comparison of mean scores obtained by the Bilingual group and Direct group in the achievement test by Histogram

Interpretation:

The above table and the graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups differ significantly on the basis of their achievement scores. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. As the mean achievement score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore , it may be said that Bilingual Method establishes superiority in teaching English at Secondary level than the Direct Method.

So the null hypothesis is rejected.
School 1

Mean

Bilingual Method  56.4
Direct Method  50.2

5.2 Comparison of mean scores obtained by the Bilingual group and Direct group in School-1 in the achievement test by Histogram.

Interpretation:

The above table and the graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-1 differ significantly on the basis of their achievement scores. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. As the mean achievement score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore, it may be said that Bilingual Method establishes superiority in teaching English at Secondary level than the Direct Method.

So the null hypothesis is rejected.
School – 2

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₃=25</td>
<td>M₃=51.6</td>
<td>SD₃=4.8</td>
<td>1.36</td>
<td>4</td>
<td>T=2.08 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₄=25</td>
<td>M₄=46.16</td>
<td>SD₄=4.85</td>
<td></td>
<td></td>
<td>Therefore, highly significant</td>
</tr>
</tbody>
</table>

**Interpretation:**

The above table indicates that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-2 differ significantly on the basis of their achievement scores. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. As the mean achievement score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore, it may be said that Bilingual Method establishes superiority in teaching English at Secondary level than the Direct Method.

So the null hypothesis is rejected.

School – 3

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₅=25</td>
<td>M₅=49.4</td>
<td>SD₅=5.55</td>
<td>1.49</td>
<td>5.1</td>
<td>T=2.68 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₆=25</td>
<td>M₆=41.8</td>
<td>SD₆=4.97</td>
<td></td>
<td></td>
<td>Therefore, highly significant</td>
</tr>
</tbody>
</table>
School 3

Mean

Bilingual Method  49.4
Direct Method  41.8

5.4 Comparison of mean scores obtained by the Bilingual group and Direct group in School-3 in the achievement test by Histogram

Interpretation:

The above table and graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups of School-3 differ significantly on the basis of their achievement scores. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. As the mean achievement score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore, it may be said that Bilingual Method establishes superiority in teaching English at Secondary level than the Direct Method.

So the null hypothesis is rejected.

School – 4

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N_7 = 25</td>
<td>M_7 = 47</td>
<td>SD_7 = 3.6</td>
<td>1.19</td>
<td>7.1</td>
<td>T = 2.68 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N_8 = 25</td>
<td>M_8 = 40.8</td>
<td>SD_8 = 4.75</td>
<td></td>
<td></td>
<td>Therefore, highly significant</td>
</tr>
</tbody>
</table>
School 4

Mean

Bilingual Method 47
Direct Method 40.8

![Mean](chart.png)

5.5 Comparison of mean scores obtained by the Bilingual group and Direct group in School-4 in the achievement test by Histogram

**Interpretation:**

The above table indicates that the value of T is significant at 0.01 level. Meaning thereby, two groups of School-4 differ significantly on the basis of their achievement scores. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. As the mean achievement score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore, it may be said that Bilingual Method establishes superiority in teaching English at Secondary level than the Direct Method.

So the null hypothesis is rejected.

5.5.2. Analysis of Data pertaining to H2:

[Hypothesis2: The achievements of students treated through Direct Method and Bilingual Method in four different skills that is, Listening, Speaking, Reading and Writing, do not differ significantly.]

118
Listening Skill

Overall

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
</table>
| Bilingual | N₁=100 | M₁=10.91 | SD₁=2.82 | 0.37 | 0.53 | T=2.06 at 0.01 level.  
Therefore, not Significant. |
| Direct  | N₂=100 | M₂=10.74 | SD₂=2.41 |       |     |                      |

Overall

Mean

Bilingual Method  10.91
Direct Method 10.74

5.6 Comparison of mean scores obtained by the Bilingual group and Direct group in the achievement test in Listening Skill by Histogram

Interpretation:

The table and the graph both indicate that the value of T is not significant at 0.01 level. Meaning thereby, the two groups do not differ significantly on the basis of their achievement score in Listening Skill.

Result indicates that there is no difference in Listening Skill in between Bilingual and Direct Group.

So the null hypothesis is accepted.
School – 1

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₁=25</td>
<td>M₁=12.52</td>
<td>SD₁=3.765</td>
<td>0.91</td>
<td>2.07</td>
<td>T²=2.68 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₂=25</td>
<td>M₂=10.64</td>
<td>SD₂=2.52</td>
<td></td>
<td></td>
<td>Therefore, not Significant</td>
</tr>
</tbody>
</table>

School 1

Mean

Bilingual Method 12.52
Direct Method 10.64

**Mean**

5.7 Comparison of mean scores obtained by the Bilingual group and Direct group in School-1 in the achievement test in Listening Skill by Histogram

**Interpretation :**

The table and the graph both indicate that the value of T is not significant at 0.01 level. Meaning thereby, the two groups of School -1 does not differ significantly on the basis of their achievement score in Listening Skill.

Result indicates that there is no difference in Listening Skill in between Bilingual and Direct Group.

So the null hypothesis is accepted.
School – 2

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₃=25</td>
<td>M₃=10.44</td>
<td>SD₃=2.56</td>
<td>0.7</td>
<td>0.91</td>
<td>T=2.68 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₄=25</td>
<td>M₄=11.08</td>
<td>SD₄=2.38</td>
<td></td>
<td></td>
<td>Therefore, not Significant</td>
</tr>
</tbody>
</table>

School 2

Mean

Bilingual Method 10.44
Direct Method 11.08

5.8 Comparison of mean scores obtained by the Bilingual group and Direct group in School-2 in the achievement test in Listening Skill by Histogram.

Interpretation:

The table and the graph both indicate that the value of T is not significant at 0.01 level. Meaning thereby, the two groups of School -2 does not differ significantly on the basis of their achievement score in Listening Skill.

