CHAPTER – IV

ANALYSIS AND INTERPRETATION OF DATA

4.1.0 INTRODUCTION

This chapter deals with the analysis of data collected for the study. Analysis of the collected data is a vital component of any research work. Without analysis, which provides a deeper insight into its basic nature, the adequate description of the phenomenon is relatively impossible. Analysis of data means studying the organized material in order to discover inherent facts. The data are studied from as many angles as possible to explore the new facts. Analysis requires an alert, flexible and open-mind. It is worth while to prepare a plan of analysis before the actual collection of data. The data collected by various tools and techniques mentioned in the previous chapter are analyzed using descriptive and inferential statistics.

The Average scores obtained by the students in the pre and post tests are given in table and the bar diagrams describe the data visually.

In order to find the significance of difference between the averages. ‘t’ test is employed. The effect is employed. The effect size also conducted by using the formula given by Cohen(1988).
4.2.0 RESEARCH AND NULL HYPOTHESES

The research hypothesis or alternative hypothesis or directional hypothesis. The research hypothesis usually states a relationship between two or more variables that the experiment predicts will emerge.

A null hypothesis is useful in testing the significance of differences. The null hypothesis states that no relationship exists between the variables studied or no differences will be found between treatment.

A null hypothesis states that there is no significant differences between two parameters. It concerns a judgment as to whether apparent differences are true differences or whether they merely result from sampling error.

4.3.0 MEAN

In statistics, mean has two related meanings:

- the arithmetic mean (and is distinguished from the geometric mean or harmonic mean).
- the expected value of a random variable, which is also called the population mean.

4.4.0 STANDARD DEVIATION

In probability theory and statistics, the standard deviation of a statistical population, a data set, or a probability distribution is the square root of its variance. Standard deviation is a widely used measure of the variability or
dispersion, being algebraically more tractable though practically less robust
than the expected deviation or average absolute deviation.

The standard deviation can also help you evaluate the worth of all
those so-called “studies” that seem to be released to the press everyday. A
large standard deviation in a study that claims to show a example, might tip
you off that the study’s claims aren’t that trustworthy.

4.5.0 T – TEST

A t-test is any statistical hypothesis test in which the test statistic
follows a Student’s t distribution if the null hypothesis is true. It is most
commonly applied when the test statistic would follow a normal distribution if
the value of a scaling term in the test statistic were known. When the scaling
term is unknown and is replaced by an estimate based on the data, the test
statistic (under certain conditions) follows a Student’s t distribution.

The t-statistic was introduced in 1908 by William Sealy Gosset, a
chemist working for the Guinness brewery in Dublin, Ireland (“Student” was
his pen name). Gosset had been hired due to Claude Guinness’s innovative
policy of recruiting the best graduates from Oxford and Cambridge to apply
biochemistry and statistics to Guinness’ industrial processes. Gosset devised
the t-test as a way to cheaply monitor the quality of stout. He published the
test in Biometrika in 1908, but was forced to use a pen name by his employer,
who regarded the fact that they were using statistics as a trade secret. In fact,
Gosset's identity was unknown to fellow statisticians.
The ‘t’ test is a statistical test that allows for a comparison of two names to determine the probability that the difference between the means is a real difference rather than a chance difference.

The test of significance of the difference between the means is known as the ‘t’ test. It involves the computation of the ratio between observed the differences between the samples and sampling error factor.

\[
t = \frac{M_1 - M_2}{\sqrt{\frac{SD_1^2}{N_1} + \frac{SD_2^2}{N_2}}}
\]

- \(M_1\) – Mean of the first group
- \(M_2\) – Mean of the second group
- \(SD_1\) – Standard Deviation of first group
- \(SD_2\) – Standard Deviation of second group
- \(N_1\) – Number of candidates in the first group
- \(N_2\) – Number of candidates in the second group

The computed ‘t’ value if compared with the value of ‘t’ given in the ‘t’ table at the appropriate degree of freedom and at the required level of significance. If the calculated ‘t’ value is greater than or equal to the table ‘t’ value, then the difference in the sample means is significant at that level of significance.
The researchers and experimenters, have, for convenience chosen several arbitrary standards called levels of significance of which the 0.05 level and 0.01 levels are most often used. The confidence with which an experimenter rejects or retains a null hypothesis depend upon the levels of significance adopted.

