CHAPTER V

ANALYSIS OF DATA

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CHAPTER V
ANALYSIS OF DATA

5.1. INTRODUCTION

This chapter deals with the analysis of the collected data. The data were analysed at two levels descriptive and differential.

The marks scored by the students of both the groups were tabulated. First, the data collected from the Experimental and the Control groups were analysed and compared. Parametric statistical techniques were applied while analyzing and interpreting the data.

5.2. STATISTICAL APPLICATION TO DATA ANALYSIS

The following statistical techniques were applied to analyse and interpret the collected data:

(a) Percentages were struck
(b) Mean and Standard Deviation were computed for pre and post-test scores of both the groups.
(c) ‘t’ test was applied to both the groups to find out the significance of difference between the pre and posttest scores.
(d) Gap closure

5.3. DESCRIPTIVE ANALYSIS OF DATA

(a) In both the experimental and the control groups, the posttest awareness scores are greater than their pretest scores. Between the experimental group and the control group, the posttest scores of the experimental group is higher than the posttest scores of the control group.
In other words the students taught through the folk-arts have scored better than the students taught through the traditional lecture method. It is presented in table 5.1

**Table 5.1 AWARENESS SCORE**

<table>
<thead>
<tr>
<th>S.NO</th>
<th>GROUP</th>
<th>PRETEST MEAN</th>
<th>POSTTEST MEAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Experimental</td>
<td>20</td>
<td>96</td>
</tr>
<tr>
<td>2</td>
<td>Control</td>
<td>22</td>
<td>76</td>
</tr>
</tbody>
</table>

(b) The pre-attitude and the post-attitude scores of the Experimental Group is presented in table 5.2

**Table 5.2 ATTITUDE SCORE**

<table>
<thead>
<tr>
<th>S.NO</th>
<th>GROUP</th>
<th>PRE-ATTITUDE</th>
<th>POST-ATTITUDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Experimental</td>
<td>24</td>
<td>96</td>
</tr>
</tbody>
</table>

Table 5.2 reveals that the post-attitude scores of the experimental group is greater than its pre-attitude scores.

5.4. **DIFFERENTIAL ANALYSIS OF DATA**

Item No: 1

**COMPARISON BETWEEN PRETEST AWARENESS SCORES OF CONTROL GROUP AND EXPERIMENTAL GROUP**
The pretest awareness scores of the experimental and control groups were compared using ‘t’ test.

**Research Hypothesis**

There exists significant difference between the experimental group and the control group in their pretest awareness scores.

**Null Hypothesis**

There exists no significant difference between the mean awareness scores of the experimental and control groups in the pretest.

**Computation of ‘t’ test between mean of awareness scores in the pretest of experimental group and control group.**

S1 = Standard Deviation of the scores of the experimental group in the pretest.
S2 = Standard Deviation of the scores of the control group in the pretest.
N1 = No of students of the experimental group in the pretest
N2 = Number of students of the control group in the pretest
M1 = Mean score of the experimental group in the pretest
M2 = Mean score of the control group in the pretest.

Appropriate ‘t’ test was applied to test the significant difference, if any, between the mean scores of the pretest experimental and control groups.

\[
t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\left(\frac{S_1^2}{N_1}\right) + \left(\frac{S_2^2}{N_2}\right)}}
\]

\[
X_1 = 5.1729 \quad N_1 = 30 \quad M_1 = 22
\]

\[
X_2 = 5.0195 \quad N_2 = 30 \quad M_2 = 20
\]
\[
\begin{align*}
t &= \frac{\sqrt{\left\{(5.1729)^2 / 30\right\}} + \left\{(5.0195)^2 / 30\right\}} {\left(26.7586/30\right) + \left(25.1954 / 30\right)} ^{\frac{1}{2}} \\
&= \frac{\sqrt{\left\{(0.8920) + (0.8398)\right\}}} {\left(1.7318\right)^{\frac{1}{2}}} \\
&= \frac{\sqrt{\left(1.315979\right)}} {1.5197568389} \\
t &= 1.52 < \text{table value}=2.660 \text{ for } df = 58
\end{align*}
\]

Since the ‘t’ value is less than the table value, the experimental group and the control group do not differ in their pre-awareness scores.

**Inference**

There exists no significant difference between the experimental and the control groups in their pre-awareness scores.
Item No: 2

**COMPARISON BETWEEN PRETEST AND POSTTEST AWARENESS SCORES OF EXPERIMENTAL GROUP**

The pretest and posttest awareness scores of the experimental group were compared using ‘t’ test.