Result indicates that there is no difference in Listening Skill in between Bilingual and Direct Group.

So the null hypothesis is accepted.
School – 3

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₅=25</td>
<td>M₅=11.16</td>
<td>SD₅=2.46</td>
<td>0.67</td>
<td>0.66</td>
<td>T=2.68 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₆=25</td>
<td>M₆=10.72</td>
<td>SD₆=2.29</td>
<td></td>
<td></td>
<td>Therefore, not Significant</td>
</tr>
</tbody>
</table>

School 3

Mean

Bilingual Method  11.16
Direct Method  10.72

5.9 Comparison of mean scores obtained by the Bilingual group and Direct group in School-3 in the achievement test in Listening Skill by Histogram

**Interpretation :**

The table and the graph both indicate that the value of T is not significant at 0.01 level. Meaning thereby, the two groups of School -3 does not differ significantly on the basis of their achievement score in Listening Skill.

Result indicates that there is no difference in Listening Skill in between Bilingual and Direct Group.

So the null hypothesis is accepted.
School – 4

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₇=25</td>
<td>M₇=9.84</td>
<td>SD₇=2.33</td>
<td></td>
<td>0.65</td>
<td>0.74</td>
</tr>
<tr>
<td>Direct</td>
<td>N₈=25</td>
<td>M₈=10.32</td>
<td>SD₈=2.26</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

School 4

Mean

Bilingual Method  9.84
Direct Method  10.32

5.10 Comparison of mean scores obtained by the Bilingual group and Direct group in School-4 in the achievement test in Listening Skill by Histogram.

**Interpretation:**

The table and the graph both indicate that the value of T is not significant at 0.01 level. Meaning thereby, the two groups of School -4 does not differ significantly on the basis of their achievement score in Listening Skill.

Result indicates that there is no difference in Listening Skill in between Bilingual and Direct Group.

So the null hypothesis is accepted.
**Speaking Skill**

Overall

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₁ = 100</td>
<td>M₁ = 7.82</td>
<td>SD₁ = 1.94</td>
<td>0.26</td>
<td>13.77</td>
<td>T = 2.60 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₂ = 100</td>
<td>M₂ = 11.4</td>
<td>SD₂ = 1.7</td>
<td></td>
<td></td>
<td>Therefore, highly Significant</td>
</tr>
</tbody>
</table>

Overall

**Mean**

- Bilingual Method: 7.82
- Direct Method: 11.4

**5.11 Comparison of mean scores obtained by the Bilingual group and Direct group in the achievement test in Speaking Skill by Histogram Interpretation:**

The above table and the graph indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups differ significantly on the basis of their achievement scores. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. The mean achievement score of the students under Direct Method is greater than that of the students under Bilingual Method.

So, the gain in Speaking Skill is in favour of Direct Method which leads to infer that Direct Method significantly helps to improve the Speaking Skill among the students than the Bilingual Method.

So the null hypothesis is rejected.
School – 1

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₁=25</td>
<td>M₁=8.84</td>
<td>SD₁=2.16</td>
<td>0.58</td>
<td>6.69</td>
<td>T=2.68 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₂=25</td>
<td>M₂=12.72</td>
<td>SD₂=1.95</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

School 1

Mean

Bilingual Method  8.84
Direct Method  12.72

5.12 Comparison of mean scores obtained by the Bilingual group and Direct group in School-1 in the achievement test in Speaking Skill by Histogram.

Interpretation:

The above table and the graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-1 differ significantly on the basis of their achievement scores. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. The mean achievement score of the students under Direct Method is greater than that of the students under Bilingual Method.

So, the gain in Speaking Skill is in favour of Direct Method which leads to infer that Direct Method significantly helps to improve the Speaking Skill among the students than the Bilingual Method.

So the null hypothesis is rejected.
School – 2

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₃=25</td>
<td>M₃=7.88</td>
<td>SD₃=2.16</td>
<td></td>
<td>0.62</td>
<td>7.48</td>
</tr>
<tr>
<td>Direct</td>
<td>N₄=25</td>
<td>M₄=12.48</td>
<td>SD₄=2.19</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

School 2

Mean

Bilingual Method   7.88
Direct Method      12.48

5.13 Comparison of mean scores obtained by the Bilingual group and Direct group in School-2 in achievement test in Speaking Skill by Histogram.

Interpretation:

The above table and the graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups in School -2 differ significantly on the basis of their achievement scores. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. The mean achievement score of the students under Direct Method is greater than that of the students under Bilingual Method.

So, the gain in Speaking Skill is in favour of Direct Method which leads to infer that Direct Method significantly helps to improve the Speaking Skill among the students than the Bilingual Method.

So the null hypothesis is rejected.
School – 3

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₅=25</td>
<td>M₅=8.12</td>
<td>SD₅=1.032</td>
<td>0.398</td>
<td>8.24</td>
<td>T=2.68 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₆=25</td>
<td>M₆=11.4</td>
<td>SD₆=1.7</td>
<td></td>
<td></td>
<td>Therefore, highly Significant</td>
</tr>
</tbody>
</table>

School 3

Mean

Bilingual Method 8.12
Direct Method 11.4

5.14 Comparison of mean scores obtained by the Bilingual group and Direct group in School-3 in the achievement test in Speaking Skill by Histogram

**Interpretation:**

The above table and the graph indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-3 differ significantly on the basis of their achievement scores. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. The mean achievement score of the students under Direct Method is greater than that of the students under Bilingual Method.

So, the gain in Speaking Skill is in favour of Direct Method which leads to infer that Direct Method significantly helps to improve the Speaking Skill among the students than the Bilingual Method.

