DATA PRESENTATION AND INTERPRETATION

CHAPTER- IV

4.1 INTRODUCTION:

The first chapter introduced the problem, framed the objectives and formulated hypothesis. The second chapter provided a foundation to the work in the form of review of related literature. The third chapter depicted the methodology adopted to achieve the objectives of the study and tools administered for the data collection.

In this fourth the data will be analysed through appropriate statistical treatment so as to arrive at conclusion for meaningful interpretation. Statistics is a body of mathematical technique or processes for gathering, organizing and analyzing. Quantitative statistic is basic tool of measurement, evaluation and research.

Interpretation of data refers to important part of the investigation, Which is associated with the drawing of the inference from the collected facts after an analytical study?. The interpretation of data makes it possible to utilize the collected data in the various field of the study.

The present study is intended to know the development of process skills, the difference in the development of process skills and achievement in science among IX standard students exposed to traditional approach and laboratory approach.

4.2. ANALYSIS OF HYPOTHESIS:

4.2.1 There is no significant difference between the achievement of the IX std. students studied through laboratory approach and traditional approach.

TABLE – 4.2.1:

Showing the significant mean differences in achievement test between control and experimental groups

Group	Mean	Standard Deviation	d.f.	t-value	Significance
Control Group	13.75	5.32	38	4.59	Significant
Experimental Group	20.05	2.65			

