

4.1 Introduction

The analysis of data is an important process that empirically supports the experiment carried out by the researcher. Data analysis and interpretation covers only the required and relevant information to be used for the generalizations.

This chapter of the dissertation concentrates on the statistical analysis and interpretation of the data collected. The focus is on the statistical parameters working in data processing. A detailed account of various statistical measurements of central tendency, Rank correlation coefficient, standard deviation and coefficient of variation were adopted. Moreover, the t-test was used for verifying statistical significant mean difference between scores of pre-test and post-test.

The analysis was viewed objectively, along with the statistical analysis of the data collected from pre-test and post-test. Simultaneously, qualitative analysis was also observed in terms of students' response and their active participation in the classroom.

4.2 Hypotheses Testing and their Interpretation

Effectiveness of a task based programme to develop environmental awareness among students of Secondary Level was found with reference to certain variables like achievement level, gender and school boards. Descriptive statistics of Pre-test and Post-test were computed. To test the hypotheses t - test was computed. Details of hypotheses testing are given below.

Hypothesis - 1

There will be no significant difference between mean achievement scores of Post-test of students of secondary level of both control and experimental groups.

To Study the “Effectiveness of a Task Based programme to Develop Environmental Awareness among the Students of Secondary Level” Achievement Test was used as the Post- test for both control and experimental groups to obtain data and descriptive statistics and t – test were computed. Results of descriptive statistics and t – test are presented in Table 4.2.1

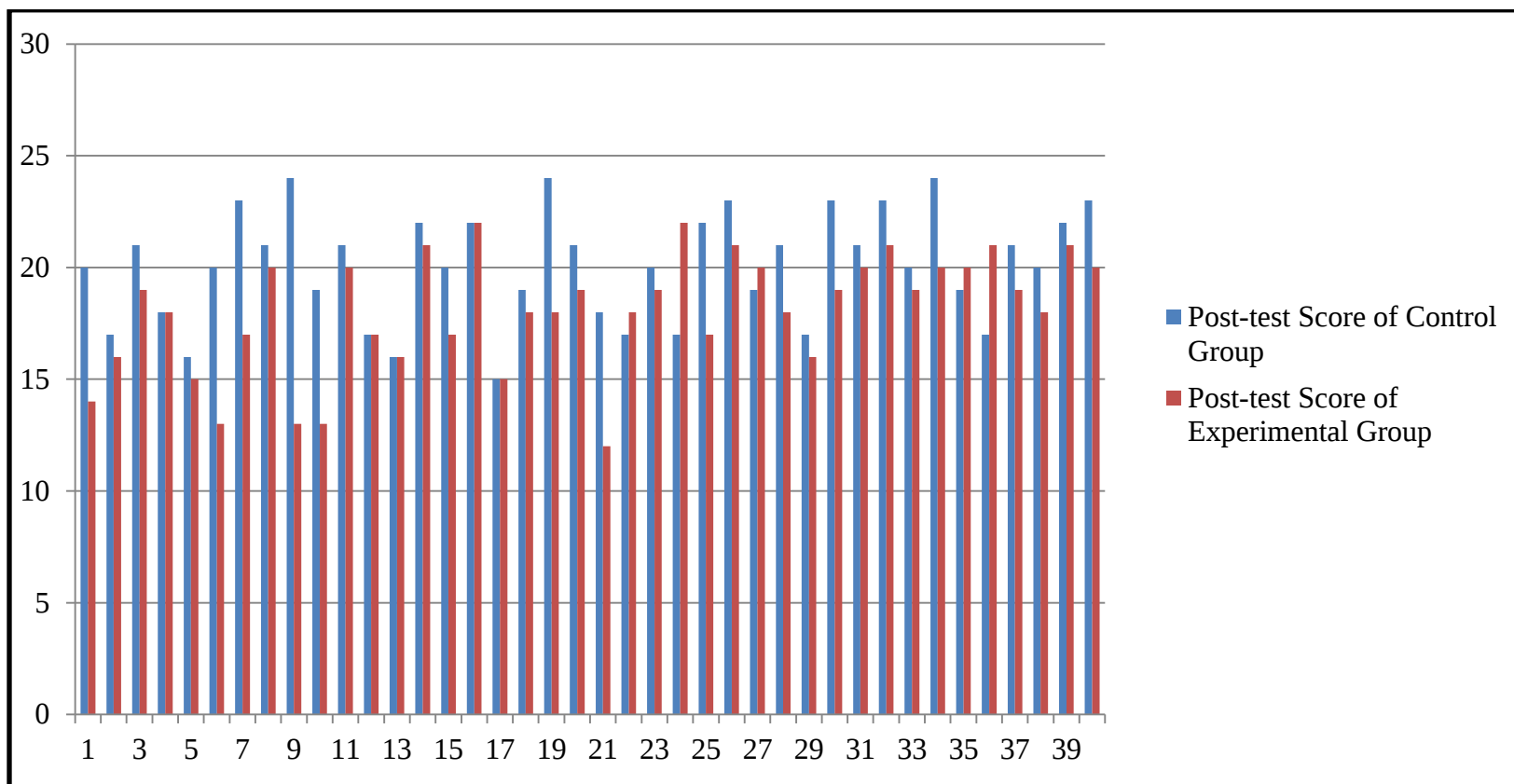
Table 4.2.1: Analysis of Post-test- Mean, SD, SE_M, df and ‘t’ value

Groups	No. of Students	Mean	SD	SE_M	df	t – value
Control	40	20.07	2.44	0.56	78	3.62
Experimental	40	18.05	2.61			

Interpretation

The computed t value 3.62 is greater than that of the table t value 1.99 at 0.05 and 2.64 at 0.01 levels of significant for 78 degree of freedom.

Therefore, the Null hypothesis, There will be no significant difference between the mean achievement scores of Post-test of students of secondary level of both control and experimental groups was rejected. It means that, there is significant difference between the mean achievement scores of Post-test of students of secondary level of both control and experimental group is accepted. Thus Effectiveness of a Task Based programme to Develop Environmental Awareness among the Students of Secondary Level was found effective in the experimental group compare to the control group.



Graph 4.2.1: Graphical Representation of Achievement Scores of Post-test of Both Control and Experimental Group

Hypothesis – 2

There will be no significant difference between mean achievement scores of Pre-test and Post-test of students of Secondary level of experimental group.