Appropriate ‘t’ test was applied to test the significant difference if any, between the mean awareness scores in the pretest and the posttest of the experimental group.

**Research Hypothesis**

The mean awareness score in the posttest is of experimental group is higher than that of the pretest.

**Null Hypothesis**

There exists no significant difference between the mean awareness scores in the pretest and the posttest of the experimental group.

**Computation of ‘t’ test between mean of awareness scores in the pretest and the posttest of experimental group.**

- $S_1$: Standard Deviation of the scores of the experimental group in the pretest.
- $S_2$: Standard Deviation of the scores of the experimental group in the posttest.
- $N_1$: No of students of the experimental group pretest
- $N_2$: Number of students of the experimental group posttest
- $M_1$: Mean score of the experimental group in the pretest
- $M_2$: Mean score of the Experimental group in the posttest

\[
\begin{align*}
M_1 &= 20 & S_1 &= 5.019502196 & N_1 &= 30 \\
M_2 &= 96 & S_2 &= 3.19841915 & N_2 &= 30 \\
r &= 0.123143975
\end{align*}
\]
\[
\begin{align*}
\text{t} &= \sqrt{\frac{S_{1}^2}{N_1} + \frac{S_{2}^2}{N_2} - 2r \times \frac{S_{1}}{N_1} \times \frac{S_{2}}{N_2}}
\end{align*}
\]

\[
\text{t} = \sqrt{\frac{25.1954023}{30} + \frac{10.22988506}{30} - 2 \times 0.123 \times 5.020/30 \times 3.198 / 30}
\]

\[
\text{t} = \sqrt{0.840 + 0.341 - (0.246 \times 0.17 \times 0.1066)}
\]

\[
\text{t} = \sqrt{1.181} - (0.004458012)
\]

\[
\text{t} = \sqrt{1.1765}
\]

\[
\text{t} = 76 / 1.084666
\]

\[
\text{t} = 70.067652162048040594984999990781
\]

\[
\text{t} = 70.07 > \text{table value (2.765)}
\]

The theoretical value of ‘t’ at 1% level of significance with 28 degrees of freedom is 2.765. Since the obtained value of ‘t’ is greater than the theoretical value, the null hypothesis is rejected and the research hypothesis is accepted.

**INFERENCES:-**

There is significant difference between the mean awareness scores in the pretest and the posttest of the experimental group. The post awareness scores of the experimental group is significantly higher than its
pretest scores. The experimental group which was taught through the folk-arts scored higher in the posttest than in the pretest.

**Item No:3**

**COMPARISON BETWEEN PRETEST AND POSTTEST AWARENESS SCORES OF CONTROL GROUP.**

The awareness scores of pretest and posttest of the control group were compared using ‘t’ test.

**Research Hypothesis :**

The mean of the posttest awareness score of the control group is significantly higher than that of the pretest.

**Null Hypothesis :**

There exists no significant difference between the mean awareness scores of the pre and post-test scores of control group.

$S_1= \text{ Standard Deviation of the scores of the Control group in the pretest.}$

$S_2= \text{ Standard Deviation of the scores of the Control group in the posttest.}$

$N_1= \text{ Number of students of the control group (pretest)}$

$N_2= \text{ Number of students of the control group (posttest)}$

$M_1= \text{ Mean score of the control group in the pretest}$

$M_2= \text{ Mean score of the control group in the posttest.}$

\[
\begin{align*}
M_1 &= 22 & S_1 &= 5.172873543 & N_1 &= 30 \\
M_2 &= 76 & S_2 &= 10.55690655 & N_2 &= 30 \\
r &= 0.189432599
\end{align*}
\]
\[ t = \frac{M_1 - M_2}{\sqrt{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2} - 2r \times \frac{S_1}{N_1} \times \frac{S_2}{N_2}}} \]

\[ t = \frac{22 - 76}{\sqrt{\frac{26.76}{30} + \frac{111.45}{30} - 2 \times 0.189 \times \frac{5.173}{30} \times 10.56 / 30}} \]

\[ t = \frac{54}{\sqrt{0.892 + 3.715 - (0.378 \times 0.17 \times 0.352)}} \]

\[ t = \frac{54}{\sqrt{4.607 - 0.02261952}} \]

\[ t = \frac{54}{\sqrt{4.5844}} \]

\[ t = 54 / 2.1411212 \]

\[ t = 25.220431239483313695646934886264 \]

\[ t = 25.22 < \text{table value (2.462)} \]

The theoretical value of ‘t’ at 1% level of significance with 29 degrees of freedom is 2.462. Since the obtained value of ‘t’ is greater than of theoretical value, the research hypothesis is accepted and the null hypothesis is rejected.

