# CHAPTER IV

# ANALYSIS AND INTERPRETATION.

Presentation and analysis of data

Testing of hypothesis

Results

# CHAPTER IV

# ANALYSIS AND INTERPRETATION.

## ANALYSIS AND INTERPRETATION OF DATA.

Research is considered to be more formal systematic and intensive process of carrying analysis, hypothesis formulation, observation and conclusions.

Statistics is indispensable tool for the researcher that enables her to make inference and generalizations about population under control.

The pioneering contributions of Sir Ronald Fisher and Karl Pearson to statistics and scientific method and William Sealy Gosset to small sampling theory have made practicable the analysis of many of the types of problems encountered in psychology and education.

Parametric statistical treatment of data is based upon certain assumptions about the nature of distributions and the type of measures used. Non parametric statistical treatments make possible inferences without assumptions about the nature of data information. Each type makes a significant contribution to the analysis of data relationships.

In this study the experiment is set to compare the effectiveness of two method of teaching. Two groups namely the experimental group and control group were selected randomly from the same population. The experimental group was taught by using computer software and control group was taught by traditional method in regular classroom.

Data was collected from pre test i.e. before the experiment and post test i.e. after the experiment.

A more quantitative superiority of the experimental group mean score over the control group mean score is not conclusive proof of its superiority. Since we know that the means of two groups randomly drawn from the same population were not necessarily identical, any difference that appeared at the end of the experimental cycle could possibly be attributed by sampling error or chance. To be statically, statistically significant always involves discrediting the sampling error explanation. The test of the significance of the difference between two means is known as a 't' test. It involves the computation of a ratio between experimental variance and error variance.

Statistical treatments were used to compare the two groups performance. For that t test, mean and standard deviation were calculated.

With the application of t test, research becomes more reliable. Due to this researcher knows whether there is any fault in sampling or whether the treatment used is wrong or right.

For statistical treatments following formulae were used.

Mean

$$M = A.M. + \frac{\Sigma fx'}{N} \times i$$

Standard Deviation

$$S.D. = i \sqrt{\frac{\Sigma fx}{N} \left[\frac{\Sigma fx'}{N}\right]^2}$$

t test

$$t = \frac{D}{\sigma D}$$

The following table shows the marks scored by two groups i.e. experimental group and control group. The marks obtained in pre test by the students, which was of 25 marks and also post test was conducted of 25 marks.

## TABLE NO. 1

Formation of Groups on the basis of marks obtained in pre test.

| Sr. No | Control Group | Experimental Group |
|---|---|---|
| 1 | 22 | 23 |
| 2 | 22 | 22 |
| 3 | 22 | 22 |
| 4 | 22 | 21 |
| 5 | 21 | 21 |
| 6 | 21 | 21 |
| 7 | 21 | 21 |
| 8 | 20 | 21 |
| 9 | 20 | 20 |
| 10 | 20 | 20 |
| 11 | 19 | 20 |
| 12 | 18 | 20 |
| 13 | 18 | 18 |
| 14 | 18 | 18 |
| 15 | 17 | 18 |
| 16 | 17 | 18 |
| 17 | 16 | 17 |
| 18 | 16 | 17 |
| 19 | 16 | 17 |
| 20 | 16 | 17 |
| 21 | 16 | 16 |
| 22 | 15 | 16 |
| 23 | 15 | 16 |
| 24 | 15 | 16 |
| 25 | 15 | 15 |
| 26 | 14 | 15 |
| 27 | 13 | 14 |
| 28 | 13 | 14 |
| 29 | 12 | 14 |
| 30 | 12 | 12 |
| | TOTAL 510 | 540 |

Mean = 17.0    Mean = 18.0
S.D.1 = 3.04    S.D.2 = 2.96

## OBSERVATION AND INTERPRETATION

The table No. 1 shows the marks obtained by 60 students in pre test. Out of 60 students 30 students were of experimental group and 30 students were of control group. The table also shows the total score, mean and S.D. of the score.