To Study the “Effectiveness of a Task Based programme to Develop Environmental Awareness among the Students of Secondary Level” Achievement Test was used as Pre-test and Post- test for experimental group to obtain data and descriptive statistics and t – test were computed. Results of descriptive statistics and t – test are presented in Table 4.2.2

Table 4.2.2: Analysis of Pre-test and Post-test- Mean, SD, r, SE_M, df and ‘t’ value

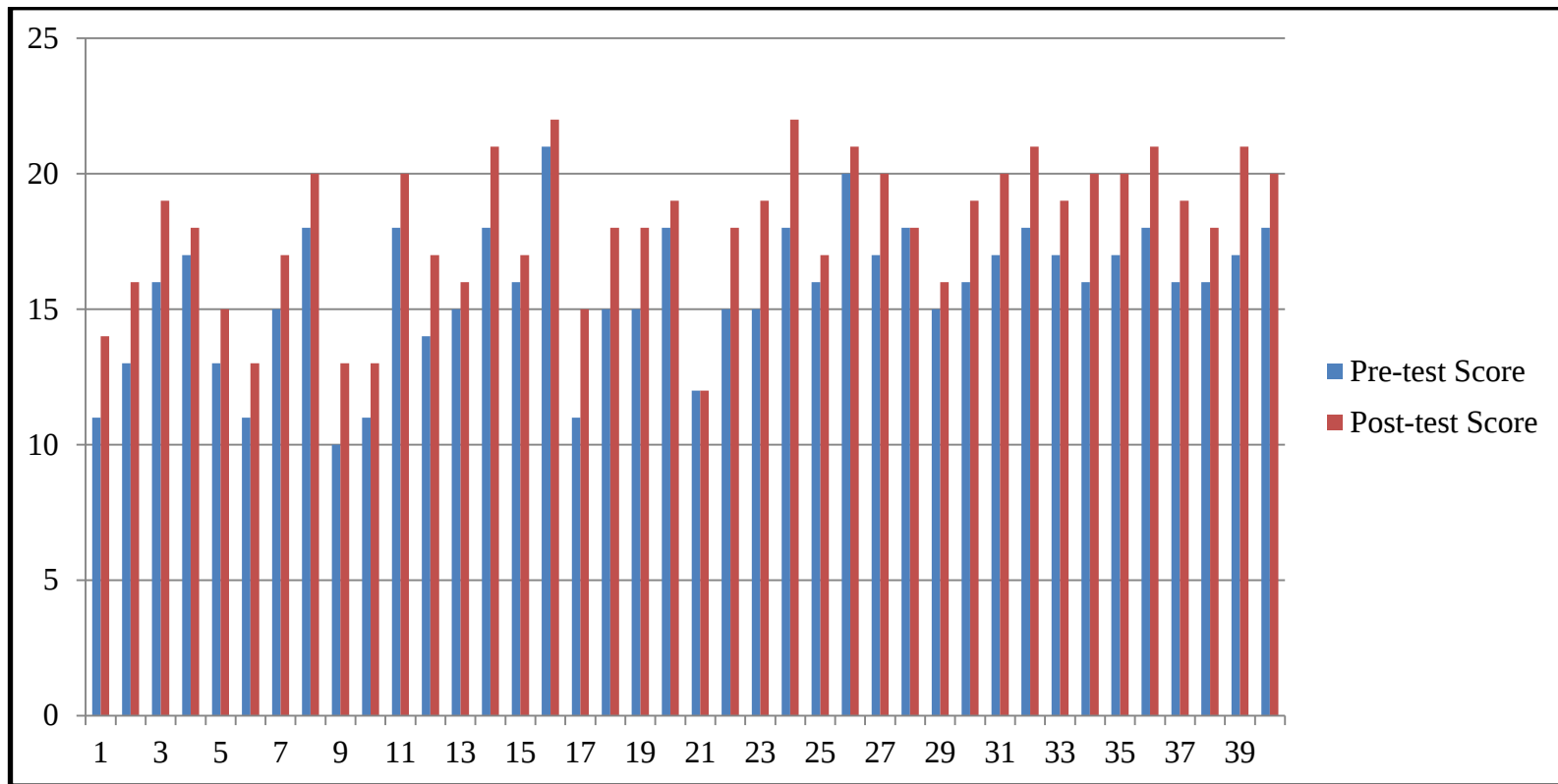
Experimental Group	No. of Students	Mean	SD	SE_M	r	df	t –value
Pre-test	40	15.7	2.55	0.19	0.89	78	12.37
Post-test	40	18.05	2.61				

Interpretation

The computed t value 12.37 is greater than that of the table t value 1.99 at 0.05 and 2.64 at 0.01 levels of significant for 78 degree of freedom.

The calculated r value is 0.89 for controlled group; hence there is positive high correlation between the mean achievement scores of Pre-test & Post-test of experimental group.

Therefore, the Null hypothesis, There will be no significant difference between the mean achievement scores of Pre-test and Post-test of students of Secondary level of experimental group was rejected. It means that, there is significant difference between the mean achievement scores of Pre-test & Post-test of students of Secondary level of experimental group is accepted. Hence mean achievement scores of Post –test was higher than that of Pre-test in experimental group. Thus, Effectiveness of a Task Based programme to Develop Environmental Awareness among the Students of Secondary Level was found effective in experimental group.



Graph 4.2.2: Graphical Representation of Achievement Scores of Pre-test and Post-test of Experimental Group

Hypothesis – 3

There will be no significant difference between mean achievement scores of Pre-test and Post-test of boys of secondary level of experimental group.

To Study the “Effectiveness of a Task Based programme to Develop Environmental Awareness among the Students of Secondary Level” Achievement Test was used as Pre-test and Post- test for boys of secondary level of experimental group to obtain data and descriptive statistics and t – test were computed. Results of descriptive statistics and t – test are presented in Table – 4.2.3