So the null hypothesis is rejected.
School – 4

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N7=25</td>
<td>M7=7.4</td>
<td>SD7=1.7</td>
<td>0.26</td>
<td>15.38</td>
<td>T=2.68 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N8=25</td>
<td>M8=11.4</td>
<td>SD8=1.9</td>
<td></td>
<td></td>
<td>Therefore, highly Significant</td>
</tr>
</tbody>
</table>

School 4

Mean

Bilingual Method 7.4
Direct Method 11.4

5.15 Comparison of mean scores obtained by the Bilingual group and Direct group in School-4 in the achievement test in Speaking Skill by Histogram

Interpretation:

The above table and the graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-4 differ significantly on the basis of their achievement scores. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. The mean achievement score of the students under Direct Method is greater than that of the students under Bilingual Method.

So, the gain in Speaking Skill is in favour of Direct Method which leads to infer that Direct Method significantly helps to improve the Speaking Skill among the students than the Bilingual Method.

So the null hypothesis is rejected.
**Reading Skill**

Overall

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₁=100</td>
<td>M₁=21.16</td>
<td>SD₁=3</td>
<td>0.54</td>
<td>16.6</td>
<td>T=2.60 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₂=100</td>
<td>M₂=12.19</td>
<td>SD₂=4.43</td>
<td>12.19</td>
<td>16.6</td>
<td>Therefore, highly Significant</td>
</tr>
</tbody>
</table>

Overall

Mean

Bilingual Method 21.16

Direct Method 12.19

![Mean](image)

5.16 Comparison of mean scores obtained by the Bilingual group and Direct group in the achievement test in Reading Skill by Histogram

**Interpretation**: 

The above table and the graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups differ significantly on the basis of their achievement scores. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. The mean achievement score of the students under Bilingual Method is greater than that of the students under Direct Method.

So, the gain in Reading Skill is in favour of Bilingual Method which leads to infer that Bilingual Method significantly helps to improve the Reading Skill among the students than the Direct Method.

So the null hypothesis is rejected.
School – 1

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₁=25</td>
<td>M₁=23.28</td>
<td>SD₁=2.29</td>
<td></td>
<td>1.06</td>
<td>6.87</td>
</tr>
<tr>
<td>Direct</td>
<td>N₂=25</td>
<td>M₂=16</td>
<td>SD₂=4.8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

School 1

Mean

Bilingual Method 23.28
Direct Method 16

5.17 Comparison of mean scores obtained by the Bilingual group and Direct group in School-1 in the achievement test in Reading Skill by Histogram

**Interpretation:**

The above table and the graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-1 differ significantly on the basis of their achievement scores. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. The mean achievement score of the students under Bilingual Method is greater than that of the students under Direct Method.

So, the gain in Reading Skill is in favour of Bilingual Method which leads to infer that Bilingual Method significantly helps to improve the Reading Skill among the students than the Direct Method.

So the null hypothesis is rejected.
School – 2

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₃=25</td>
<td>M₃=21.76</td>
<td>SD₃=2.32</td>
<td>0.82</td>
<td>12.88</td>
<td>T=2.68 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₄=25</td>
<td>M₄=11.2</td>
<td>SD₄=3.39</td>
<td></td>
<td></td>
<td>Therefore, highly Significant</td>
</tr>
</tbody>
</table>

School 2

Mean

Bilingual Method  21.76
Direct Method     11.2

![Mean Comparison](image)

5.18 Comparison of mean scores obtained by the Bilingual group and Direct group in School-2 in the achievement test in Reading Skill by Histogram

**Interpretation:**

The above table and the graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-2 differ significantly on the basis of their achievement scores. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. The mean achievement score of the students under Bilingual Method is greater than that of the students under Direct Method.

So, the gain in Reading Skill is in favour of Bilingual Method which leads to infer that Bilingual Method significantly helps to improve the Reading Skill among the students than the Direct Method.

So the null hypothesis is rejected.
School – 3

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₅=25</td>
<td>M₅=21.26</td>
<td>SD₅=1.05</td>
<td>0.68</td>
<td>15.82</td>
<td>T=2.68 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₆=25</td>
<td>M₆=10.52</td>
<td>SD₆=3.24</td>
<td></td>
<td></td>
<td>Therefore, highly Significant</td>
</tr>
</tbody>
</table>

School 3

Mean

Bilingual Method 21.28

Direct Method 10.52

5.19 Comparison of mean scores obtained by the Bilingual group and Direct group in School-3 in the achievement test in Reading Skill by Histogram

**Interpretation:**

The above table and the graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-3 differ significantly on the basis of their achievement scores. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. The mean achievement score of the students under Bilingual Method is greater than that of the students under Direct Method.

So, the gain in Reading Skill is in favour of Bilingual Method which leads to infer that Bilingual Method significantly helps to improve the Reading Skill among the students than the Direct Method.

So the null hypothesis is rejected.
School – 4

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₇=25</td>
<td>M₇=18.4</td>
<td>SD₇=2.4</td>
<td>0.84</td>
<td>8.67</td>
<td>T=2.68 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₈=25</td>
<td>M₈=11.12</td>
<td>SD₈=3.45</td>
<td></td>
<td></td>
<td>Therefore, highly Significant</td>
</tr>
</tbody>
</table>

School 4

Mean

Bilingual Method  18.4
Direct Method  11.12

5.20 Comparison of mean scores obtained by the Bilingual group and Direct group in School-4 in the achievement test in Reading Skill by Histogram

Interpretation:

The above table indicates that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-3 differ significantly on the basis of their achievement scores. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. The mean achievement score of the students under Bilingual Method is greater than that of the students under Direct Method.

So, the gain in Reading Skill is in favour of Biligual Method which leads to infer that Bilingual Method significantly helps to improve the Reading Skill among the students than the Direct Method.