In psychological and education circles the 5 percent (0.05) and alpha level of significance is used as standard for rejection. A more rigorous test of significance is the one percent (0.01) alpha level i.e., rejection of null hypothesis is done at the 0.01 level. This would suggest the more is as large as a difference as that between the experimental and control means achievement would not likely to have resulted from sampling error in more than one in hundred replications of the study. 0.05 level is considered to be the level of significance for this study.

4.6.0 EFFECT SIZE

In statistics, an effect size is a measure of the strength of the relationship between two variables in a statistical population, or a sample-based estimate of that quantity. Sample-based effect sizes are distinguished from test statistics used in hypothesis testing, in that they estimate the strength of an apparent relationship, rather than assigning a significance level reflecting whether the relationship could be due to chance. In scientific experiments and observational studies, it is often useful to know not only whether a relationship is statistically significant, but also the size of the observed relationship. In practical situations, effect sizes are helpful for
making decisions, since a highly significant relationship may be uninteresting if its effect size is small. Effect size measures play an important role in meta-analysis studies that summarize findings from a specific area of research, as well as in statistical power analyses.

The concept of effect size appears in everyday language. For example, a weight loss program may boast that it leads to an average weight loss of 30 pounds. In this case, 30 pounds is an indicator of the claimed effect size. Another example is that a tutoring program may claim that it raises school performance by one letter grade. This grade increase is the claimed effect size of the program. These are both examples of "absolute effect sizes," meaning that they convey the average difference between two groups without any discussion of the variability within the groups.

In inferential statistics, an effect size helps to determine whether a statistically significant difference is a difference of practical concern. Given a sufficiently large sample size, a statistical comparison will always show a significant difference unless the difference in the population from which the data are sampled is exactly zero. The effect size conveys whether an observed difference is substantively important. This is in contrast to a statistical significance test, which assesses whether a relationship could be due to chance, regardless of the strength of the apparent relationship in the data. In meta-analysis, effect sizes are used as a common measure that can be calculated for different studies and then combined into an overall summary.
The term effect size can refer to a statistic calculated from a sample of data, or to a parameter of a hypothetical statistical population. Conventions for distinguishing sample from population effect sizes follow standard statistical practices — one common approach is to use Greek letters like $\rho$ to denote population parameters and Latin letters like $r$ to denote the corresponding statistic; alternatively, a "hat" can be placed over the population parameter to denote the statistic, e.g. with $\hat{\rho}$ being the estimate of the parameter $\rho$.

The term effect size can refer to a standardized measures of effect (such as $r$, Cohen's $d$, and odds ratio), or to an unstandardized measure (e.g., the raw difference between group means and unstandardized regression coefficients). Standardized effect size measures are typically used when the metrics of variables being studied do not have intrinsic meaning to the reader (e.g., a score on a personality test on an arbitrary scale), when results from multiple studies are being combined when some or all of the studies use different scales, or when it is desired to convey the size of an effect relative to the variability in the population.

Reporting effect sizes is considered good practice when presenting empirical research findings in many fields [1][2]. Effect sizes are particularly prominent in social and medical research. Relative and absolute measures of effect size convey different information, and can be used complementarily. A prominent task force in the psychology research community expressed the following recommendation.
Although the difference between means is a useful concept in trying to understand power, we need a technique that will allow us to compare directly the results of different experiments using the same scale. Cohen devised such a statistic and classed it Effect Size (ES). This statistic is represented by the index d which is defined as "the degree of departure from Ho of the alternate Hypothesis or the Effect Size we wish to detect" (1988, p.20) (ref. Cohen, J. Statistical power Analysis for the Behavioural Sciences 2nd ed. Hillsdale, N.J: Lawrence Earlbaum Associates, 1988.).