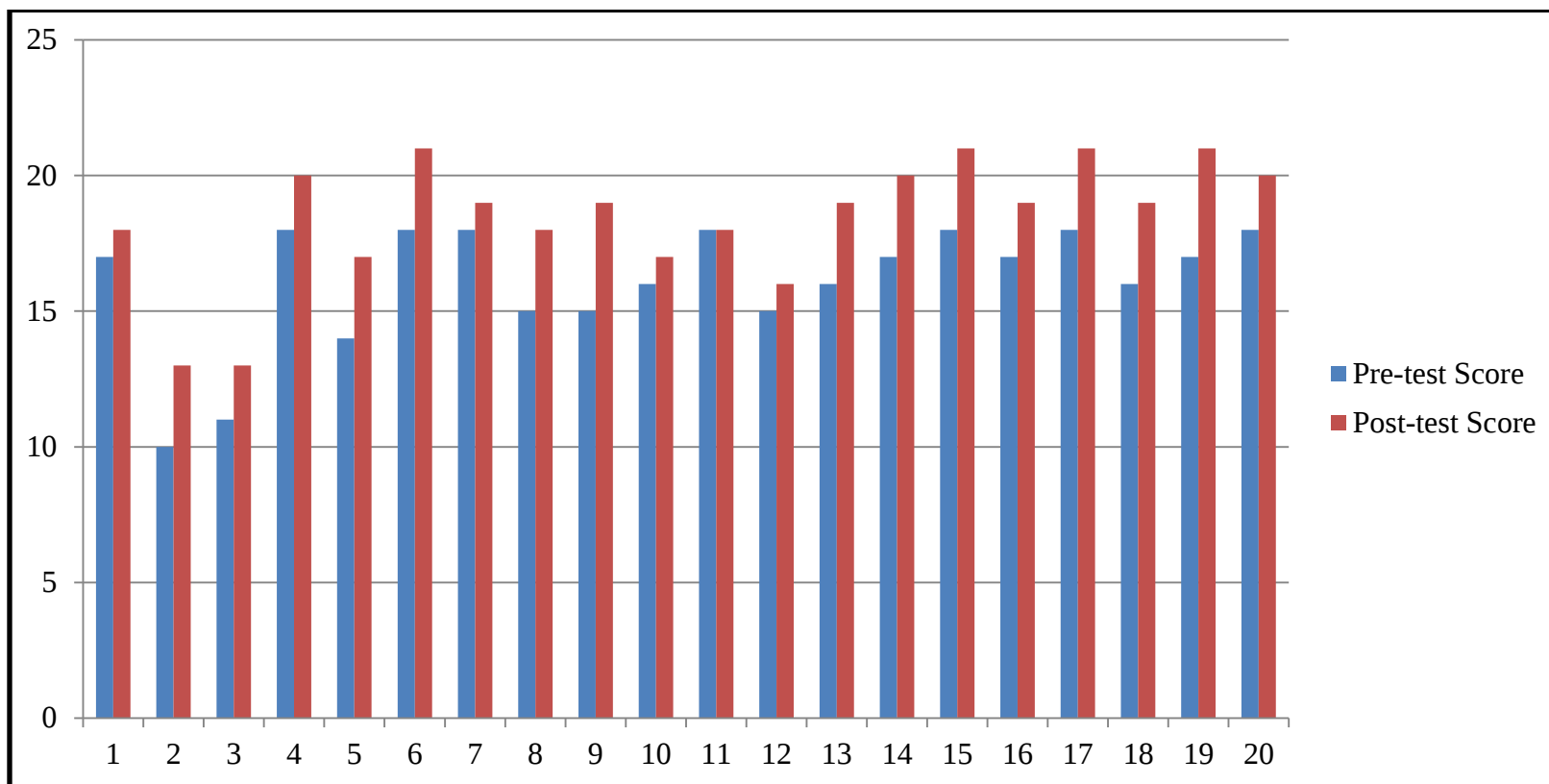
Table 4.2.3: Analysis of Pre-test and Post-test- Mean, SD, SE_M, r, df and ‘t’ value

Experimental Group	No. of Students	Mean	SD	SE_M	r	df	t – value
Pre-test	20	16.1	2.23	0.34	0.77	38	6.91
Post-test	20	18.45	2.29				

Interpretation

The computed t value 6.91 is greater than that of the table t value 2.02 at 0.05 and 2.71 at 0.01 levels of significant for 38 degree of freedom.

Therefore, the Null hypothesis, There will be no significant difference between the mean achievement scores of Pre-test and Post-test of boys of secondary level of experimental group was rejected. It means that, there is significant difference between the mean achievement scores of Pre-test and Post-test of boys of experimental group is accepted. Hence, mean achievement scores of Post-test was higher than Pre-test in the experimental group. Thus Effectiveness of a Task Based programme to Develop Environmental Awareness among the boys of Secondary Level was found effective in the experimental group.



Graph 4.2.3: Graphical Representation of Achievement Scores of Pre-test and Post-test of boys of Experimental Group

Hypothesis – 4

There will be no significant difference between mean achievement scores of Post-test of boys of secondary level of both control and experimental groups.

To Study the “Effectiveness of a Task Based programme to Develop Environmental Awareness among the Students of Secondary Level” Achievement Tests was used as Post- test for of boys of secondary level of both control and experimental groups to obtain data and descriptive statistics and t – test were computed. Results of descriptive statistics and t – test are presented in Table 4.2.4

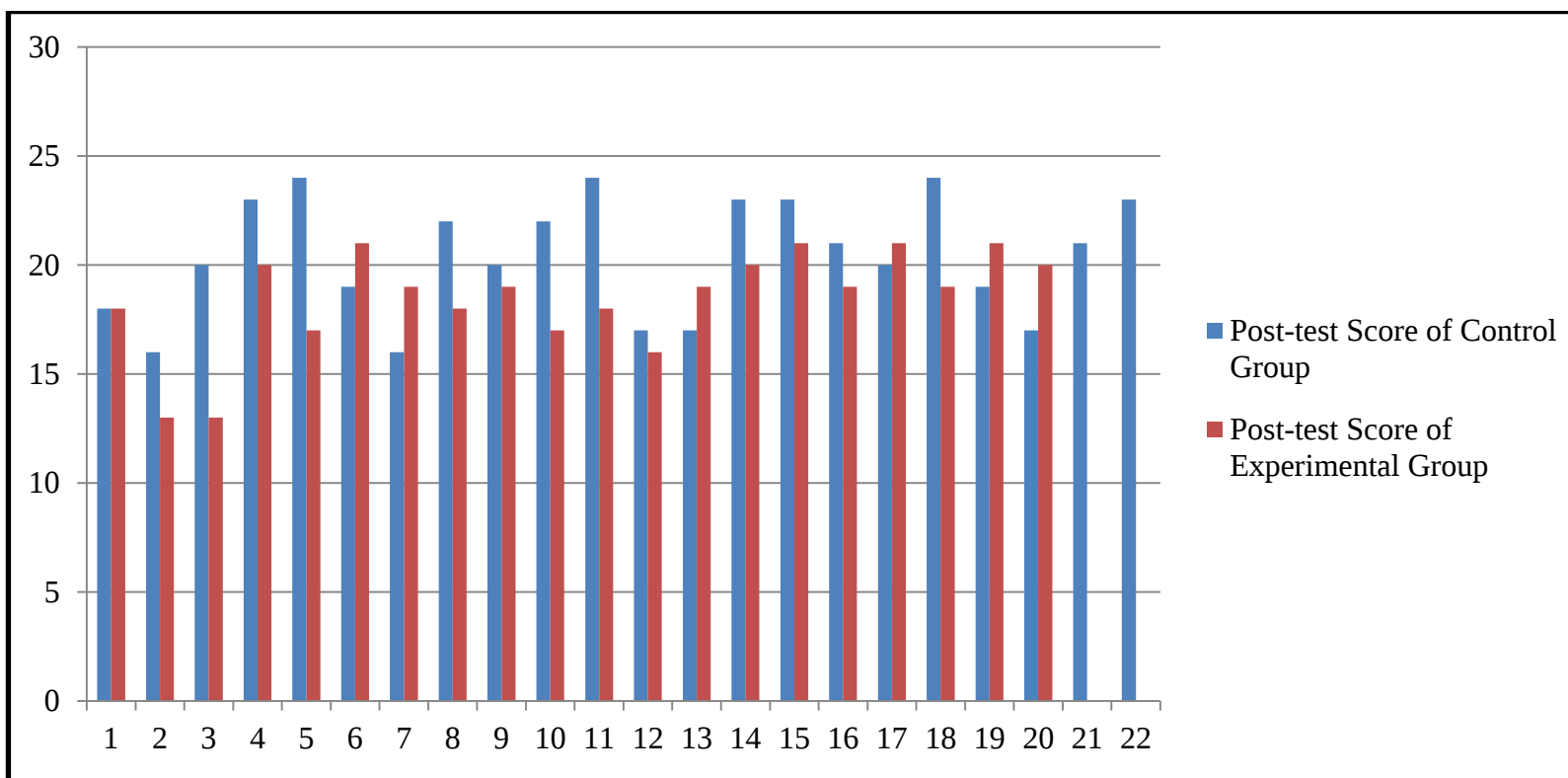
Table 4.2.4: Analysis of Post-test- Mean, SD, SE_M, df and ‘t’ value

Groups	No. of Students	Mean	SD	SE_M	df	t - value
Control Group	22	20.41	2.66	0.76	40	2.58
Experimental Group	20	18.45	2.29			

Interpretation

The computed t value 2.58 is greater than that of the table t value 2.02at 0.05 level of significant for 40 degree of freedom.

