CHAPTER - IV

ANALYSIS OF DATA, RESULTS AND FINDINGS

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4.0.0 INTRODUCTION

The introduction, back ground of the study along with the justification and need of the present research, objectives, hypotheses and the delimitations are given in the Chapter-I. The reviews of related literature have been presented in Chapter-II. The methodology followed in this study has been given in detail in the previous chapter. In the same chapter, the statistical techniques used have been given. The present chapter is devoted to the presentation of data and its analysis, results and their interpretations. Objective-wise analysis of data, interpretations of the results are presented below.

4.1.0 EFFECTIVENESS OF E-CONTENT IN TEACHING CHEMISTRY IN TERMS OF ACHIEVEMENT OF STUDENTS

The first objective of the present research was to study the effectiveness of e-content in terms of achievement of students in Chemistry. The effectiveness in terms of achievement in Chemistry was studied by the Achievement test in Chemistry developed by the investigator after the treatment. The data was analysed with the help of mean, standard deviation and percentiles. The result related to each of these are presented in Table 4.1 below.

From Table 4.1, it is evident that the mean scores, of Achievements in Chemistry of experimental group is 23.75. Average score of Students Achievement in Chemistry is above I division. Standard Deviation of Achievement in Chemistry is 3.127 and their coefficient of Variation is 9.776.

Further, more than ninety percent students secured above 60% marks. Seventy-five percent students scored70% marks in chemistry. More than seventy percent students scored more than 70% marks in Chemistry. Only, five percent students scored less than 52% marks. This kind of achievement in Chemistry, generally, not witnessed through the Method of teaching. It indicates that the students have been benefited from e-content Strategy. When Students are taught with the help of method, therefore, it may, therefore, be said that the e-content Learning

Strategy was found to be effective in terms of Achievement in Chemistry of Students.

Table - 4.1: Mean, SD, Range, Percentiles for Achievement of students in Chemistry taught through e-content

POST-TEST SCORES OF ACHIEVEMENT TEST	N	20
	Mean	23.75
	Std. Deviation	3.127
	Variance	9.776
	Range	11
	Minimum	17
	Maximum	28
PERCENTILES	5	56.6
	15	60
	20	70
	45	80
	15	90

4.2.0 EFFECT OF TREATMENT, GENDER AND THEIR INTERACTION ON ACHIEVEMENT IN CHEMISTRY

The second objective was to study the effect of Treatment, Gender and their interaction on Achievement in Chemistry of Students by taking pre-test score of Achievement in Chemistry as covariate. Independent variables were treatment and gender. Achievement in Chemistry was the dependent variable. There were two levels of Treatment, namely, teaching through e-content Strategy and Traditional Method. Gender has two level, such as, boys and girls. Pre-test score of Achievement in Chemistry as Covariate. Thus, the data were analysed with the help of 2 X 2 Factorial Design ANCOVA of Cell Size. The results and interpretation related to each of these indicators are presented under captions 4.2.1, 4.2.2 and 4.2.3. The results are given in Table 4.2 and 4.3.

Table - 4.2: Summary of 2 X 2 Factorial Design ANCOVA of Achievement in Chemistry of Students by taking Pre-test score of Achievement in Chemistry as Covariate

Sources of Variance	Sum of Squares	df	Mean Square	F	Sig.
GROUP	66.502	1	66.502	8.892	.005
GENDER	.208	1	.208	.028	.869
GROUP * GENDER	17.756	1	17.756	2.374	.132
Error	261.748	35	7.479		
Total	20313.000	40			
Corrected Total	732.375	39			

Table - 4.3: Mean, SD for Students Achievement in Chemistry

GROUP OF THE STUDENTS	GENDER OF THE STUDENTS	Mean	Std. Deviation	N
EXPERIMENTAL GROUP	BOYS	24.45	2.464	11
	GIRLS	22.89	3.756	9
	Total	23.75	3.127	20
CONTROL GROUP	BOYS	19.09	4.805	11
	GIRLS	22.22	4.494	9
	Total	20.50	4.818	20
Total	BOYS	21.77	4.628	22
	GIRLS	22.56	4.033	18
	Total	22.12	4.333	40

4.2.1 Effect of Treatment on Achievement in Chemistry

Table 4.2, indicates that the F- value of Treatment for Achievement in Chemistry is 8.892. This is significant at 0.01 level with df equal to 1/40. It reflects that there is a significant difference in the adjusted mean score of Achievement of students taught through e-content. It shows that there is a significant effect of Treatment on Achievement of students when their Pre-test scores are taken as covariate. Thus, the null hypothesis, namely, "there is no significant effect of Treatment on Achievement in Chemistry of students when their pre-test scores of Achievement in Chemistry are taken as covariate", is rejected. It demonstrates that the treatment had a significant differential effect

Table 4.3, also, demonstrates that the mean score of Achievement in Chemistry of boys and girls is 24.45 and 22.89, respectively. It is evident from the table that the mean score of Achievement in Chemistry of boys is approximately same as secured by the girls. But, the SD of girl students Achievement in Chemistry (3.756) is approximately equal to the boy students (2.464). It indicates that the Achievement in Chemistry of boy students is nearly equal to the Achievement in Chemistry of girl students.