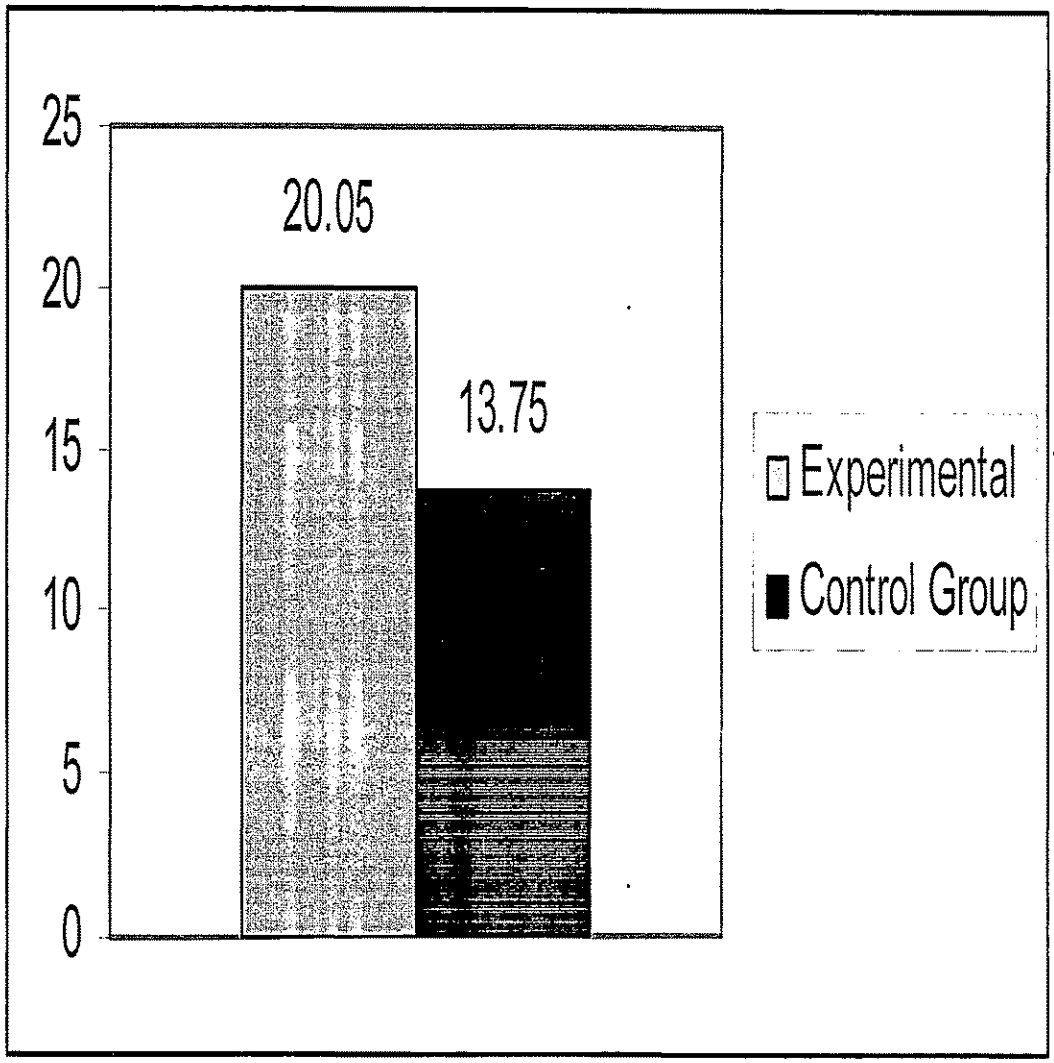
At 0.05 level t- value is 2.02

At 0.01 level t-vale is 2.71

Table 4.2.1 shows that the computed value of the 't' test is 4.59 and the table value of 't' test is 2.02 at .05 level and 2.71 at .01 level.

Thus the computed value of t is greater than table value and hence the hypothesis is rejected. It indicates that the students of experimental group are good in their post test achievement in comparison to control group.

The value of mean for experimental group (A.M. = 20.05) found to be greater than control group (A.M. = 13.75) as mean difference is significant. It may be inferred that laboratory approach Improves the achievement of students.



Graphical Representation of achievement test mean value of experimental and control group.

4.2.2 There is no significant difference in the development of process skills between IX std. students studied through laboratory and traditional approaches.

This hypothesis has been tested through (a) process of practical test and (be) the process of observation. Accordingly, results have been presented separately.

TABLE – 4.2.2 :

Showing the mean differences in practical test between control and experimental group.

Group	Mean	Standard Deviation	d.f.	t-value	Significance
Control Group	13.6	4.04	38	6.23	Significant
Experimental Group	20.65	2.78			

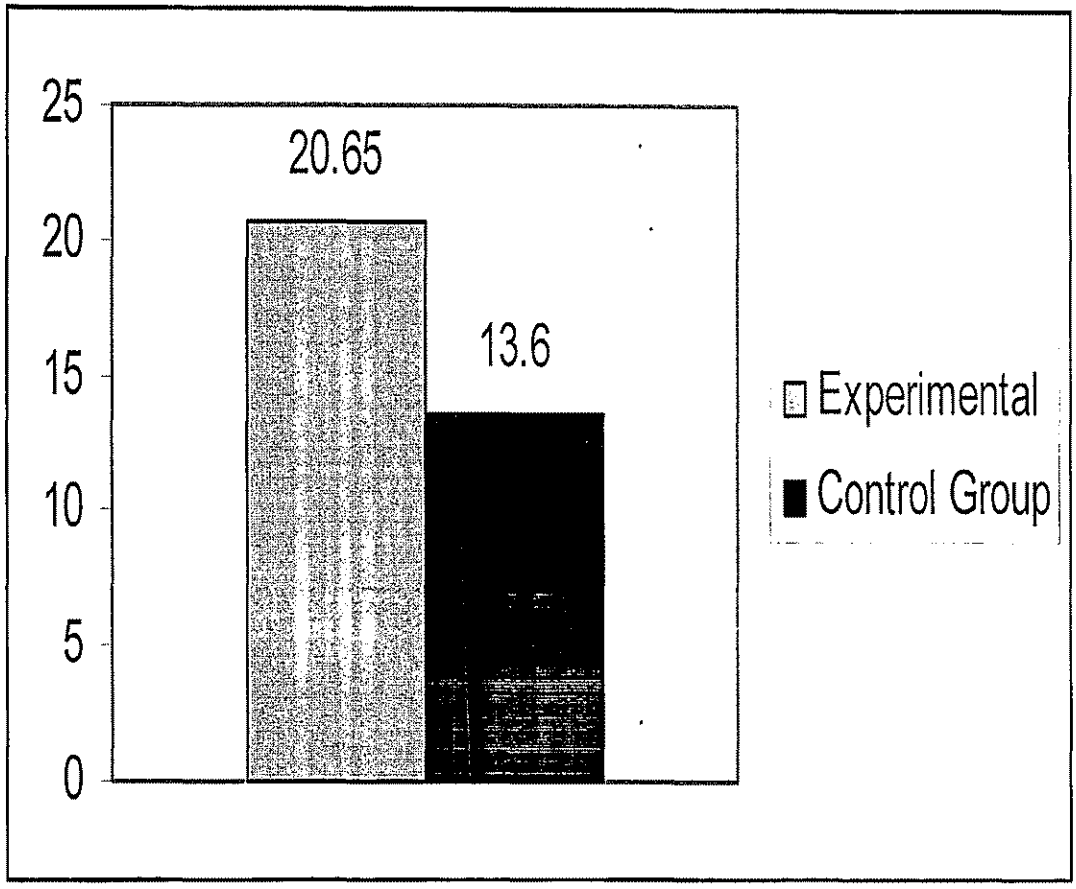
At 0.05 level t- value is 2.02

At 0.01 level t-vale is 2.71

Table 4.2.2 Shows that the computed value of 't' test is 6.23 and the table value of t test is 2.02 at .05 level and 2.71 at .01 level.