Therefore, the Null hypothesis, There will be no significant difference between the mean achievement scores of Pre-test and Post-test of boys of secondary level of both control and experimental groups was rejected. It means that, there is significant difference between the mean achievement scores of Post-test of boys of secondary level of both control and experimental groups is accepted. Hence, mean achievement scores of Post-test of experimental group was higher than the Post-test of control group. Thus, Effectiveness of a Task Based programme to Develop Environmental Awareness among the boys secondary level of experimental group was found effective than control group of secondary level.



Graph 4.2.4: Graphical Representation of Achievement Scores of Post-test of boys of both Control Group and Experimental Group

Hypothesis – 5

There will be no significant difference between mean achievement scores of Pre-test and Post-test of girls of secondary level of experimental group.

To Study the “Effectiveness of a Task Based programme to Develop Environmental Awareness among the Students of Secondary Level” Achievement Tests was used as Pre-test and Post- test of girls of secondary level of experimental group to obtain data and descriptive statistics and t – test were computed. Results of descriptive statistics and t – test are presented in Table 4.2.5

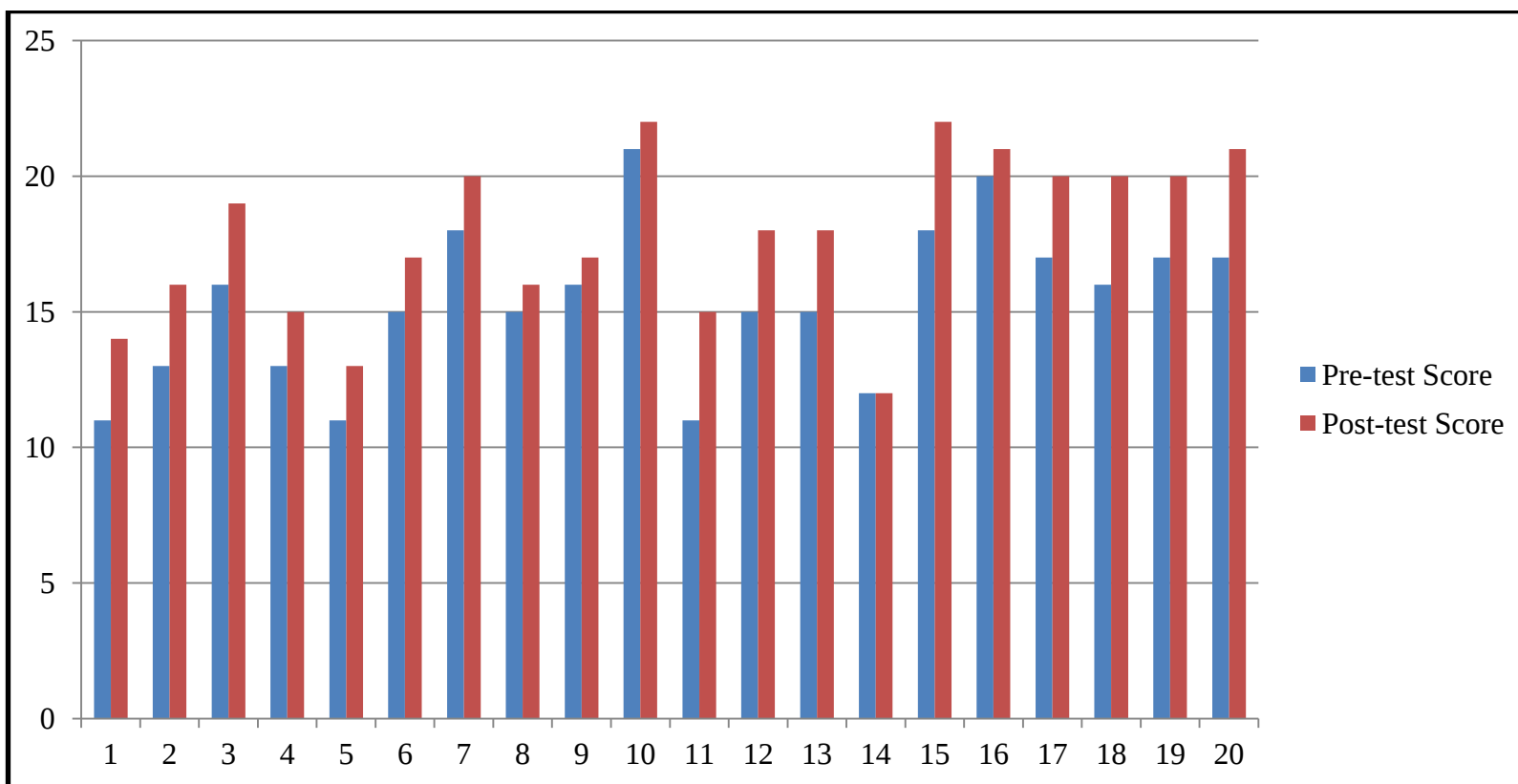
Table 4.2.5: Analysis of Pre-test and Post-test- Mean, SD, SE_M, r, df and ‘t’ value

Experimental Group	No. of Students	Mean	SD	SE_M	r	df	t – value
Pre-test	20	15.35	2.8	0.24	0.74	38	10.21
Post-test	20	17.8	2.93				

Interpretation

The computed t value 10.21 is greater than that of the table t value 2.02 at 0.05 and 2.71 at 0.01 levels of significant for 38 degree of freedom.

Therefore, the Null hypothesis, There will be no significant difference between the mean achievement scores of Pre-test and Post-test of girls of secondary level of experimental group was rejected. It means that, there is significant difference between the mean achievement scores of Pre-test and Post-test of girls of secondary level of experimental group is accepted. Hence mean achievement scores of Post-test was higher than Pre-test of girls of secondary level of experimental group. Thus, Effectiveness of a Task Based programme to Develop Environmental Awareness among the girls of Secondary Level of experimental group was found effective.