So the null hypothesis is rejected.
**Writing Skill**

Overall

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₁=100</td>
<td>M₁=11.24</td>
<td>SD₁=2.09</td>
<td>0.3</td>
<td>8</td>
<td>T=2.60 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₂=100</td>
<td>M₂=8.84</td>
<td>SD₂=2.19</td>
<td></td>
<td></td>
<td>Therefore, highly Significant</td>
</tr>
</tbody>
</table>

Mean

Bilingual Method  11.24

Direct Method  8.84

![Mean Chart](chart.png)

5.21 Comparison of mean scores obtained by the Bilingual group and Direct group in the achievement test in Writing Skill by Histogram

**Interpretation:**

The above table the graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups differ significantly on the basis of their achievement scores. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. The mean achievement score of the students under Bilingual Method is greater than that of the students under Direct Method.

So, the gain in Writing Skill is in favour of Bilingual Method which leads to infer that Bilingual Method significantly helps to improve the Writing Skill among the students than the Direct Method.

So the null hypothesis is rejected.
School – 1

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₁=25</td>
<td>M₁=11.68</td>
<td>SD₁=2.265</td>
<td>0.59</td>
<td>2.31</td>
<td>F=2.68 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₂=25</td>
<td>M₂=10.32</td>
<td>SD₂=1.91</td>
<td></td>
<td></td>
<td>Therefore, not Significant</td>
</tr>
</tbody>
</table>

School 1

Mean

Bilingual Method 11.68
Direct Method 10.32

5.22 Comparison of mean scores obtained by the Bilingual group and Direct group in School-1 the achievement test in Writing Skill by Histogram

Interpretation:

The above table and the graph both indicate that the value of T is not significant at 0.01 level. Meaning thereby, two groups in School-1 do not differ significantly on the basis of their achievement scores in Writing Skill.

Results indicate that there is no difference in Writing Skill in between Bilingual and Direct group.

So the null hypothesis is accepted.
School – 2

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₃=25</td>
<td>M₃=11.12</td>
<td>SD₃=2.15</td>
<td>0.59</td>
<td>4.47</td>
<td>T=2.68 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₄=25</td>
<td>M₄=8.48</td>
<td>SD₄=2.02</td>
<td></td>
<td></td>
<td>Therefore, highly Significant</td>
</tr>
</tbody>
</table>

School 2

Mean

Bilingual Method 11.12
Direct Method 8.48

5.23 Comparison of mean scores obtained by the Bilingual group and Direct group in School-2 the achievement test in Writing Skill by Histogram

**Interpretation:**

The above table and the graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-1 differ significantly on the basis of their achievement scores. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. The mean achievement score of the students under Bilingual Method is greater than that of the students under Direct Method.

So, the gain in Writing Skill is in favour of Bilingual Method which leads to infer that Bilingual Method significantly helps to improve the Writing Skill among the students than the Direct Method.

So the null hypothesis is rejected.
School – 3

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
</table>
| Bilingual     | N₅=25  | M₅=11.36 | SD₅=2.13 | 0.57  | 5.12| T=2.68 at 0.01 level.
| Direct        | N₆=25  | M₆=8.44  | SD₆=1.92 |       |     | Therefore, highly Significant |

School 3

Mean

Bilingual Method  11.36
Direct Method  8.44

**5.24 Comparison of mean scores obtained by the Bilingual group and Direct group in School-3 the achievement test in Writing Skill by Histogram**

**Interpretation:**

The above table and the graph both indicates that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-1 differ significantly on the basis of their achievement scores. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. The mean achievement score of the students under Bilingual Method is greater than that of the students under Direct Method .

So, the gain in Writing Skill is in favour of Bilingual Method which leads to infer that Bilingual Method significantly helps to improve the Writing Skill among the students than the Direct Method.

So the null hypothesis is rejected.
School – 4

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₇=25</td>
<td>M₇=10.76</td>
<td>SD₇=1.89</td>
<td>0.61</td>
<td>4.92</td>
<td>T=2.68 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₈=25</td>
<td>M₈=7.76</td>
<td>SD₈=2.39</td>
<td></td>
<td></td>
<td>Therefore, highly Significant</td>
</tr>
</tbody>
</table>

School 4

Mean

Bilingual Method 10.76
Direct Method 7.76

![Mean](image)

**5.25 Comparison of mean scores obtained by the Bilingual group and Direct group in School-4 the achievement test in Writing Skill by Histogram**

**Interpretation:**

The above table and the graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-1 differ significantly on the basis of their achievement scores. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. The mean achievement score of the students under Bilingual Method is greater than that of the students under Direct Method.

So, the gain in Writing Skill is in favour of Bilingual Method which leads to infer that Bilingual Method significantly helps to improve the Writing Skill among the students than the Direct Method.

So the null hypothesis is rejected.
5.5.3. Analysis of Data pertaining to H3:

[Hypothesis 3: The effects of interactions between the strategies and content organization on the achievement of students in English do not differ significantly within the school.]

**Content wise Analysis**

**Prose**

Overall

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>100</td>
<td>M₁=7.99</td>
<td>SD₁=0.84</td>
<td>0.166</td>
<td>18.34</td>
<td>T=2.00 at 0.01 level. Therefore, highly significant</td>
</tr>
<tr>
<td>Direct</td>
<td>100</td>
<td>M₂=4.95</td>
<td>SD₂=1.43</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Overall

<table>
<thead>
<tr>
<th>Method</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>7.99</td>
</tr>
<tr>
<td>Direct</td>
<td>4.95</td>
</tr>
</tbody>
</table>

5.26 Comparison of mean scores obtained by the Bilingual group and Direct group in the achievement test in Prose content by Histogram

**Interpretation:**

The above table and the graph indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups differ significantly on the basis of their achievement scores in Prose content. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. As the mean achievement score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore, it may be said that Bilingual Method establishes superiority in teaching English at Secondary level than the Direct Method.