**Inference**

The mean awareness score of the posttest of the control group is significantly higher than that the pretest of the control group.
Item No:4

**COMPARISON BETWEEN EXPERIMENTAL AND CONTROL GROUP IN POSTTEST AWARENESS SCORES.**

The posttest awareness scores of the experimental and the control groups were compared using ‘t’ test.

**Research Hypothesis:**

The mean awareness score of the posttest of experimental group is significantly higher than that of the posttest of control group.

**Null Hypothesis :-**

There exists no significant difference between the mean awareness score of the experimental and control groups in the posttest.

**Computation of ‘t’ test between mean of awareness scores in the pretest of experimental group and control group.**

- $S_1 =$ Standard Deviation of the scores of the experimental group in the posttest.
- $S_2 =$ Standard Deviation of the scores of the control group in the posttest.
- $N_1 =$ No of students of the experimental group in the posttest.
- $N_2 =$ Number of students of the control group in the posttest.
- $M_1 =$ Mean score of the experimental group in the posttest.
- $M_2 =$ Mean score of the control group in the posttest.

Appropriate ‘t’ test was applied to test the significant difference, if any, between the mean awareness scores of the posttest of control group and experimental groups.

- $S_1 = 3.1984 \quad N_1 = 30 \quad M_1 = 96$
- $S_2 = 10.5569 \quad N_2 = 30 \quad M_2 = 76$
\[ t = \frac{M_1 - M_2}{\sqrt{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2}}} \]

\[ t = \frac{96 - 76}{\sqrt{\left(\frac{3.1984^2}{30}\right) + \left(\frac{10.5570^2}{30}\right)}} \]

\[ t = \frac{20}{\sqrt{\frac{10.2299}{30} + \frac{111.4483}{30}}} \]

\[ t = \frac{20}{\sqrt{0.34099 + 3.7149}} \]

\[ t = \frac{20}{4.05589} \]

\[ t = \frac{20}{2.0139} \]

\[ t = 9.9309 \]

\[ t = 9.94 \text{ > table value (2.390 ) (df = 58)} \]

Since the calculated ‘t’ value is greater than the table value the research hypothesis is accepted.

**Inference**

The mean awareness score of the posttest of the experimental group is significantly higher than that of the posttest of the control group.
Item No:5

COMPARISON BETWEEN THE AWARENESS SCORES OF BOYS AND THE GIRLS IN THE POSTTEST OF EXPERIMENTAL GROUP

Appropriate ‘t’ test was applied to test the significant difference, if any, between the mean scores of the experimental boys and girls in the posttest.

Research Hypothesis:

There exists significant difference between the posttest scores of boys and girls of the experimental group

Null Hypothesis:

The exists no significant difference between the scores of the experimental boys and girl in the posttest.

Computation of ‘t’ between mean awareness scores of the experimental group of boys and girls in the posttest:

S1= Standard Deviation of the awareness posttest scores of the boys in experimental group.
S2= Standard Deviation of the awareness posttest scores of the girls in experimental group.
N1= Number of boy students of the experimental group in the posttest
N2= Number of girl students of the experimental group in the posttest
M1= Mean awareness posttest score of boys in the experimental group.
M2= Mean awareness posttest score of the girls in the experimental group.
Appropriate 't' test was applied to test the significant difference, if any, between the mean scores of the posttest of experimental boys and girls,

\[
M_1 = 96 \quad S_1 = 3.388836 \quad N_1 = 20
\]

\[
M_2 = 95 \quad S_2 = 2.951459 \quad N_2 = 10
\]

\[
t = \frac{M_1 - M_2}{\sqrt{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2}}}
\]

\[
t = \frac{96 - 95}{\sqrt{\frac{(3.388836)^2}{20} + \frac{(2.951459)^2}{10}}}
\]

\[
t = \frac{1}{\sqrt{(11.48421 / 20) + (8.7111 / 10)}}
\]

\[
t = \frac{1}{\sqrt{0.574211 + 0.87111}}
\]

\[
t = \frac{1}{\sqrt{1.445322}}
\]

\[
t = \frac{1}{1.202215}
\]

\[
t = 0.831798
\]

\[
t = 0.83 < \text{table value (2.763) for } df = 28
\]
The theoretical value of ‘t’ at 1% level of significance with 28 degrees of freedom is 2.765 since the obtained value of ‘t’ is less than the theoretical value, the null hypothesis is accepted and the research hypothesis is rejected.