Graph 4.2.5: Graphical Representation of Achievement Scores of Pre-test and Post-test of girls of Experimental Group

Hypothesis – 6

There will be no significant difference between mean achievement scores of Post-test of girls of secondary level of both control and experimental groups.

To Study the “Effectiveness of a Task Based programme to Develop Environmental Awareness among the Students of Secondary Level” Achievement Test was used as Post- test for girls of both control and experimental groups to obtain data and descriptive statistics and t – test were computed. Results of descriptive statistics and t – test are presented in Table 4.2.6

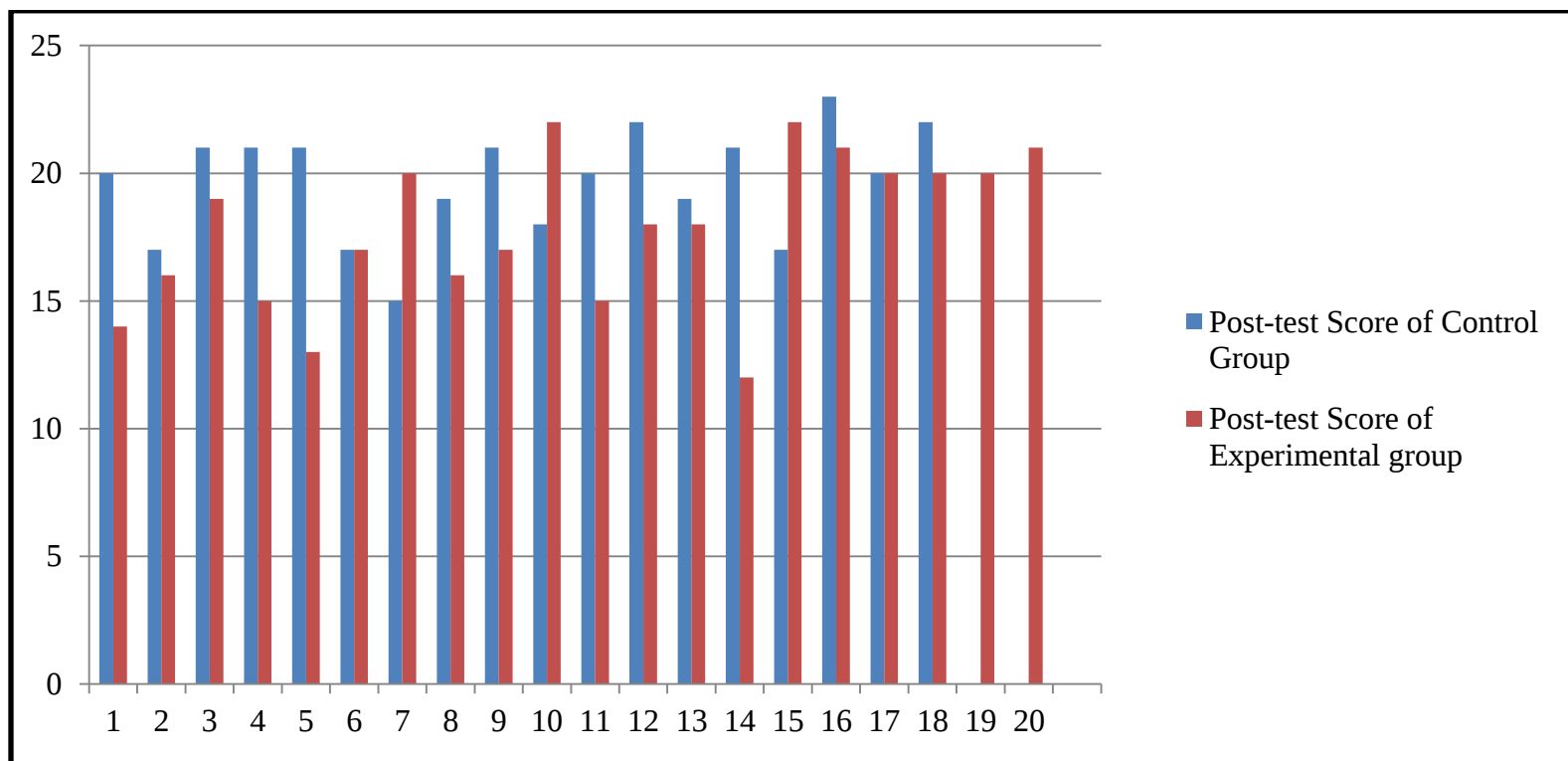
Table 4.2.6: Analysis of Pre-test and Post-test- Mean, SD, SE_M, df and ‘t’ value

Groups	No. of Students	Mean	SD	SE _M	df	t - value
Control Group	18	19.67	2.08	0.82	36	2.28
Experimental Group	20	17.8	2.92			

Interpretation

The computed t value 2.28for is greater than that of the table t value 2.03 at 0.05 level of significant for 36 degree of freedom.

Therefore, the Null hypothesis, There will be no significant difference between the mean achievement scores of Post-test of girls of secondary level of both control and experimental groups was rejected. It means that, there is significant difference between the mean achievement scores of Post-test of girls of secondary level of both control and experimental groups is accepted. Hence, mean achievement scores of Post-test of experimental group were higher than the control group. Thus, Effectiveness of a Task Based programme to Develop Environmental Awareness among the girls of Secondary Level experimental group was found effective in Post-test than the control group.



Graph 4.2.6: Graphical Representation of Achievement Scores of Post-test of girls of both Control and Experimental Group

Hypothesis – 7

There will be no significant difference between mean achievement scores of Pre-test and Post-test of GSEB board students of secondary level of experimental group.

To Study the “Effectiveness of a Task Based programme to Develop Environmental Awareness among the Students of Secondary Level” Achievement Tests was used as Pre-test and Post-test of GSEB board students of secondary level of experimental group to obtain data and descriptive statistics and t – test were computed. Results of descriptive statistics and t – test are presented in Table 4.2.7

Table 4.2.7: Analysis of Pre-test and Post-test- Mean, SD, SE_M, r, df and ‘t’ value