For the directional case, \( d = \frac{\mu_1 - \mu_2}{SD} \), where

\[
D = \text{Effect Size index for the t ratio of the difference between Means}
\]

\[
\frac{\mu_1 - \mu_2}{SD} = \text{Population means estimated by the sample means}
\]

\[
\text{Common Standard Deviation of the population assumed to be normal and estimated by } \sigma = S1 + S2 / 2
\]

**Major Hypothesis**

**Research Hypothesis (H_r)**

Selected teaching strategies implemented by the investigator will significantly enhance learning of English grammar at higher secondary level.
Null Hypothesis ($H_0$)

Selected teaching strategies implemented by the investigator will not significantly enhance learning of English grammar at higher secondary level.

Additional Hypotheses

Research Hypotheses ($H_r$)

1. Story telling as a teaching strategy implemented by the investigator will significantly enhance learning of tenses in English grammar at higher secondary level.

2. Story telling as a teaching strategy implemented by the investigator will significantly enhance learning of models in English grammar at higher secondary level.

3. Conversation as a teaching strategy implemented by the investigator will significantly enhance learning of tenses in English grammar at higher secondary level.

4. Conversation as a teaching strategy implemented by the investigator will significantly enhance learning of models in English grammar at higher secondary level.
**Null Hypotheses (H₀)**

1) Story telling as a teaching strategy implemented by the investigator will not significantly enhance learning of tenses in English grammar at higher secondary level.

2) Story telling as a teaching strategy implemented by the investigator will not significantly enhance learning of models in English grammar at higher secondary level.

3) Conversation as a teaching strategy implemented by the investigator will not significantly enhance learning of tenses in English grammar at higher secondary level.

4) Conversation as a teaching strategy implemented by the investigator will not significantly enhance learning of models in English grammar at higher secondary level.

**Major Hypothesis**

**Research Hypothesis (Hᵣ)**

Selected teaching strategies implemented by the investigator will significantly enhance learning of English Grammar at higher secondary level.

**Null Hypothesis (H₀)**

Selected teaching strategies implemented by the investigator will not significantly enhance learning of English Grammar at higher secondary level.
Table 4.1.0

Comparison of the Pre Test and the Post Test Mean Scores of Experimental Group

(Study Telling and conversation to teach tenses and models)

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>‘t’ value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre</td>
<td>32</td>
<td>83.81</td>
<td>10.63</td>
<td>36.75</td>
<td>*Significant at 0.05 level</td>
</tr>
<tr>
<td>Post</td>
<td>32</td>
<td>153.13</td>
<td>5.59</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Inference: The table given above shows that the ‘t’ value obtained is more than the table value and hence the implemented teaching strategies implemented by the investigator have significantly enhanced the learning of English Grammar at Higher Secondary Level.

Thus, the research hypothesis of the present study has been confirmed

The null hypothesis is rejected.
Effect size for the differences between means of the sample of the experimental group with respect to pre test and post test.

Table 4.1.1

Comparison of the pre test and the post test mean scores of experimental group:
(Story telling and Conversation to teach tenses and models)

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>D</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>-pre</td>
<td>32</td>
<td>83.81</td>
<td>10.63</td>
<td>8.5474</td>
<td>Large Effect size</td>
</tr>
<tr>
<td>Post</td>
<td>32</td>
<td>153.13</td>
<td>5.59</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to the broad guidelines given by Cohen (1988) for interpreting d, d = 0.8 or more shows large effect size, that is, the differences are perceived. Therefore, the obtained d = 8.5474 shows a large effect size.
Additional Hypothesis 1

Research Hypothesis (HR)

Story telling as a teaching strategy implemented by the investigator will significantly enhance learning of tenses in English Grammar at higher secondary level.

Null Hypothesis (H₀)

Story telling as a teaching strategy implemented by the investigator will not significantly enhance learning of tenses in English Grammar at higher secondary level.