So the null hypothesis is rejected.
### School – 1

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₁=25</td>
<td>M₁=8.36</td>
<td>SD₁=0.72</td>
<td>0.31</td>
<td>7.1</td>
<td>T=2.68 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₂=25</td>
<td>M₂=6.16</td>
<td>SD₂=1.33</td>
<td></td>
<td></td>
<td>Therefore, highly significant</td>
</tr>
</tbody>
</table>

School 1

Mean

Bilingual Method 8.36

Direct Method 6.16

#### 5.27 Comparison of mean scores obtained by the Bilingual group and Direct group in School-1 in the achievement test in Prose content by Histogram

**Interpretation:**

The above table and graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-1 differ significantly on the basis of their achievement scores in Prose content. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. As the mean achievement score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore, it may be said that Bilingual Method establishes superiority in teaching English at Secondary level than the Direct Method.

So the null hypothesis is rejected.
School – 2

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₃=25</td>
<td>M₃=8.12</td>
<td>SD₃=0.82</td>
<td>0.28</td>
<td>12</td>
<td>T=2.88 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₄=25</td>
<td>M₄=4.76</td>
<td>SD₄=1.12</td>
<td></td>
<td></td>
<td>Therefore, highly significant</td>
</tr>
</tbody>
</table>

School 2

Mean

Bilingual Method 8.12
Direct Method 4.76

5.28 Comparison of mean scores obtained by the Bilingual group and Direct group in School-2 in the achievement test in Prose content by Histogram.

Interpretation:

The above table and the graph indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-2 differ significantly on the basis of their achievement scores in Prose content. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. As the mean achievement score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore, it may be said that Bilingual Method establishes superiority in teaching English at Secondary level than the Direct Method.

So the null hypothesis is rejected.
School – 3

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₅=25</td>
<td>M₅=8.12</td>
<td>SD₅=0.82</td>
<td></td>
<td>0.24</td>
<td>16.2</td>
</tr>
<tr>
<td>Direct</td>
<td>N₆=25</td>
<td>M₆=4.24</td>
<td>SD₆=0.95</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

School 3

Mean

Bilingual Method  8.12
Direct Method  4.24

5.29 Comparison of mean scores obtained by the Bilingual group and Direct group in School-3 in the achievement test in Prose content by Histogram.

Interpretation:

The above table and graph indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-3 differ significantly on the basis of their achievement scores in Prose Content. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. As the mean achievement score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore, it may be said that Bilingual Method establishes superiority in teaching English at Secondary level than the Direct Method.

So the null hypothesis is rejected.
School – 4

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₇=25</td>
<td>M₇=7.36</td>
<td>SD₇=0.79</td>
<td>0.28</td>
<td>9.29</td>
<td>T=2.08 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₈=25</td>
<td>M₈=4.76</td>
<td>SD₈=1.22</td>
<td></td>
<td></td>
<td>Therefore, highly significant</td>
</tr>
</tbody>
</table>

School 4

Mean

Bilingual Method 7.36
Direct Method 4.76

5.30 Comparison of mean scores obtained by the Bilingual group and Direct group in School-4 in the achievement test in Prose content by Histogram.

Interpretation:

The above table indicates that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-4 differ significantly on the basis of their achievement scores in Prose content. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. As the mean achievement score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore, it may be said that Bilingual Method establishes superiority in teaching English at Secondary level than the Direct Method.

So the null hypothesis is rejected.
Overall

Poetry

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₁=100</td>
<td>M₁=7.09</td>
<td>SD₁=1</td>
<td>0.21</td>
<td>14.66</td>
<td>T=2.60 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₂=100</td>
<td>M₂=4.01</td>
<td>SD₂=1.54</td>
<td></td>
<td></td>
<td>Therefore, highly significant</td>
</tr>
</tbody>
</table>

Overall

Mean

Bilingual Method  7.09
Direct Method  4.01

![Mean](chart.png)

5.31 Comparison of mean scores obtained by the Bilingual group and Direct group in the achievement test in Poetry content by Histogram

**Interpretation:**

The above table and the graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups differ significantly on the basis of their achievement scores in Poetry content. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. As the mean achievement score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore, it may be said that Bilingual Method establishes superiority in teaching English at Secondary level than the Direct Method.

So the null hypothesis is rejected.
School – 1

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₁=25</td>
<td>M₁=7.6</td>
<td>SD₁=0.64</td>
<td>0.33</td>
<td>7.39</td>
<td>( T=2.08 \text{ at } 0.01 \text{ level.} )</td>
</tr>
<tr>
<td>Direct</td>
<td>N₂=25</td>
<td>M₂=5.16</td>
<td>SD₂=1.55</td>
<td></td>
<td></td>
<td>Therefore, highly significant</td>
</tr>
</tbody>
</table>

School 1

Mean

Bilingual Method  7.6

Direct Method  5.16

5.32 Comparison of mean scores obtained by the Bilingual group and Direct group in School-1 in the achievement test in Poetry content by Histogram

**Interpretation:**

The above table and graph both indicates that the value of \( T \) is significant at 0.01 level. Meaning thereby, two groups in School-1 differ significantly on the basis of their achievement scores in Poetry content. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. As the mean achievement score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore, it may be said that Bilingual Method establishes superiority in teaching English at Secondary level than the Direct Method. Over

So the null hypothesis is rejected.
School – 2

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₃=25</td>
<td>M₃=7.16</td>
<td>SD₃=0.68</td>
<td>0.22</td>
<td>15.82</td>
<td>T=2.68 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₄=25</td>
<td>M₄=3.68</td>
<td>SD₄=0.84</td>
<td></td>
<td></td>
<td>Highly significant</td>
</tr>
</tbody>
</table>

School 2

Mean

Bilingual Method  7.16
Direct Method 3.68

5.33 Comparison of mean scores obtained by the Bilingual group and Direct group in School-2 in the achievement test in Poetry content by Histogram

Interpretation:

The above table and the graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-2 differ significantly on the basis of their achievement scores in Poetry content. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. As the mean achievement score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore, it may be said that Bilingual Method establishes superiority in teaching English at Secondary level than the Direct Method.