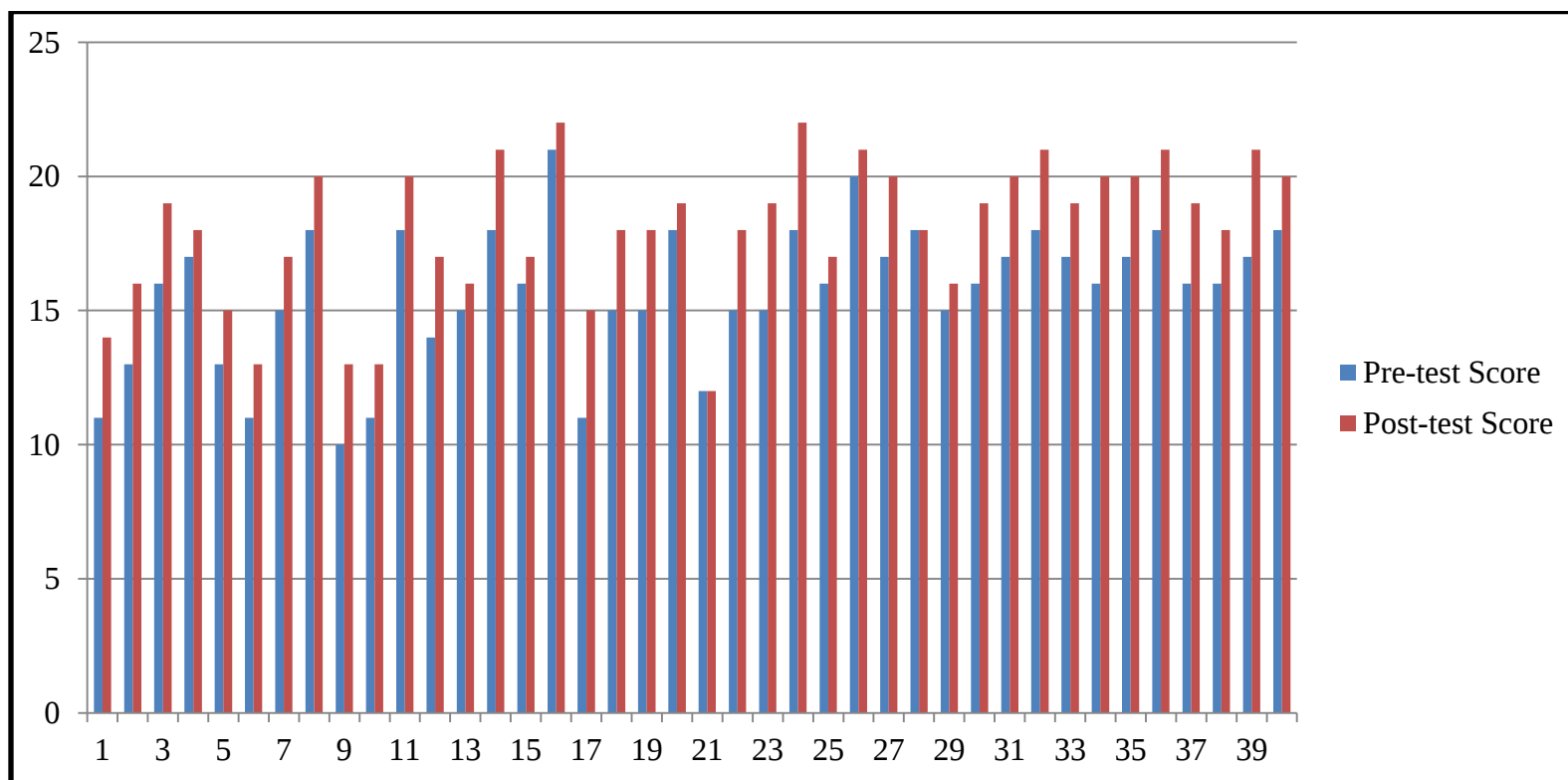
Experimental Group	No. of Students	Mean	SD	SE_M	r	df	t - value
Pre-test	40	15.7	2.55	0.19	0.89	78	12.37
Post-test	40	18.05	2.61				

Interpretation

The computed t value 12.37 for experimental group is greater than that of the table t value 1.99 at 0.05 significant levels and 2.64 at 0.01 levels for 78 degree of freedom.

The calculated r value is 0.89 for controlled group; hence there is positive high correlation between the mean achievement scores of Pre-test & Post-test.

Therefore, the Null hypothesis, There will be no significant difference between the mean achievement scores of Pre-test and Post-test of GSEB board students of secondary level of experimental group was rejected. It means that, there is significant difference between the mean achievement scores of Pre-test & Post-test of GSEB board students of secondary level of experimental group is accepted. Hence, mean achievement scores of Pre-test was higher than Post-test of GSEB board students of secondary level of experimental group. Thus, Effectiveness of a Task Based programme to Develop Environmental Awareness among the Students of GSEB board Secondary Level in the experimental group was found effective.



Graph: 4.2.7 Graphical Representation of Achievement Scores of Pre-test and Post-test of GSEB Board Students of Experimental Group

Hypothesis 8

There will be no significant difference between mean achievement scores of Post-test of students of CBSE and GSEB schools of secondary level.

To Study the “Effectiveness of a Task Based programme to Develop Environmental Awareness among the Students of Secondary Level” Achievement Tests was used as Post-test for students of CBSE and GSEB schools of secondary level to obtain data and descriptive statistics and t – test were computed. Results of descriptive statistics and t – test are presented in Table 4.2.8

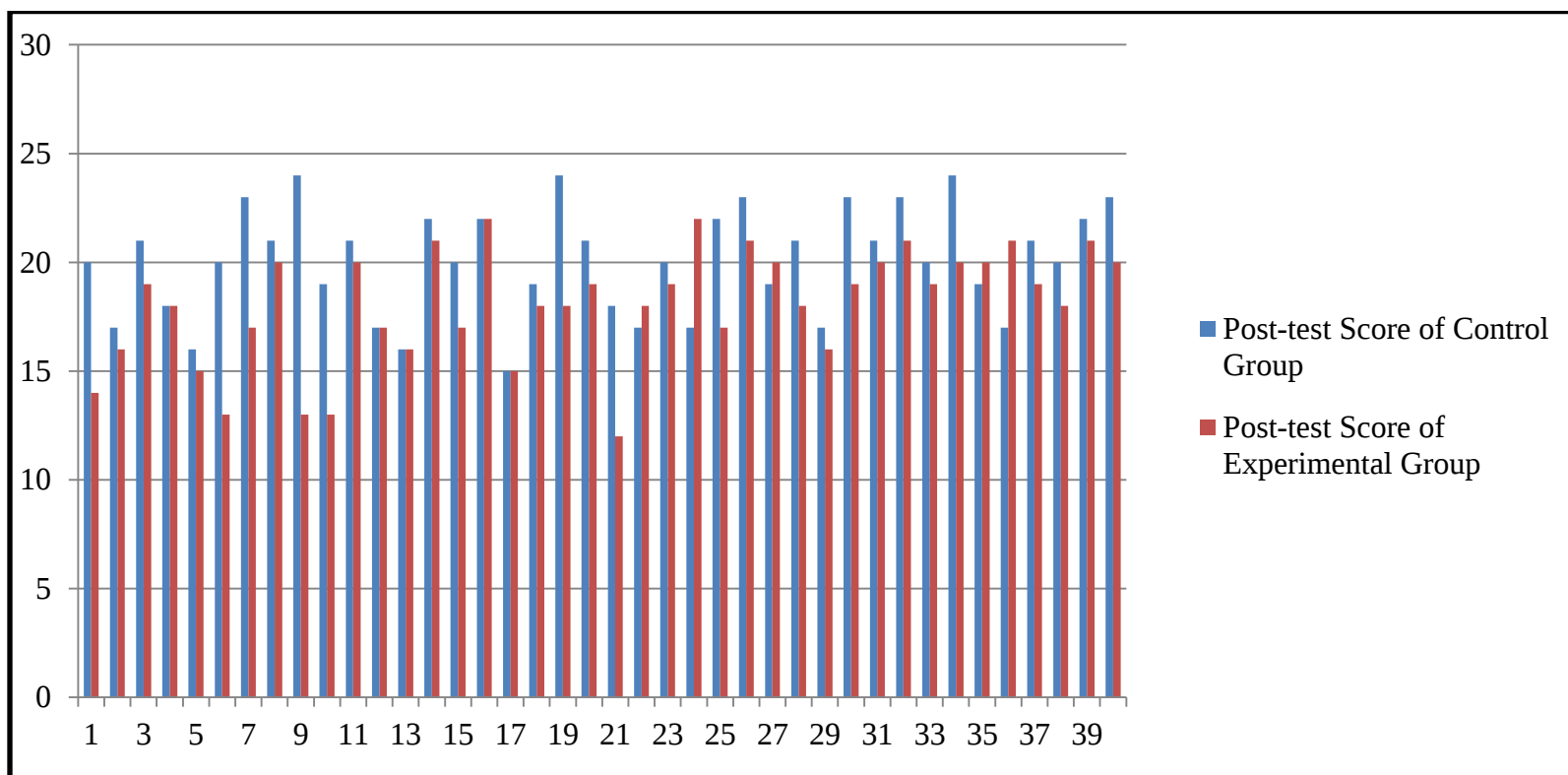
Table 4.2.8: Analysis of Post-test- Mean, SD, SE_M, df and ‘t’ value