Table 4.2.0

Comparison of the Pretest and the Post test Mean Scores of Experimental Group

(Story telling to teach tenses)

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>‘t’ value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXP.Pre</td>
<td>32</td>
<td>22.13</td>
<td>3.80</td>
<td>17.811</td>
<td>Significant at 0.05 level</td>
</tr>
<tr>
<td>Exp.Post</td>
<td>32</td>
<td>38.53</td>
<td>2.98</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Inference:** The table given above shows that the ‘t’ value obtained is more than the table value and hence the story telling teaching strategy implemented by the investigator has significantly enhanced the learning of tenses in English grammar at higher secondary level.

Thus, the research hypothesis of the present study has been confirmed

The Null hypothesis is rejected.
Effect size for the differences between means of the sample of the experimental group with respect to pre test and post test.

Table 4.2.1

Comparison of the pre test and the post test mean scores of experimental group:
(Story telling to teach tenses)

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>d</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>pre</td>
<td>32</td>
<td>22.13</td>
<td>3.80</td>
<td>4.837</td>
<td>Large Effect</td>
</tr>
<tr>
<td>Post</td>
<td>32</td>
<td>38.53</td>
<td>2.98</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to the broad guidelines given by Cohen (1988) for interpreting d, d = 0.8 or more shows large effect size, that is, the differences are perceived. Therefore, the obtained d = 4.837 shows a large effect size.
Additional Hypothesis 2

Research Hypothesis ($H_R$)

Story telling as a teaching strategy implemented by the investigator will significantly enhance learning of modals in English grammar at higher secondary level.

Null Hypothesis ($H_0$)

Story telling as a teaching strategy implemented by the investigator will not significantly enhance learning of modals in English grammar at higher secondary level.

Table 4.3.0

Comparison of the Pretest and the Post test Mean Scores of Experimental Group

(Story telling to teach models)

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>‘t’ value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre</td>
<td>32</td>
<td>18.56</td>
<td>4.78</td>
<td>27.611</td>
<td>Significant at 0.05 level</td>
</tr>
<tr>
<td>Post</td>
<td>32</td>
<td>39.47</td>
<td>2.68</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Inference: The table given above shows that the ‘t’ value obtained is more than the table value and hence the story telling teaching strategy implemented by the investigator has significantly enhanced the learning of modals in English Grammar at Higher Secondary Level.

Thus, the research hypothesis of the present study has been confirmed

The Null hypothesis is rejected.
Effect size for the differences between means of the sample of the experimental group with respect to pre test and post test.

**Table 4.3.1**

Comparison of the pre test and the post test mean scores of experimental group:

*(story telling to teach tenses)*

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>d</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>pre</td>
<td>32</td>
<td>18.56</td>
<td>4.78</td>
<td>5.605</td>
<td>Large Effect size</td>
</tr>
<tr>
<td>Post</td>
<td>32</td>
<td>39.47</td>
<td>2.68</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to the broad guidelines given by **Cohen (1988)** for interpreting $d$, $d = 0.8$ or more shows large effect size, that is, the differences are perceived. Therefore, the obtained $d = 5.605$ shows a large effect size.
Additional Hypothesis 3

Research Hypothesis ($H_R$)

Conversation as a teaching strategy implemented by the investigator will significantly enhance learning of tenses in English grammar at higher secondary level.

Null Hypothesis ($H_0$)

Conversation as a teaching strategy implemented by the investigator will not significantly enhance learning of tenses in English grammar at higher secondary level.

Table 4.4.0

Comparison of the Pretest and the Post test Mean Scores of Experimental Group

(Conversation to teach tenses)

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>‘t’ value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre</td>
<td>32</td>
<td>22.66</td>
<td>3.34</td>
<td>15.11</td>
<td>Significant at 0.05 level</td>
</tr>
<tr>
<td>Post</td>
<td>32</td>
<td>35.88</td>
<td>2.98</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Inference:** The table given above shows that the ‘t’ value obtained is more than the table value and hence the conversation teaching strategy implemented by the investigator has significantly enhanced the learning of tenses in English grammar at higher secondary level.

Thus, the research hypothesis of the present study has been confirmed.

The Null hypothesis is rejected.
Effect size for the differences between means of the sample of the experimental group with respect to pre test and post test.

