Chapter IV
DATA ANALYSIS, INTERPRETATION AND RESULT

4.1 INTRODUCTION

Data analysis and data interpretation is a very important part of a dissertation paper, research paper or thesis paper. Analysis of data involves a number of closely related operation that are performed with the purpose of summarizing the collected data and organizing these in such a manner that they will yield answer to the research question or hypotheses or suggest hypotheses or questions if no such questions or hypotheses had initiated the study (Prof Wilkinson and Bhandarkar). Interpretation is also important in a research paper or thesis or dissertation etc. After data analysis, the researcher interprets the table and the results. Through data analysis and interpretation, the null hypothesis is examined. In this study, the effect of ICT integrated teaching in achieving learning outcomes in Physics of grade 9th students have been studied. The researcher examined his null hypothesis through the t-test. Here, the researcher interprets the effect of independent variables (teaching methods) on the dependent variable (achievement test scores) by comparing the mean scores.

4.2 OBJECTIVES OF THE STUDY

The study has the following objectives:

1) To know the effect of ICT integrated and traditional teaching method in achieving learning outcomes of grade 9th students.

2) To compare the effectiveness of ICT integrated and traditional teaching method in achieving learning outcomes in Boys of grade 9th students.

3) To compare the effectiveness of ICT integrated and traditional teaching method in achieving learning outcomes in Girls of grade 9th students.

4) To compare the effectiveness of ICT integrated teaching in achieving learning outcomes in Boys and Girls of grade 9th students.

4.3 HYPOTHESIS OF THE STUDY

The study has the following null-hypotheses:

1) There is no significant difference in the learning outcomes of students taught through ICT integration and traditional method.

2) There is no significant difference in the learning outcomes among Boys taught through ICT integration and traditional method.

3) There is no significant difference in the learning outcomes among Girls taught through ICT integration and traditional method.

4) There is no significant difference in the learning outcomes between Boys and Girls taught through ICT integration method.

4.4 OBJECTIVE WISE ANALYSIS AND INTERPRETATION OF THE DATA

In this study, the researcher has four objectives, and to achieve these objectives four hypotheses were formed, and are analyzed with the data collected in the field.

Objective-I

To know the effect of ICT integrated and traditional teaching method in achieving learning outcomes of grade 9th students.

Hypothesis-l

There is no significant differences in the learning outcomes of students taught through ICT integration and traditional method.

Table 4.1

Difference between the achievement scores of control group & experimental group

Group	N	Mean	SD	D	df	Calculated t-value	Remarks
Control	20	23.25	3.90	0.70	38	0.61	Not significant
Experimental	20	23.95	4.72				

Here, N= Number (size) of Sample, SD = Standard Deviation, D = Mean Difference, df =Degree of Freedom

Analysis

From table 4.1, it is evident that the calculated t-value for 38 degree of freedom is found to be 0.61. The tabulated t-value for 38 degree of freedom and at 0.05 level of significance is 2.02. As our calculated t-value is less than the table value, so it is not significant at 0.05 level of

significance. Therefore, we have to accept the null hypothesis. This shows that there is no significant difference between the mean achievement scores of control group and experimental group.

Interpretation

The means of experimental and control groups are 23.95 and 23.25 respectively. The difference between these two means is 0.70, which is in favor of experimental group. But, there is no significant difference between the mean achievement scores of control group and experimental group.

Result

There is no significant difference between mean achievement scores of learners taught through the ICT integrated teaching and learners taught through the traditional teaching approach. As the mean difference is not significant it can be concluded that ICT integrated teaching and traditional teaching methods are similarly effective to achieve the learning outcomes.

Justification

In the present study, the sample chosen by the investigator was just promoted to the grade 9th after passing their previous class exams and also the academic session of the school was about to finish in the month of April, due to which the students of the selected grade were not available in their full strength and the upcoming summer vacation impacted their interest and attitude in learning. Due to less time of intervention and lack of student's preparedness towards ICT, the researcher was not able to achieve the intended result.

Objective-II

To compare the effectiveness of ICT integrated and traditional teaching method in achieving learning outcomes in Boys of grade 9th students.

Hypothesis-II

There is no significant difference in the learning outcomes among Boys taught through ICT integration and traditional method.

Table 4.2

Difference between the achievement scores of boys of control group & experimental group

Group	N	Mean	SD	D	df	Calculated t-value	Remarks
Boys (Control)	7	22.71	5.59	1.45	11	0.57	Not significant
Boys (Experimental)	6	24.17	3.31				

Here, N= Number (size) of Sample, SD = Standard Deviation, D = Mean Difference, df = Degree of Freedom

Analysis

From table 4.2, it is evident that the calculated t-value for the degree of freedom 11 is found to be 0.57. The tabulated t-value for 11 degree of freedom and at 0.05 level of significance is 2.20. As our calculated t-value is less than the table value, so it is not significant at 0.05 level of significance. Therefore, we have to accept the null hypothesis. This shows that there is no significant difference between the mean achievement scores of control group and experimental group in boys.