Thus the computed value of t is greater than table value and hence the hypothesis is rejected. It indicates that the students of experimental group are good in their practical test in comparison to control group.

The value of mean for experimental group (A.M. 20.65) found to be greater than the mean value of control group (A.M.= 13.6). As mean difference is significant, it may be inferred that laboratory approach develops more process skills in the students.



Graphical Representation of practical test mean value of experimental and control group.

TABLE 4.3.1

FREQUENCY TABLE OF PROCESS SKILLS FOR EXPERIMENTAL GROUP

S. No	Skill of observation (19)	%	Skill of inference (25)	%	Skill of classification (6)	%	Skill of hypothesis (3)	%	Total Activities (53)	Per.%
1	18	94.73	24	96	06	100%	03	900	51	96.0%
2	18	94.73	23	92	06	100	03	100	50	94.3%
3	13	68.42	18	72	05	83.33	01	33.33	37	69.8%
4	14	73.68	20	80	05	83.33	02	66.66	41	77.4%
5	15	78.94	21	84	05	83.33	01	33.33	42	79.2%
6	14	73.68	19	76	05	83.33	01	33.33	39	73.6%
7	14	73.68	17	68	04	66.66	03	100	38	71.7%
8	15	78.94	18	72	05	83.33	03	100	41	77.4%
9	15	78.94	19	76	05	83.33	03	100	42	79.2%
10	14	73.68	18	72	04	66.66	01	33.33	37	69.8%
11	13	68.42	15	60	04	66.66	01	33.33	33	62.3%
12	14	73.68	19	76	05	83.33	02	66.66	40	75.5%
13	15	78.94	21	84	05	83.33	03	66.66	44	83.0%
14	12	63.15	18	72	04	66.66	03	100	37	69.8%
15	14	73.68	17	68	05	83.33	03	100	39	73.6%
16	09	47.36	15	60	03	50	02	66.66	29	54.7%
17	14	73.68	16	64	04	66.66	02	66.66	36	67.9%
18	13	68.42	15	60	05	83.33	03	100	36	67.9%
19	12	63.15	21	84	05	83.33	02	66.66	40	75.5%
20	15	78.94	19	76	05	83.33	02	66.66	41	77.4%

TABLE 4.3.2

FREQUENCY TABLE OF PROCESS SKILLS

FOR CONTROL GROUP

S. No	Skill of obser-vation (19)	%	Skill of inference (25)	%	Skill of classifi cation (6)	%	Skill of hypoth-esis (3)	%	Total Activities (53)	Per.%
1	07	36.84	11	57.89	03	50	01	33.33	22	41.5%
2	16	84.21	21	84	05	83.33	02	66.66	44	83%
3	12	63.15	16	84.21	03	50	02	66.66	33	63.3%
4	13	68.42	17	68	04	66.66	01	33.33	35	66%
5	10	52.63	13	68.42	03	50	02	66.66	28	52.8%
6	09	47.36	13	68.42	03	50	01	33.33	26	49.5%
7	08	42.10	14	73.68	03	50	01	33.33	26	49.5%
8	10	52.63	16	84.21	02	33.33	02	66.66	29	54.7%
9	06	31.57	13	68.42	02	33.33	01	33.33	22	41.5%
10	08	42.10	15	60	03	50	01	33.33	27	51.0%
11	14	73.68	17	68	04	66.66	01	33.33	36	67.9%
12	14	73.68	20	80	04	66.66	02	66.66	40	75.5%
13	15	78.94	17	68	03	50	01	33.33	36	67.9%
14	11	57.89	14	73.68	03	50	02	66.66	30	56.6%
15	10	52.63	14	73.68	02	33.33	02	66.66	28	52.8%
16	15	78.94	19	76	04	66.66	01	33.33	39	73.6%
17	10	52.63	12	48	03	50	02	66.66	27	51%
18	14	73.68	19	76	03	50	01	33.33	37	69.8%
19	10	52.63	14	73.68	03	50	01	33.33	28	52.8%
20	07	36.84	12	48	02	66.66	02	66.66	23	43.3%