So the null hypothesis is rejected.
School – 3

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>$N_5=25$</td>
<td>$M_5=7.32$</td>
<td>$SD_5=0.88$</td>
<td>0.22</td>
<td>18.55</td>
<td>$T=2.68$ at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>$N_6=25$</td>
<td>$M_6=3.24$</td>
<td>$SD_6=0.72$</td>
<td></td>
<td></td>
<td>Therefore, highly significant</td>
</tr>
</tbody>
</table>

School 3

Mean

Bilingual Method  7.32
Direct Method     3.24

5.34 Comparison of mean scores obtained by the Bilingual group and Direct group in School-3 in the achievement test in Poetry content by Histogram

Interpretation:

The above table and the graph both indicate that the value of $T$ is significant at 0.01 level. Meaning thereby, two groups in School-3 differ significantly on the basis of their achievement scores in Poetry content. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. As the mean achievement score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore, it may be said that Bilingual Method establishes superiority in teaching English at Secondary level than the Direct Method.

So the null hypothesis is rejected.
School 4

Mean

Bilingual Method  6.16
Direct Method  3.8

5.35 Comparison of mean scores obtained by the Bilingual group and Direct group in School-4 in the achievement test in Poetry content by Histogram

Interpretation:

The above table and the graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-4 differ significantly on the basis of their achievement scores in Poetry content. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. As the mean achievement score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore, it may be said that Bilingual Method establishes superiority in teaching English at Secondary level than the Direct Method.

So the null hypothesis is rejected.
Vocabulary

Overall

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₁=100</td>
<td>M₁=6</td>
<td>SD₁=0.73</td>
<td>0.19</td>
<td>12.84</td>
<td>T=2.60 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₂=100</td>
<td>M₂=3.06</td>
<td>SD₂=1.73</td>
<td></td>
<td></td>
<td>Therefore, highly significant</td>
</tr>
</tbody>
</table>

Overall

Mean

Bilingual Method 6

Direct Method 3.06

5.36 Comparison of mean scores obtained by the Bilingual group and Direct group in the achievement test in Vocabulary content by Histogram

**Interpretation:**

The above table and the graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups in differ significantly on the basis of their achievement scores in Vocabulary content. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. As the mean achievement score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore, it may be said that Bilingual Method establishes superiority in teaching Vocabulary in English at Secondary level than the Direct Method.

So the null hypothesis is rejected.
School 1

Mean

Bilingual Method 7.12
Direct Method 4.4

5.37 Comparison of mean scores obtained by the Bilingual group and Direct group in School-1 in the achievement test in Vocabulary content by Histogram

Interpretation:

The above table and the graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-1 differ significantly on the basis of their achievement scores in Vocabulary content. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. As the mean achievement score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore, it may be said that Bilingual Method establishes superiority in teaching Vocabulary in English at Secondary level than the Direct Method.

So the null hypothesis is rejected.
School 2

Mean
Bilingual Method 6.08
Direct Method 2.72

5.38 Comparison of mean scores obtained by the Bilingual group and Direct group in School-2 in the achievement test in Vocabulary content by Histogram

Interpretation:

The above table and the graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-2 differ significantly on the basis of their achievement scores in Vocabulary content. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. As the mean achievement score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore, it may be said that Bilingual Method establishes superiority in teaching vocabulary in English at Secondary level than the Direct Method.

So the null hypothesis is rejected.
School – 3

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₅=25</td>
<td>M₅=5.84</td>
<td>SD₅=1.25</td>
<td>0.33</td>
<td>10.18</td>
<td>T=2.68 at 0.01 level. Therefore, highly significant</td>
</tr>
<tr>
<td>Direct</td>
<td>N₆=25</td>
<td>M₆=2.48</td>
<td>SD₆=1.12</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

School 3
Mean

Bilingual Method  5.84
Direct Method  2.48

5.39 Comparison of mean scores obtained by the Bilingual group and Direct group in School-3 in the achievement test in Vocabulary content by Histogram

Interpretation :

The above table and the graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-3 differ significantly on the basis of their achievement scores in Vocabulary content. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. As the mean achievement score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore, it may be said that Bilingual Method establishes superiority in teaching vocabulary in English at Secondary level than the Direct Method.

So the null hypothesis is rejected.
School – 4

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₁=25</td>
<td>M₁=4.96</td>
<td>SD₁=1.18</td>
<td>0.33</td>
<td>7.03</td>
<td>T=2.68at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₂=25</td>
<td>M₂=2.64</td>
<td>SD₂=1.12</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

School 4

Mean

Bilingual Method  4.96
Direct Method     2.64

5.40 Comparison of mean scores obtained by the Bilingual group and Direct group in School-4 in the achievement test in Vocabulary content by Histogram

Interpretation:

The above table and the graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-4 differ significantly on the basis of their achievement scores in Vocabulary content. The result leads to infer that the effect of strategy on the achievement of the students differ significantly. As the mean achievement score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore, it may be said that Bilingual Method establishes superiority in teaching vocabulary in English at Secondary level than the Direct Method.

So the null hypothesis is rejected.
5.5.4. Analysis of Data pertaining to H5:

[Hypothesis4: The effect of interactions between strategies and content organization on achievements of students in English do not differ significantly within the school.]