Interpretation

The means of experimental and control groups are 24.17 and 22.71 respectively. The difference between these two means is 1.45, which is in favor of experimental group. But, there is no significant difference between the mean achievement scores of control group and experimental group in boys.

Result

There is no significant difference between mean achievement scores of boys taught through the ICT integrated teaching and boys taught through the traditional teaching approach. As the mean difference is not significant it can be concluded that ICT integrated teaching and traditional teaching methods are similarly effective to achieve the learning outcomes.

Justification

In the present study, the sample chosen by the investigator was just promoted to the grade 9th after passing their previous class exams and also the academic session of the school was about to finish in the month of April, due to which the boys of the selected grade were not available in their full strength and the upcoming summer vacation impacted their interest and attitude in learning. Due to less time of intervention and lack of the preparedness of boys towards ICT, the researcher was not able to achieve the intended result.

Objective-III

To compare the effectiveness of ICT integrated and traditional teaching method in achieving learning outcomes in Girls of grade 9th students

Hypothesis-III

There is no significant difference in the learning outcomes among Girls taught through ICT integration and traditional method.

Table 4.3

Difference between the achievement scores of girls of control group & experimental group

Group	N	Mean	SD	D	df	Calculated t-value	Remarks
Girls (Control)	13	23.54	2.87	0.32	25	0.85	Not Significant
Girls (Experimental)	14	23.86	5.32				

Here, N= Number (size) of Sample, SD = Standard Deviation, D = Mean Difference, df = Degree of Freedom

Analysis

From table 4.3, it is evident that the calculated t-value for the degree of freedom 25 is found to be 0.85. The tabulated t-value for 25 degree of freedom and at 0.05 level of significance is 2.06. As our calculated t-value is less than the table value, so it is not significant at 0.05 level of significance. Therefore, we have to accept the null hypothesis. This shows that there is no significant difference between the mean achievement scores of control group and experimental group in girls.

37

Interpretation

The means of experimental and control groups are 23.86 and 23.54 respectively. The difference between these two means is 0.32, which is in favor of experimental group. But, there is no significant difference between the mean achievement scores of control group and experimental group in girls.

Result

There is no significant difference between mean achievement scores of girls taught through the ICT integrated teaching and girls taught through the traditional teaching approach. As the mean difference is not significant it can be concluded that ICT integrated teaching and traditional teaching methods are similarly effective to achieve the learning outcomes.

Justification

In the present study, the sample chosen by the investigator was just promoted to the grade 9th after passing their previous class exams and also the academic session of the school was about to finish in the month of April, due to which the girls of the selected grade were not available in their full strength and the upcoming summer vacation impacted their interest and attitude in learning. Due to less time of intervention and lack of the preparedness of girls towards ICT, the researcher was not able to achieve the intended result.

Objective-IV

To compare the effectiveness of ICT integrated teaching in achieving learning outcomes in Boys and Girls of grade 9th students.

Hypothesis-IV

There is no significant difference in the learning outcomes between Boys and Girls taught through ICT integration method.

Table 4.4

Difference between the achievement scores of Boys and Girls of experimental group

Group	N	Mean	SD	D	df	Calculated t-value	Remarks
Boys (Experimental)	6	24.17	3.31	0.31	18	0.88	Not Significant
Girls (Experimental)	14	23.86	5.32				

Here, N= Number (size) of Sample, SD = Standard Deviation, D = Mean Difference, df = Degree of Freedom

Analysis

From table 4.4, it is evident that the calculated t-value for the degree of freedom 18 is found to be 0.88. The tabulated t-value for 18 degree of freedom and at 0.05 level of significance is 2.10. As our calculated t-value is smaller than table value, so it is not significant at 0.05 level of significance. Therefore, we have to accept the null hypothesis. This shows that there is no significant difference between the mean achievement score of experimental group boys and experimental group girls.

Interpretation

The means of experimental group boys and experimental group girls are 24.17 and 23.86 respectively. The difference between these two means is 0.31, which is in favor of boys of experimental group.

Result

There is no significant difference between mean achievement scores of learners taught through the ICT integrated teaching approach between boys and girls. As the mean difference is not significant, it can be concluded that ICT integrated teaching is equally beneficial for boys and girls to achieve the learning outcomes.