Table 4.4.1

Comparison of the pre test and the post test mean scores of experimental group:

(Conversation to teach tenses)

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>pre</td>
<td>32</td>
<td>22.66</td>
<td>3.34</td>
<td>4.183</td>
</tr>
<tr>
<td>Post</td>
<td>32</td>
<td>35.88</td>
<td>2.98</td>
<td></td>
</tr>
</tbody>
</table>

According to the broad guidelines given by Cohen (1988) for interpreting d, d = 0.8 or more shows large effect size, that is, the differences are perceived. Therefore, the obtained d = 4.183 shows a large effect size.
Additional Hypothesis 4

Research Hypothesis ($H_R$)

Conversation as a teaching strategy implemented by the investigator will significantly enhance learning of modals in English grammar at higher secondary level.

Null Hypothesis ($H_0$)

Conversation as a teaching strategy implemented by the investigator will not significantly enhance learning of modals in English grammar at higher secondary level.

Table 4.5.0

Comparison of the Pretest and the Post test Mean Scores of Experimental group

(Conversation to teach models)

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>‘t’ value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exp.Pre</td>
<td>32</td>
<td>20.47</td>
<td>3.78</td>
<td>24.20</td>
<td>Significant at 0.05 level</td>
</tr>
<tr>
<td>Exp.Post</td>
<td>32</td>
<td>38.25</td>
<td>2.65</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Inference:** The table given above shows that the t’ value obtained is more than the table value and hence the conversation teaching strategy implemented by the investigator has significantly enhanced the learning of modals in English grammar at higher secondary level.

Thus, the research hypothesis of the present study has been confirmed

The Null hypothesis is rejected.
Effect Size for the Differences Between Means of the Sample of the Experimental Group with Respect to Pre Test and Post Test.

Table 4.5.1

Comparison of the pre test and the post test mean scores of experimental group:

(Conversation to teach models)

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>d</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>pre</td>
<td>32</td>
<td>20.47</td>
<td>3.78</td>
<td>5.521</td>
<td>Large Effect size</td>
</tr>
<tr>
<td>Post</td>
<td>32</td>
<td>35.25</td>
<td>2.65</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to the broad guidelines given by Cohen (1988) for interpreting d, d = 0.8 or more shows large effect size, that is, the differences are perceived. Therefore, the obtained d = 5.521 shows a large effect size.
Major Hypothesis

Research Hypothesis (H_R)

Selected teaching strategies implemented by the investigator will significantly enhance learning of English Grammar at higher secondary level.

Null Hypothesis (H_0)

Selected teaching strategies implemented by the investigator will not significantly enhance learning of English Grammar at higher secondary level.

Table 4.6.0

Comparison of the Post Test Mean Scores of Control and Experimental Groups

(Story telling and Conversation to teach tenses and models)

<table>
<thead>
<tr>
<th>Sample</th>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>‘t’ value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Post</td>
<td>32</td>
<td>88.4688</td>
<td>5.5866</td>
<td>36.838</td>
<td>Significant at 0.05 level</td>
</tr>
<tr>
<td>Experimental</td>
<td>Post</td>
<td>32</td>
<td>153.1250</td>
<td>6.7153</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Inference: The table given above shows that the ‘t’ value obtained is more than the table value and hence the selected teaching strategies implemented
by the investigator have significantly enhanced the learning of English grammar at higher secondary level.

Thus, the research hypothesis of the present study has been confirmed.

The Null hypothesis is rejected.
Effect size for the differences between means of the sample of the control and experimental group with respect to post test.

**Table 4.6.1**

Comparison of the Post Test Mean Scores of Control and Experimental Groups:

(Story telling and Conversation to teach tenses and Models)

<table>
<thead>
<tr>
<th>Sample</th>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>D</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Post</td>
<td>32</td>
<td>88.5866</td>
<td>5.5866</td>
<td>10.74</td>
<td>Large Effect size</td>
</tr>
<tr>
<td>Experimental</td>
<td>Post</td>
<td>32</td>
<td>153.1250</td>
<td>6.7153</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to the broad guidelines given by Cohen (1988) for interpreting d, d = 0.8 or more shows large effect size, that is, the differences are perceived. Therefore, the obtained d = 10.74 shows a large effect size.
Additional Hypothesis 1

Research Hypothesis (Hᵣ)

Story telling as a teaching strategy implemented by the investigator will significantly enhance learning of tenses in English grammar at higher secondary level.