Overall

<table>
<thead>
<tr>
<th>Table</th>
<th>Fo</th>
<th>Fe</th>
<th>Fo-Fe</th>
<th>(Fo-Fe)^2</th>
<th>(Fo-Fe)^2/Fe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above 50% Bi.</td>
<td>58</td>
<td>50</td>
<td>8</td>
<td>64</td>
<td>1.28</td>
</tr>
<tr>
<td>Above 50% Di.</td>
<td>22</td>
<td>50</td>
<td>-28</td>
<td>784</td>
<td>15.68</td>
</tr>
<tr>
<td>Below 50% Bi.</td>
<td>42</td>
<td>50</td>
<td>-8</td>
<td>64</td>
<td>1.28</td>
</tr>
<tr>
<td>Below 50% Di.</td>
<td>78</td>
<td>50</td>
<td>28</td>
<td>784</td>
<td>15.68</td>
</tr>
<tr>
<td>Total</td>
<td>200</td>
<td>200</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[X^2 = 33.92\]

Degree of Freedom = (r-1)(c-1) \[\text{Critical Value of } X^2 \text{ at 0.05 Level } = 7.81\]
\[=(4-1)(2-1) \quad \text{Critical Value of } X^2 \text{ at 0.01 Level } = 11.34 \]

=3X1

=3

**Interpretation:**

The \(X^2\) is significant at 0.05 level, meaning thereby Null Hypothesis is rejected. So both the variables are associated. So, there is a relation between achievement and instructional strategy.

Gain is in favour of Bilingual Method.
### SCHOOL-1

<table>
<thead>
<tr>
<th>Table</th>
<th>Fo</th>
<th>Fe</th>
<th>Fo-Fe</th>
<th>(Fo-Fe)^2</th>
<th>(Fo-Fe)^2/Fe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above</td>
<td>50% Bi.</td>
<td>21</td>
<td>17</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>Above</td>
<td>50% Di.</td>
<td>13</td>
<td>17</td>
<td>-4</td>
<td>16</td>
</tr>
<tr>
<td>Below</td>
<td>50% Bi.</td>
<td>4</td>
<td>8</td>
<td>-4</td>
<td>16</td>
</tr>
<tr>
<td>Below</td>
<td>50% Di.</td>
<td>12</td>
<td>8</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>50</td>
<td></td>
<td></td>
<td>X^2 =5.88</td>
</tr>
</tbody>
</table>

Degree of Freedom = (r-1)(c-1)  
[ Critical Value of X^2 at 0.05 Level = 7.81  
  = (4-1)(2-1)  
  Critical Value of X^2 at 0.01 Level =11.34  
  =3X1  
  =3

**Interpretation:**

The X^2 is not significant at 0.05 level, meaning thereby Null Hypothesis is accepted. So both the variables are not associated. So, there is no relation between achievement and instructional strategy.

Gain is in favour of Bilingual Method.
**SCHOOL -2**

<table>
<thead>
<tr>
<th>Table</th>
<th>Fo</th>
<th>Fe</th>
<th>Fo-Fe</th>
<th>(Fo-Fe)^2</th>
<th>(Fo-Fe)^2/Fe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above 50%</td>
<td>15</td>
<td>8</td>
<td>7</td>
<td>49</td>
<td>6.13</td>
</tr>
<tr>
<td>Bi.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Above 50%</td>
<td>1</td>
<td>8</td>
<td>-7</td>
<td>49</td>
<td>6.13</td>
</tr>
<tr>
<td>Di.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below 50%</td>
<td>10</td>
<td>17</td>
<td>-7</td>
<td>49</td>
<td>2.88</td>
</tr>
<tr>
<td>Bi.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below 50%</td>
<td>24</td>
<td>17</td>
<td>7</td>
<td>49</td>
<td>2.88</td>
</tr>
<tr>
<td>Di.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td></td>
<td></td>
<td>X^2</td>
<td>=18.02</td>
</tr>
</tbody>
</table>

Degree of Freedom = (r-1)(c-1)  [ Critical Value of X^2 at 0.05 Level = 7.81

=4-1)(2-1)  Critical Value of X^2 at 0.01 Level =11.34]

=3X1

=3

**Interpretation :**

The X^2 is significant at 0.05 level., meaning thereby Null Hypothesis is rejected. So both the variables are associated. So, there is a relation between achievement and instructional strategy.

Gain is in favour of Bilingual Method.
## SCHOOL-3

<table>
<thead>
<tr>
<th>Table</th>
<th>Fo</th>
<th>Fe</th>
<th>Fo-Fe</th>
<th>$(Fo-Fe)^2$</th>
<th>$(FoFe)^2/Fe$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above 50% Bi.</td>
<td>15</td>
<td>9.5</td>
<td>5.5</td>
<td>30.25</td>
<td>3.18</td>
</tr>
<tr>
<td>Above 50% Di.</td>
<td>4</td>
<td>9.5</td>
<td>-5.5</td>
<td>30.25</td>
<td>3.18</td>
</tr>
<tr>
<td>Below 50% Bi.</td>
<td>10</td>
<td>15.5</td>
<td>-5.5</td>
<td>30.25</td>
<td>1.95</td>
</tr>
<tr>
<td>Below 50% Di.</td>
<td>21</td>
<td>15.5</td>
<td>5.5</td>
<td>30.25</td>
<td>1.95</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td>$X^2 = 10.26$</td>
</tr>
</tbody>
</table>

Degree of Freedom = (r-1)(c-1)  
[ Critical Value of $X^2$ at 0.05 Level = 7.81  

$(4-1)(2-1)$ Critical Value of $X^2$ at 0.01 Level =11.34 ] 

=3X1  

=3

**Interpretation:**

The $X^2$ is significant at 0.05 level, meaning thereby Null Hypothesis is rejected. So both the variables are associated. So, there is a relation between achievement and instructional strategy.

