

Chapter 4: RESULT AND DISCUSSION

4.1 INTRODUCTION

This chapter deals with the presentation of data and their analysis to draw the result. The objective wise result and discussion is going to be discussion here.

4.1 A STUDY OF EFFECTIVENESS OF ICT ON STUDENTS' PERFORMANCE IN SCIENCE AT SECONDARY STAGE

From **Table 1**, the mean score for the experimental group ($x= 59.80$) Is greater than control ($x= 52.79$).

Table 1: Estimate Marginal Means for the Experimental Control Groups.

Group	Mean	Std. Dev
Exp.	59.8	4.63
Control	52.79	4.5

Grand total=56.20

Table 2: Gender and the Mean Scores.

GENDER	MEAN	STD. DEV	N
MALE	57.5	22.9	24
FEMALE	54.13	20.11	15
TOTAL	56.2	21.66	39

GRAND TOTAL=56.20

Table 2 shows that the male students have higher mean score (x= 57.50) than their female counterparts score (x= 54.13).

H01: There is no significant difference between the mean achievement scores of experimental and control.

Table 3: Summary of ANCOVA of post-test Achievement scores by Treatment.

Source	Sum of sq.	df	Mean sq	F	Sig
Corrected M.	5262.35	2	2631.18	7.54	0
Intercept	3902.31	1	3902.31	11.19	0
Pre test	2631.61	1	2631.61	7.54	0.01
Treatment	360.36	1	360.36	1.03	0.32
Error	12560.01	36	348.89		
Total	141024	39			
C. Total	17822.36	38			
R. squared	0.29				
Adjusted Rsq.	0.26				

Level of significance 0.05

From **Table 3**, treatment has no significant effect on students' achievement in science. The implication is that, there is no significant difference in science achievement of students exposed to ICT materials and those in control, though the means are different, hypothesis one is hereby not rejected.

H02: There is no significant difference between the mean achievement scores of male and female students taught science using ICT materials.

Table 4: Interactive Effect of Treatment and Gender on Dependent Variable.

Source	Sum of sq.	df	Mean sq.	F	Sig.
Corr. Mod	5264.16	4	1316.04	3.56	0.16
Intercept	3845.01	1	3845.01	10.41	0
Pretest	2626.26	1	2626.26	7.11	0.01
Gender	0.8	1	0.8	0	0.96
Treatment	337.61	1	337.61	0.91	0.35
Gender*treatment	1.28	1	1.28	0	0.95
Error	12558.2	34	369.36		
Total	141024	39			
Corrected Tot.	17822.36	38			

R²=.29 (Adjusted R²=.21)

Table 4 below provided answer to solution to this null hypothesis.

Table 4 shows that, treatment has no significant effect on gender; hypothesis 2 is therefore not rejected. This implies that, treatment has no significant influence on gender.

H03: There is no significant interaction effect of treatment on gender on students' academic performance.

Table 4 provides solution to the null hypothesis 3. It was discovered that the interaction effect of treatment on gender is not significant.

4.2 Discussion

Based on the findings of this study on the effect of ICT on the academic performance of students, the difference occurs between the performance of students in experimental and control groups. The students in experimental group had higher mean achievement than those in control. In other words, ICT aids the teaching of science than the traditional instruction. Additionally, students' interest, motivation and participation increased according to the researcher and experimental group's teacher observations. In control group, on the other hand, traditional instruction had less effect on the academic performance of the students. This implies that the presence of different materials for learning influence the learning environment which serves as additional advantage to the teaching of science in an active way. It has been concluded that students in the control had difficulties in concretization of abstract topics and this made their learning process not that encouraging. The materials used in the experimental group were more attention catching and enjoyable than the ones used in the control group. For the experimental group, it has been observed that all students were active in the learning process which is not so in control group. The ICT use improves the learning science. Though the mean of experimental group was higher than that of control group in this study but the difference was not significant.

4.3 CONCLUSION

According to the result of the study, it was established that the use of ICT can improve the learning of science to a certain level. The experimental group mean was higher than the control, but the difference on achievement using ICT materials based on gender, but male was of higher mean score than female. In conclusion, multimedia technique increased the academic success of students in science to a certain level.

4.4 Recommendations

The following recommendations were made:

- The teacher of science must have adequate knowledge of computer to be able to carry out the teaching of the subject with the use of ICT therefore; in-service training should be attended to upgrade their knowledge from time to time.
- Materials with today's technology for science lesson should be chosen and developed.
- The technology groundwork of the schools should be improved and schools should be designed in a way to present opportunities for ICT use.