Null Hypothesis (H₀)

Story telling as a teaching strategy implemented by the investigator will not significantly enhance learning of tenses in English grammar at higher secondary level.

Table 4.7.0

Comparison of the Post Test Mean Scores of Control and Experimental Groups:

(Story telling to teach tenses)

<table>
<thead>
<tr>
<th>Sample</th>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>‘t’ value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Post</td>
<td>32</td>
<td>23.3750</td>
<td>2.7911</td>
<td>20.875</td>
<td>Significant at 0.05 level</td>
</tr>
<tr>
<td>Experimental</td>
<td>Post</td>
<td>32</td>
<td>39.2500</td>
<td>2.6518</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Inference:** The table given above shows that the ‘t’ value obtained is more than the table value and hence the story telling teaching strategy implemented by the investigator has significantly enhanced the learning of tenses in English grammar at higher secondary level.

Thus, the research hypothesis of the present study has been confirmed

The Null hypothesis is rejected.
Effect size for the differences between means of the sample of the control and experimental group with respect to post test.

Table 4.7.1

Comparison of the Post Test Mean Scores of Control and Experimental Groups:

(Story Telling to Teach Tenses)

<table>
<thead>
<tr>
<th>Sample</th>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>D</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Post</td>
<td>32</td>
<td>22.3750</td>
<td>2.7911</td>
<td>5.833</td>
<td>Large Effect size</td>
</tr>
<tr>
<td>Experimental</td>
<td>Post</td>
<td>32</td>
<td>39.2500</td>
<td>2.6518</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to the broad guidelines given by Cohen (1988) for interpreting d, d = 0.8 or more shows large effect size, that is, the differences are perceived. Therefore, the obtained d = 5.833 shows a large effect size.
Additional Hypothesis 2

Research Hypothesis ($H_R$)

Story telling as a teaching strategy implemented by the investigator will significantly enhance learning of modals in English grammar at higher secondary level.

Null Hypothesis ($H_0$)

Story telling as a teaching strategy implemented by the investigator will not significantly enhance learning of modals in English grammar at higher secondary level.

Table 4.8.0

Comparison of the Post Tests Means Scores of Control and Experimental Groups

(Story Telling to Teach Models)

<table>
<thead>
<tr>
<th>Sample</th>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>‘t’ value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Post</td>
<td>32</td>
<td>22.9379</td>
<td>2.9939</td>
<td>21.785</td>
<td>Significant at 0.05 level</td>
</tr>
<tr>
<td>Experimental</td>
<td>Post</td>
<td>32</td>
<td>35.8750</td>
<td>2.9811</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Inference:** The table given above shows that the ‘t’ value obtained is more than the table value and hence the story telling teaching strategy implemented by the investigator has significantly enhanced the learning of modals in English grammar at higher secondary level.

Thus, the research hypothesis of the present study has been confirmed

The Null hypothesis is rejected.
Effect Size for the Differences Between Means of the Sample of the Control and Experimental Group with Respect to Post Test.

Table 4.8.1

Comparison of the Post Test Mean Scores of Control and Experimental Group:

(Story Telling to teach Models)

<table>
<thead>
<tr>
<th>Sample</th>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>d</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Post</td>
<td>32</td>
<td>22.8379</td>
<td>2.9939</td>
<td>4.665</td>
<td>Large Effect size</td>
</tr>
<tr>
<td>Experimental</td>
<td>Post</td>
<td>32</td>
<td>35.8750</td>
<td>2.9811</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to the broad guidelines given by Cohen (1988) for interpreting d, d = 0.8 or more shows large effect size, that is, the differences are perceived. Therefore, the obtained d = 4.665 shows a large effect size.
Additional Hypothesis 3

Research Hypothesis ($H_r$)

Conversation as a teaching strategy implemented by the investigator will significantly enhance learning of tenses in English grammar at higher secondary level.