Mean score of the experimental group = 18.0.

Mean score of the control group = 17.0.

Standard Deviation of the experimental group - 3.04.

Standard Deviation of the control group - 2.96.

From the above table it was observed that the two groups were similar with respect to means of the scores and Standard Deviation. The difference is negligible.

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TABLE NO. 2

Comparison of the performance taken for the Experimental group and
Controlled group in the post test.

| Sr. No | Experimental Group marks out of 25 | Controlled Group marks obtained out of 25 |
|---|---|---|
| 1 | 24 | 22 |
| 2 | 24 | 22 |
| 3 | 23 | 21 |
| 4 | 23 | 20 |
| 5 | 23 | 20 |
| 6 | 23 | 20 |
| 7 | 23 | 20 |
| 8 | 22 | 20 |
| 9 | 22 | 19 |
| 10 | 22 | 19 |
| 11 | 22 | 19 |
| 12 | 21 | 19 |
| 13 | 21 | 18 |
| 14 | 21 | 18 |
| 15 | 21 | 18 |
| 16 | 21 | 17 |
| 17 | 20 | 17 |
| 18 | 20 | 16 |
| 19 | 19 | 16 |
| 20 | 18 | 15 |
| 21 | 18 | 13 |
| 22 | 18 | 13 |
| 23 | 18 | 13 |
| 24 | 17 | 12 |
| 25 | 17 | 12 |
| 26 | 17 | 10 |
| 27 | 17 | 10 |
| 28 | 16 | 10 |
| 29 | 15 | 07 |
| 30 | 14 | 04 |
| | T O T A L  600 | 480 |

Mean = 20.0    Mean = 16.0
S.D.1 = 2.75    S.D.2 = 4.54

## OBSERVATION AND INTERPRETATION

Table No. 2 shows the marks obtained by 60 students in the post test. Out of 60 students, 30 students were of control group and 30 students were of experimental group.

The table also shows the total scores and mean of scores and S.D. of two groups

Mean score of the experimental group = 20.0.

Mean score of the control group = 16.0.

Standard Deviation score of experimental group - 2.75.

Standard Deviation score of control group - 4.54.

From the above table it was observed that the two groups were not similar with respect to mean of score and Standard deviation.

TABLE NO. 3

t values for experimental and control groups for the post test marks

| Sr. No. | Groups | Mean of Marks | Standard 't' values | | Calculated 't' values |
|---|---|---|---|---|---|
| | | | At 0.05 level | At 0.01 level | |
| 1 | Experimental Group | $M_1 = 20$ | 2.04 | 2.76 | 4.03918 |
| 2 | Control Group | $M_2 = 16$ | | | |

**OBSERVATION AND INTERPRETATION**

For Df  =   30 – 01  =  29  (Degree of Freedom)

At  0.05 level  =  2.04

At  0.01 level =  2.76

Calculated 't'  =  4.03918

Here calculated t value is greater than table t at both 0.05 & 0.01 level. Therefore there is significant difference between the scores of experimental group and control group in post test for a topic 'Personality and Adjustment'.

Hence the hypothesis is rejected based on 't' values (table 3). The obtained 't' value is greater than the table 't' value. Therefore two groups differ significantly.

## RESULTS

1. The Pre test was administrated to both the groups and it was found that the performance of both the groups was nearly same (Table No. 1)

2. The post test scores of both the groups when compared it was found that experimental group students scored more than that of control group. The 't' test analysis for the same reveal that experimental group has performed better than the control group. (Table No. 2)

3. To find out the overall performance the t test was carried out and the result reveals that overall performance of the experimental group in post test is better than that of the control group. (Table No. 3 )

4. By considering above points overall data analysis reveals that the CAI method was better than the traditional method for the selected topic 'Personality and Development. '

5. Teaching learning process using computer based software prepared on topic 'Personality and Development ' from Educational Psychology was more effective than the traditional method.

# CHAPTER V

## SUMMARY AND CONCLUSIONS

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