Inference

There exist no significant difference between the mean awareness scores in the posttest of the boys and the girls of the experimental group.

Item No:6

COMPARISON BETWEEN PRE AND POST ATTITUDE SCORES OF EXPERIMENTAL GROUP

Appropriate ‘t’ test was applied to attitude test, the significant difference, if any, between the mean attitude scores of the experimental in the pre and post-treatment.

Research Hypothesis

The mean attitude score in the post-treatment is of experimental group is higher than that of the mean score of pre treatment.

Null Hypothesis

The exists no significant difference between the pre and post-attitude scores of experimental group.

Computation of ‘r’ test between mean of attitude scores in the pre and the post-treatment of experimental group.

S1= Standard Deviation of the scores of the experimental group in the pre-treatment.
S2 = Standard Deviation of the scores of the experimental group in the post-treatment.

N1 = No of students of the experimental group pre-treatment

N2 = Number of students of the experimental group post-treatment

M1 = Mean score of the experimental group in the pre-treatment

M2 = Mean score of the Experimental group in the post-treatment

X = Pre attitude score of experimental group.

Y = Post attitude score of experimental group.

\[ M_1 = 24 \quad S_1 = 7.80245 \quad N_1 = 30 \]

\[ M_2 = 96 \quad S_2 = 3.09542 \quad N_2 = 30 \]

\[ r = 0.4736 \]

\[ r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{(n \sum x^2 - (\sum x)^2)} \quad \times \quad \sqrt{(n \sum y^2 - (\sum y)^2)}} \]

\[ r = \frac{(30 \times 76344) - (794) \times (2872)}{\sqrt{(30 \times 22780 - (794)^2)} \quad \times \quad \sqrt{(30 \times 275224 - (2872)^2)}} \]

\[ r = \frac{(2290320) - (2280368)}{\sqrt{(683400) - (630436)} \quad \times \quad \sqrt{(8256720) - (8248384)}} \]

\[ r = \frac{9952}{\sqrt{52964} \quad \times \quad \sqrt{8336}} \]

\[ r = \frac{9952}{230.1391 \times 91.3017} \]

\[ (9952) \]
\[ r = \frac{0.4736}{21012.0911} \]

\[ r = 0.4736 \]

**Computation of ‘t’ test between mean of attitude scores in the pre-treatment and the post-treatment of the experimental group.**

\[
\frac{\sqrt{(S_1^2/N_1) + (S_2^2/N_2)} - 2r \times S_1/N_1 \times S_2/N_2}{\sqrt{[(7.80245^2/30) + (3.09542^2/30)] - [(2 \times 0.4736) \times (7.80245/30) \times (3.09542/30)]}}
\]

\[
\frac{\sqrt{(60.878/30) + (9.582/30) - (0.9472 \times 0.260 \times 0.103)}}{\sqrt{[(2.0293) + (0.3194)] - (0.0254)}}
\]

\[
\frac{\sqrt{1.177}}{1.0849}
\]

\[ t = \frac{74}{1.084666} \]

\[ t = 68.2091 \]

\[ t = 68.21 > \text{table value (2.462)} \]
The theoretical value of ‘t’ at 1% level of significance with 28 degrees of freedom is 2.462. Since the obtained value of ‘t’ is greater than the theoretical value, the null hypothesis is rejected and the research hypothesis is accepted.

**INFERENC E:**

There is significant difference between the mean attitude scores in the pre and the post-treatment of the experimental group. The post-mean attitude of the experimental group is significantly higher than its pre-mean attitude. The experimental group which was taught through the folk-arts has more favourable attitude towards national integration in the post-treatment than in the pre-treatment period.

**Item No:7**

**COMPARISON BETWEEN THE ATTITUDE SCORES OF BOYS AND THE GIRLS IN THE POST-TREATMENT OF EXPERIMENTAL GROUP**

Appropriate ‘t’ test was applied to test the significant difference, if any, between the mean attitude scores of the experimental boys and girls in the post-treatment.

**Research Hypothesis:**

There exists significant difference between the post-attitude scores of boys and girls.

**Null Hypothesis:**

There exists no significant difference between the post-attitude scores of the experimental boys and girl.
S1= Standard Deviation of the attitude scores of the boys in experimental group.

S2= Standard Deviation of the attitude scores of the girls of experimental group.

N1= Number of boy students of the experimental group in the post-treatment

N2= Number of girl students of the experimental group in the post-treatment

M1= Mean attitude score of boys in the experimental group.