Groups	School boards	No. of Students	Mean	SD	SE _M	df	t – value
Control Group	CBSE	40	20.07	2.44	0.56	78	3.62
Experimental Group	GSEB	40	18.05	2.61			

Interpretation

The computed t value 3.62 is greater than that of the table t value 1.99 at 0.05 and 2.64 at 0.01 levels of significant for 78 degree of freedom.

Therefore, the Null hypothesis, There will be no significant difference between mean achievement scores of Post-test of students of CBSE and GSEB schools of secondary level was rejected. It means that, there is significant difference between the mean achievement scores of Post-test of students of CBSE (Control) and GSEB (Experimental) schools of secondary level is accepted. Hence, mean achievement scores of Post-test of students of GSEB school was greater than the students of CBSE school of secondary level. Thus, Effectiveness of a Task Based programme to Develop Environmental Awareness among the Students studying in GSEB school (Experimental group) of Secondary Level was found effective than the students studying in CBSE school (Control group) .



Graph 4.2.8: Graphical Representation of Achievement Scores of Post-test of both CBSE and GSEB Board Students

Hypothesis – 9

There will be no significant difference between mean achievement scores of Pre-test and Post-test of boys of GSEB school of secondary level of experimental group.

To Study the “Effectiveness of a Task Based programme to Develop Environmental Awareness among the Students of Secondary Level” Achievement Tests was used as Pre-test and Post-test for boys of GSEB school of secondary level of experimental group to obtain data and descriptive statistics and t – test were computed. Results of descriptive statistics and t – test are presented in Table 4.2.9

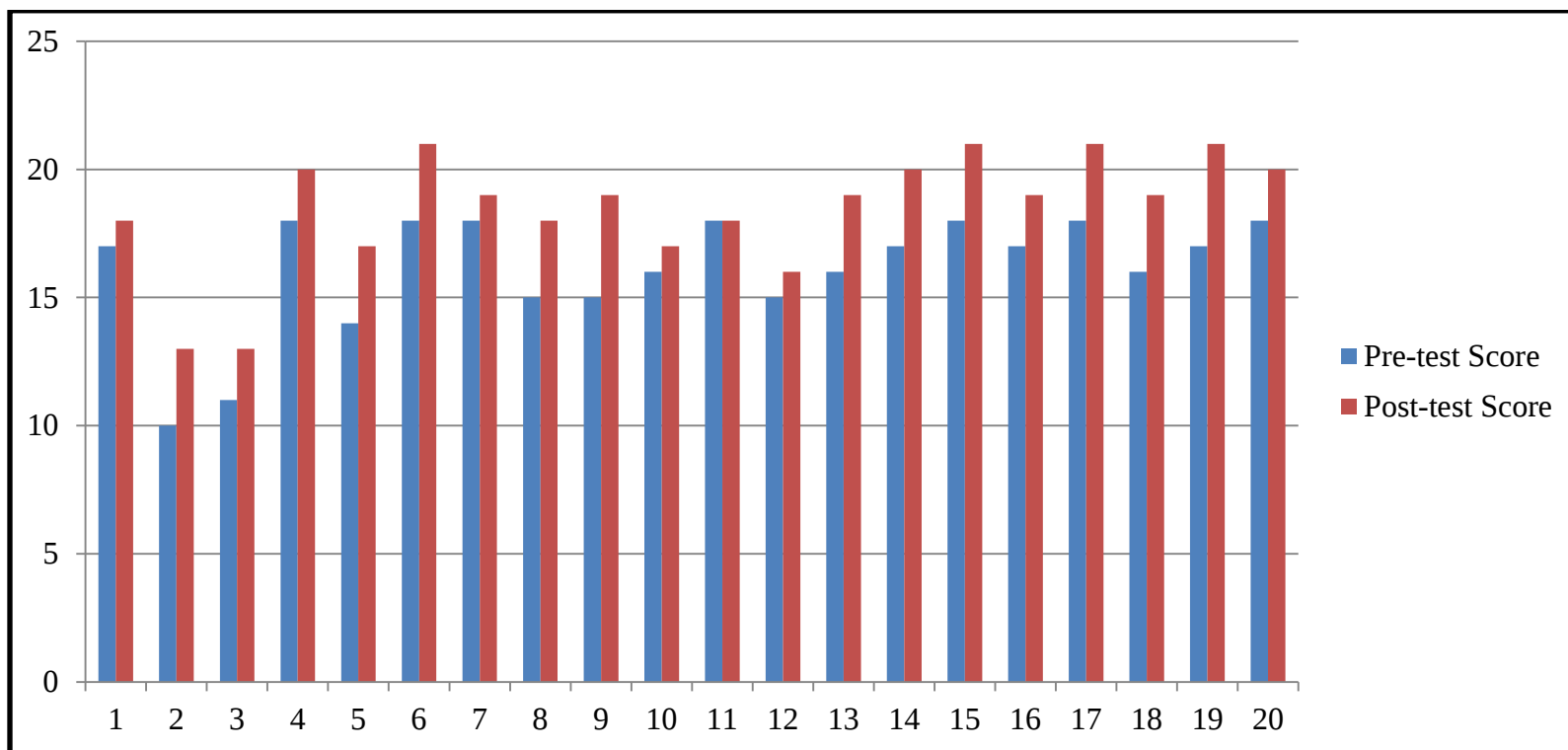
Table 4.2.9: Analysis of Pre-test and Post-test- Mean, SD, SE_M, r, df and ‘t’ value

Experimental Group	No. of Students	Mean	SD	SE_M	R	df	t - value
Pre-test	20	16.1	2.23	0.34	0.77	38	6.91
Post-test	20	18.45	2.29				

Interpretation

The computed t value 6.91 is greater than that of the table t value 2.02 at 0.05 and 2.71 at 0.01 levels of significant for 38 degree of freedom.