TABLE 4.3.3

Showing the significant mean differences in observed process skills between control and experimental groups

Group	Mean	Standard Deviation	d.f.	t-value	Significance
Control Group	30.08	6.16	38	4.92	Significant
Experimental Group	39.65	4.87			

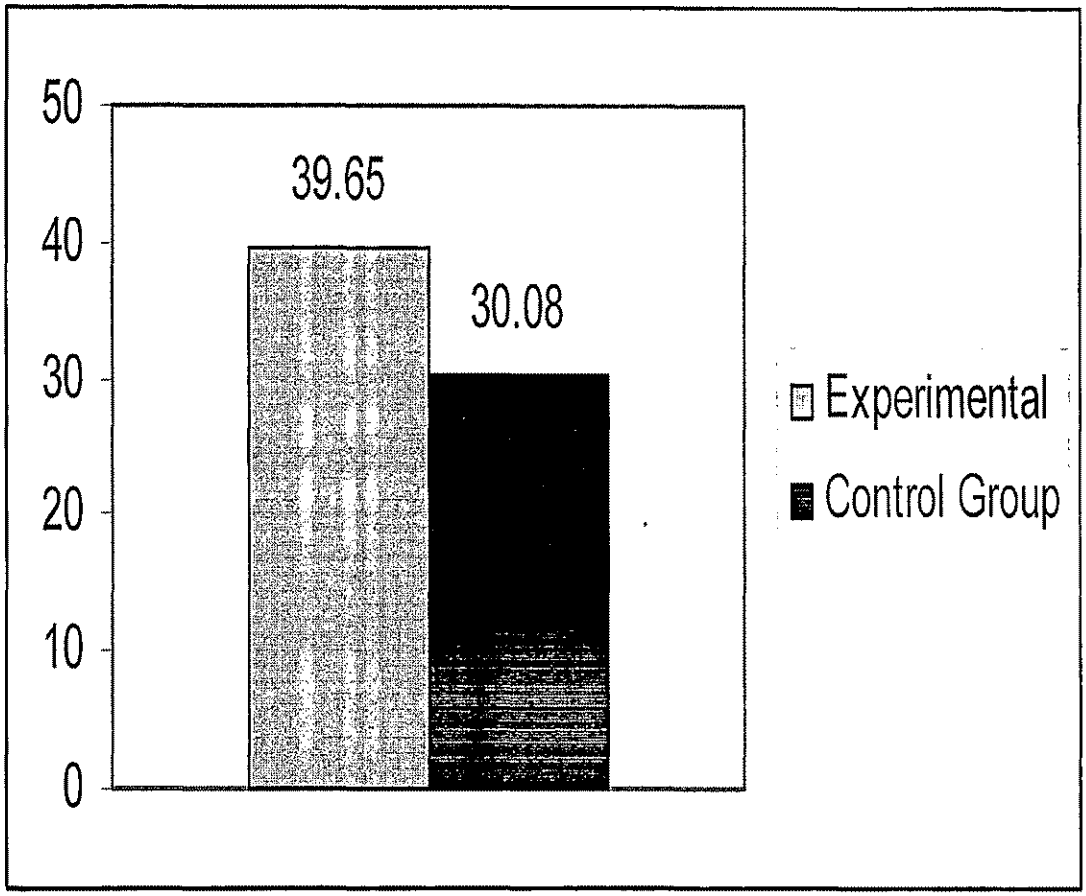
At 0.05 level t- value is 2.02

At 0.01 level t-vale is 2.71

Table 4.3.3 shows that the computed value of the t test is 4.92 and the table value of t test is 2.02 at .05 level and 2.71 at .01 level.

Thus the computed t-value is greater than table value and hence the hypothesis is rejected. It indicates that the students of experimental group are better in process skills in comparison to control group.

The value of mean for experimental group (A.M.= 39.65) found to be greater than control group (A.M.= 30.08). As mean difference is significant. It may be inferred that laboratory approach develops process skills better among students.



Graphical Representation of Observed Process skills mean value of experimental and control group.

Thus on the basis of following hypothesis researcher can conclude that process skills developed more in students which were studied through laboratory approach and achievement can also improve by the laboratory approach.