Gain is in favour of Bilingual Method.
### Table

<table>
<thead>
<tr>
<th></th>
<th>Fo</th>
<th>Fe</th>
<th>Fo-Fe</th>
<th>(Fo-Fe)^2</th>
<th>(Fo-Fe)^2/Fe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above 50% Bi.</td>
<td>7</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>0.8</td>
</tr>
<tr>
<td>Above 50% Di.</td>
<td>3</td>
<td>5</td>
<td>-2</td>
<td>4</td>
<td>0.8</td>
</tr>
<tr>
<td>Below 50% Bi.</td>
<td>18</td>
<td>20</td>
<td>-2</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Below 50% Di.</td>
<td>22</td>
<td>20</td>
<td>2</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ X^2 = 2 \]

Degree of Freedom = (r-1)(c-1)  [ Critical Value of \( X^2 \) at 0.05 Level = 7.81
\[ = (4-1)(2-1) \text{ Critical Value of } X^2 \text{ at } 0.01 \text{ Level } = 11.34 \]
\[ = 3 \times 1 \]
\[ = 3 \]

**Interpretation:**

The \( X^2 \) is not significant at 0.05 level, meaning thereby Null Hypothesis is accepted. So both the variables are not associated. So, there is no relation between achievement and instructional strategy.

Gain is in favour of Bilingual Method.
5.5.5. Analysis of Data pertaining to H5:

[Hypothesis5: The achievements of students treated through Direct Method and Bilingual Method in Retention Test do not differ significantly.]

Retention Analysis

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₁=100</td>
<td>M₁=51.8</td>
<td>SD₁=6.59</td>
<td></td>
<td></td>
<td>T=2.60 at 0.01 level. Therefore, highly Significant</td>
</tr>
<tr>
<td>Direct</td>
<td>N₂=100</td>
<td>M₂=44.7</td>
<td>SD₂=6.6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Retention score analysis

Overall

Mean

Bilingual Method 51.8
Direct Method 44.7

5.41 Comparison of mean scores obtained by the Bilingual group and Direct group in the retention test by Histogram

Interpretation:
The above table and graph both indicates that the value of T is significant at 0.01 level. Meaning thereby, two groups differ significantly on the basis of their retention scores. The result leads to infer that the effect of strategy on the retention of the students differ significantly. As the mean retention score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore, it may be said that Bilingual Method establishes superiority in teaching English at Secondary level than the Direct Method.

So the null hypothesis is rejected
School – 1

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₁=25</td>
<td>M₁=56.8</td>
<td>SD₁=6.99</td>
<td>2</td>
<td>3</td>
<td>T=2.68 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₂=25</td>
<td>M₂=50.8</td>
<td>SD₂=7.15</td>
<td></td>
<td></td>
<td>Therefore, highly Significant</td>
</tr>
</tbody>
</table>

School 1

Mean

Bilingual Method  56.8
Direct Method     50.8

5.42 Comparison of mean scores obtained by the Bilingual group and Direct group in School-1 in the retention test by Histogram

Interpretation:

The above table and the graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-1 differ significantly on the basis of their retention scores. The result leads to infer that the effect of strategy on the retention of the students differ significantly. As the mean retention score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore, it may be said that Bilingual Method establishes superiority in teaching English at Secondary level than the Direct Method.

So the null hypothesis is rejected.
School – 2

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₃=25</td>
<td>M₃=52.4</td>
<td>SD₃=5.08</td>
<td>1.42</td>
<td>4.65</td>
<td>T=2.68 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₄=25</td>
<td>M₄=45.8</td>
<td>SD₄=4.95</td>
<td>1.42</td>
<td>4.65</td>
<td>Therefore, highly Significant</td>
</tr>
</tbody>
</table>

School 2

Mean

Bilingual Method  52.4
Direct Method  45.8

5.43 Comparison of mean scores obtained by the Bilingual group and Direct group in School-2 in the retention test by Histogram

**Interpretation :**

The above table and the graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-2 differ significantly on the basis of their retention scores. The result leads to infer that the effect of strategy on the retention of the students differ significantly. As the mean retention score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore, it may be said that Bilingual Method establishes superiority in teaching English at Secondary level than the Direct Method.

So the null hypothesis is rejected
School – 3

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₅=25</td>
<td>M₅=50.2</td>
<td>SD₅=5.98</td>
<td>1.42</td>
<td>7.32</td>
<td>T=2.68 at 0.01 level.</td>
</tr>
<tr>
<td>Direct</td>
<td>N₆=25</td>
<td>M₆=39.8</td>
<td>SD₆=3.87</td>
<td></td>
<td></td>
<td>Highly Significant</td>
</tr>
</tbody>
</table>

School 3

Mean

Bilingual Method 50.2
Direct Method 39.8

5.44 Comparison of mean scores obtained by the Bilingual group and Direct group in School-3 in the retention test by Histogram

Interpretation:

The above table and the graph both indicates that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-3 differ significantly on the basis of their retention scores. The result leads to infer that the effect of strategy on the retention of the students differ significantly. As the mean retention score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore, it may be said that Bilingual Method establishes superiority in teaching English at Secondary level than the Direct Method.

So the null hypothesis is rejected
School – 4

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SED</th>
<th>T</th>
<th>Level of Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual</td>
<td>N₇=25</td>
<td>M₇=47.4</td>
<td>SD₇=4.12</td>
<td>1.13</td>
<td>5.31</td>
<td>T=2.08 at 0.01 level. Therefore, highly Significant</td>
</tr>
<tr>
<td>Direct</td>
<td>N₈=25</td>
<td>M₈=41.4</td>
<td>SD₈=3.85</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

School 4

Mean

Bilingual Method  47.4
Direct Method  41.4

5.45 Comparison of mean scores obtained by the Bilingual group and Direct group in School-4 in the retention test by Histogram

Interpretation:

The above table and the graph both indicate that the value of T is significant at 0.01 level. Meaning thereby, two groups in School-3 differ significantly on the basis of their retention scores. The result leads to infer that the effect of strategy on the retention of the students differ significantly. As the mean retention score of students under bilingual method is greater than that of Direct Method, so the gain is in favour of Bilingual Method.

Therefore, it may be said that Bilingual Method establishes superiority in teaching English at Secondary level than the Direct Method.

So the null hypothesis is rejected.