M2= Mean attitude score of the girls in the experimental group.

**Computation of ‘t’ between mean attitude scores of the experimental boys and girls in the post-treatment:**

\[
M_1 = 96 \quad S1 = 3.03488 \quad N1 = 20
\]

\[
M_2 = 97 \quad S2 = 3.32666 \quad N2 = 10
\]

\[
\frac{M_1 - M_2}{\sqrt{\left(\frac{S_1^2}{N1}\right) + \left(\frac{S_2^2}{N2}\right)}}
\]

\[
\frac{97 - 96}{\sqrt{\left(\frac{3.03488^2}{20}\right) + \left(\frac{3.32666^2}{10}\right)}}
\]

\[
\frac{1}{\sqrt{\left(\frac{9.2105}{20}\right) + \left(\frac{11.0667}{10}\right)}}
\]

\[
\frac{1}{\sqrt{\left(0.460525\right) + \left(1.1067\right)}}
\]

\[
\frac{1}{\sqrt{\left(1.567225\right)}}
\]

\[
t = 1.25189
\]
\[ t = 0.79879222615405506873607106055644 \]

\[ t = 0.79 > \text{table value (2.763 ) for } df = 28 \]

The theoretical value of ‘t’ at 1% level of significance with 28 degrees of freedom is 2.763. So since the obtained value of ‘t’ is less than the theoretical value, the null hypothesis is accepted and the research hypothesis is rejected.

**Inference**

There exists no significant difference between the post-mean attitude scores of the boys and girls of the experimental group.

5.5 **GAP CLOSURE:**

“Gap Closure’ refers to the percentage of the gap closed (after the treatment) as indicated by the distance between the posttest mean and the pretest mean. The gap closure indicates the extent to which the treatment has been effective. “Gap” refers to the gap between complete mastery and initial achievement (mean of the pretest)

\[
\text{Gap Closure} = \frac{\text{Posttest mean} - \text{Pretest mean}}{\text{Perfect score} - \text{Pretest mean}} \times 100
\]

**Awareness scores :**

(a) **Experimental group**

\[
\text{Gap Closure} = \frac{96 - 20}{100 - 20} \times 100
\]
76
= - - - - - - X 100
80
= 95 %

(b) Control Group

76 - 22
= - - - - - - - X 100
100 - 22
54
= - - - - - X 100
78
= 69 %

(c) Attitude score

\[
\text{Gap Closure} = \frac{\text{Posttest mean} - \text{Pretest mean}}{\text{Perfect score} - \text{Pretest mean}} \times 100
\]

96 - 24
= - - - - - - X 100
100 - 24
72
= - - - - - X 100
76
= 94.74 %

5.6 SUMMARY OF FINDINGS

The research gave the following findings:

(i) There exists no significant difference between the experimental and the control groups in their pre-awareness scores.
(ii) There is significant difference between the mean awareness scores in the pretest and the posttest of the experimental group. The post awareness scores of the experimental group is significantly higher than its pretest scores. The experimental group which was taught through the folk-arts scored higher in the posttest than in the pretest.

(iii) The mean awareness score of the post-test of the control group is significantly higher than that of the pre-test of the control group.

(iv) The mean awareness score of the posttest of the experimental group is significantly higher than that of the posttest of the control group.

(v) There exists no significant difference between the mean awareness scores in the posttest of the boys and the girls of the experimental group.

(vi) There is no significant difference between the attitude mean scores in the pretest and the posttest of the experimental group. The experimental group which was taught through the folk-arts has more favourable attitude towards national integration in the post treatment than in the pre-treatment period.

(vii) There exists no significant difference between the post-mean attitude scores of the boys and the girls of the experimental group.

(viii) Gap closure in the awareness of the experimental group is 95% and that of the control group is 69%. Gap closure in attitude is 94.74%.
5.7 DISCUSSIONS

The most important finding of the research is that student’s awareness about National Integration was enhanced by teaching through folk-arts.

This finding is in agreement with the finding of the following researchers:


Another finding is that the attitude of the learners towards national integration has increased favourably. This finding conforms with the finding of the following researchers:

Trujillo (1981), and Basu (1983)

The finding that there exists no gender difference in the awareness and attitude of the students agrees with that of Basu (1983)

5.7 CONCLUSION:

With the hypothesis – testing, inferences and the summary of the findings over in this chapter of Data Analysis, discussions, findings, conclusion and suggestions for the future studies are to follow in the ensuing chapter.