Null Hypothesis ($H_0$)

Conversation as a teaching strategy implemented by the investigator will not significantly enhance learning of tenses in English grammar at higher secondary level.

Table 4.9

Comparison of the Post Tests Mean Scores of Control and Experimental Groups

(Conversation to Teach Tenses)

<table>
<thead>
<tr>
<th>Sample</th>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>‘t’ value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Post</td>
<td>32</td>
<td>22.3125</td>
<td>2.7408</td>
<td>21.289</td>
<td>Significant at 0.05 level</td>
</tr>
<tr>
<td>Experimental</td>
<td>Post</td>
<td>32</td>
<td>39.4688</td>
<td>2.6759</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Inference:** The table given above shows that the ‘t’ value obtained is more than the table value and hence the Conversation teaching strategy implemented by the investigator has significantly enhanced the learning of tenses in English grammar at higher secondary level.

Thus, the research hypothesis of the present study has been confirmed

The Null hypothesis is rejected.
Effect Size for the Differences Between Means of the Sample of the Control and Experimental Group with Respect to Post Test.

Table 4.9.1

Comparison of the Post Test Mean Scores of Control and Experimental Groups:

(Conversation to Teach Tenses)

<table>
<thead>
<tr>
<th>Sample</th>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>d</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Post</td>
<td>32</td>
<td>22.3125</td>
<td>2.7408</td>
<td>6.334</td>
<td>Large Effect size</td>
</tr>
<tr>
<td>Experimental</td>
<td>Post</td>
<td>32</td>
<td>39.4688</td>
<td>2.6759</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to the broad guidelines given by **Cohen (1988)** for interpreting d, d = 0.8 or more shows large effect size, that is, the differences are perceived. Therefore, the obtained d = 6.334 shows a large effect size.
Additional Hypothesis 4

Research Hypothesis ($H_R$)

Conversation as a teaching strategy implemented by the investigator will significantly enhance learning of modals in English grammar at higher secondary level.

Null Hypothesis ($H_0$)

Conversation as a teaching strategy implemented by the investigator will not significantly enhance learning of modals in English grammar at higher secondary level.

Table 4.10.0

Comparison of the Post Tests Mean Scores of Control and Experimental Groups

(Conversation to Teach Models)

<table>
<thead>
<tr>
<th>Sample</th>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>‘t’ value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Pre</td>
<td>32</td>
<td>19.8438</td>
<td>1.2728</td>
<td>30.238</td>
<td>Significant at 0.05 level</td>
</tr>
<tr>
<td>Experimental</td>
<td>Post</td>
<td>32</td>
<td>38.5313</td>
<td>2.9837</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Inference:** The table given above shows that the ‘t’ value obtained is more than the table value and hence the Conversation teaching strategy implemented by the investigator has significantly enhanced the learning of modals in English grammar at higher secondary level.

Thus, the research hypothesis of the present study has been confirmed

The Null hypothesis is rejected.
Effect size for the differences between means of the sample of the control and experimental group with respect to post test.

Table 4.10.1

Comparison of the Post Test Mean Scores of Control and Experimental Groups:

(Conversation to Teach Models)

<table>
<thead>
<tr>
<th>Sample</th>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>D</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Post</td>
<td>32</td>
<td>19.8438</td>
<td>1.1728</td>
<td>8.780</td>
<td>Large Effect size</td>
</tr>
<tr>
<td>Experimental</td>
<td>Post</td>
<td>32</td>
<td>38.5313</td>
<td>2.9837</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to the broad guidelines given by Cohen (1988) for interpreting d, d = 0.8 or more shows large effect size, that is, the differences are perceived. Therefore, the obtained $d = 8.780$ shows a large effect size.

4.8.0 Conclusion

After the analysis and the interpretation of data we move on to the major findings and recommendations.