Finding: There is no effect of Gender on the students' Achievement in Chemistry.

4.2.3 Interaction of Treatment and Gender on Achievement in Chemistry

Table 4.2 shows that the F-value for interaction between Treatment and Gender is 2.374. This is significant at 0.01 level with df equal to 1/40. Therefore, the null hypotheses, namely, "there is no significant interaction of Treatment and Gender on Achievement in of Students when their pre-test scores of Achievement in Chemistry is taken as covariate", is rejected. It demonstrates that the interaction between Treatment and Gender produced a significant differential effect on the Achievement in Chemistry of the students when their Pre-test scores of Achievement in Chemistry was taken as covariate. Therefore, it can be said that the Achievement in Chemistry of high school students of Hatadihi area of Kendujhar, Odisha is dependent on the interaction between Treatment and Gender. So, it can be inferred that the Achievement in Chemistry is dependent of the interaction between Treatment and Gender.

Table 4.3, also, demonstrates that the Mean score of Achievement in Chemistry of boy and girl students belonging to experimental group is 24.45 and 22.89, respectively. It is evident from the table that the mean score of Achievement in Chemistry of boy students belonging to experimental group is lower than their counterparts of girl students belonging to the same group. Table 4.3 shows that the SD of Achievement in Chemistry of boys and girls students belonging to Experimental group is 2.464 and 3.756, respectively.

Table 4.3, also, demonstrates that the Mean score of Achievement in Chemistry of boys and girl students belonging to Control group is 19.09 and 22.22, respectively. It is evident from the table that the mean score of Achievement in Chemistry of boy students belonging to control group is lower than their counterparts of girl students belonging to the same group. Table 4.2 shows that the SD of Achievement in Chemistry of boys and girls students belonging to Control group is 4.805 and 4.494 respectively.

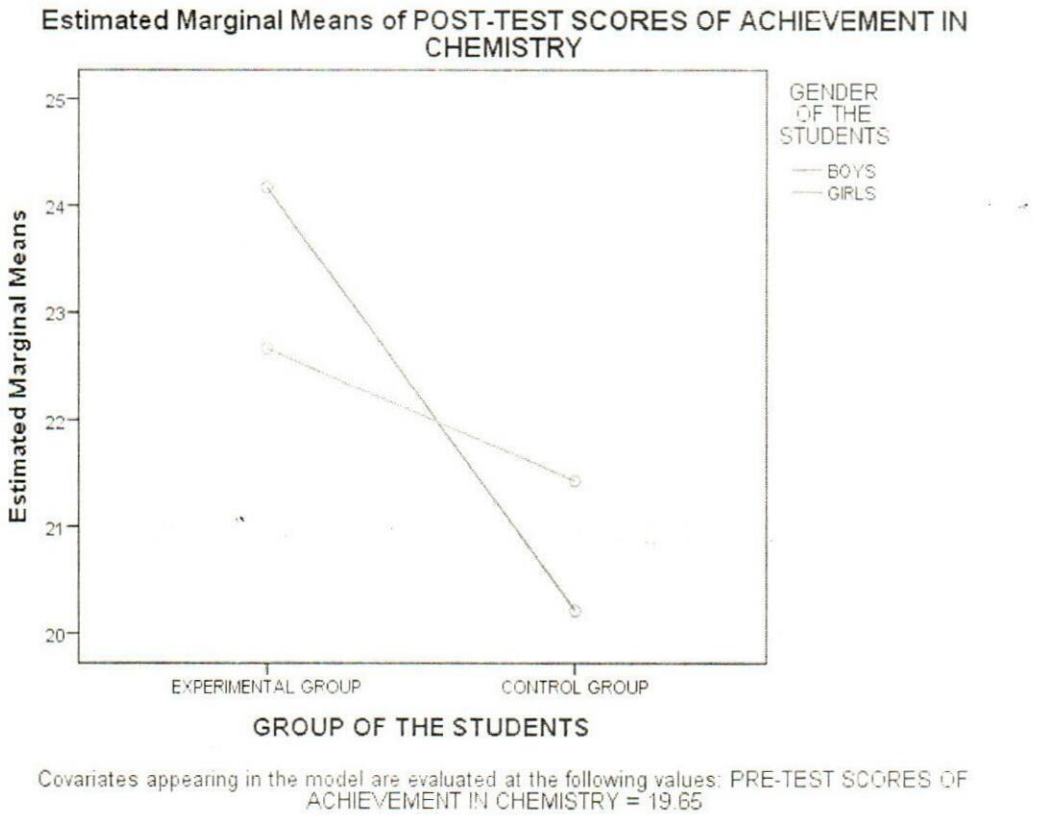

Fig. 4.2: ***Interaction of Treatment and Gender on the Achievement in Chemistry***

Finding: There is significant Interaction of Treatment and Gender on the students Achievement in Chemistry.

These discussions pertain to the findings of the study are presented in the Chapter – V.