Therefore, the Null hypothesis, There will be no significant difference between mean achievement scores of Pre-test and Post-test of boys of GSEB school of secondary level of experimental group was accepted. It means that, there is significant difference between the mean achievement scores of Pre-test and Post-test of boys of GSEB school of secondary level of experimental group is accepted. Hence, mean achievement scores of Post-test of boys was greater than Pre-test of boys of GSEB school of secondary level. Thus, Effectiveness of a Task Based programme to Develop Environmental Awareness among the boys of GSEB school of Secondary Level was found effective in the experimental group.



Graph 4.2.9: Graphical Representation of Achievement Score of Pre-test and Post-test of boys of GSEB Board Students of Experimental Group

Hypothesis – 10

There will be no significant difference between mean achievement scores of Pre-test and Post-test of girls of GSEB School of secondary level of experimental group.

To Study the “Effectiveness of a Task Based programme to Develop Environmental Awareness among the Students of Secondary Level” Achievement Tests was used as Pre-test and Post-test of girls of GSEB school of secondary level of experimental group to obtain data and descriptive statistics and t – test were computed. Results of descriptive statistics and t – test are presented in Table 4.2.10

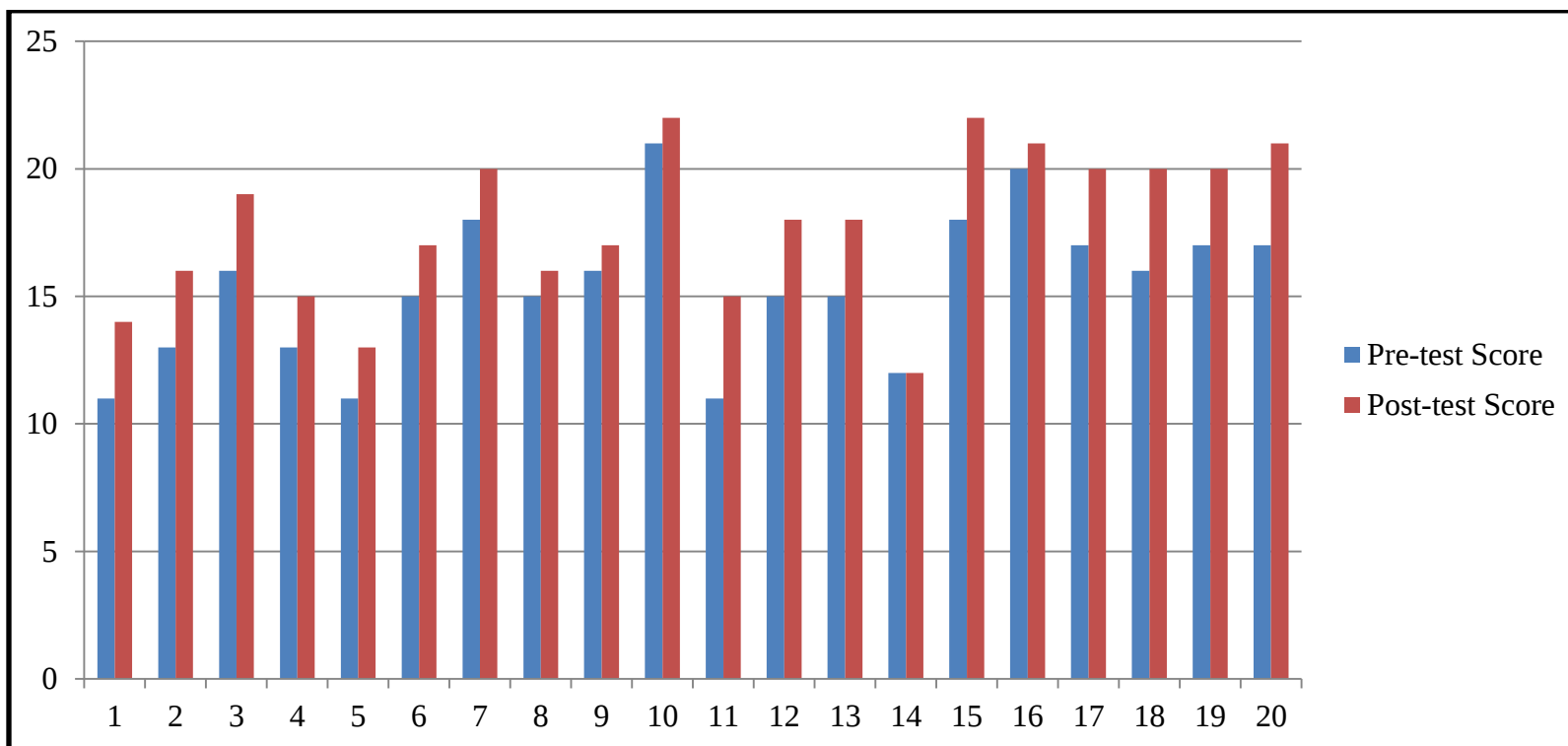
Table 4.2.10: Analysis of Pre-test and Post-test- Mean, SD, SE_M, r, df and ‘t’ value

Experimental Group	No. of Students	Mean	SD	SE_M	r	df	t- value
Pre-test	20	15.35	2.8	0.24	0.74	38	10.21
Post-test	20	17.8	2.93				

Interpretation

The computed t value 10.21 is greater than that of the table t value 2.02 at 0.05 and 2.71 at 0.01 levels of significant for 38 degree of freedom.

Therefore, the Null hypothesis, There will be no significant difference between mean achievement scores of Pre-test and Post-test of girls of GSEB school of secondary level of experimental group was rejected. It means that, there is significant difference between the mean achievement scores of Pre-test and Post-test of girls GSEB School (experimental group) is accepted. Hence, mean achievement scores of Post-test of girls studying in GSEB school of secondary level was greater than Pre-test of girls studying in GSEB school of secondary level. Thus Effectiveness of a Task Based programme to Develop Environmental Awareness among the girls studying in GSEB school of Secondary Level was found effective.



Graph 4.2.10: Graphical Representation of Achievement Score of Pre-test and Post-test of girls of GSEB Board Students of Experimental Group

Hypothesis – 11

There will be no significant difference between mean achievement scores of Pre-test and Post-test of Rural Area students of secondary level of experimental group.

To Study the “Effectiveness of a Task Based programme to Develop Environmental Awareness among the Students of Secondary Level” Achievement Tests was used as Pre-test and Post-test of GSEB board students of secondary level of experimental group to obtain data and descriptive statistics and t – test were computed. Results of descriptive statistics and t – test are presented in Table 4.2.11

Table 4.2.11: Analysis of Pre-test and Post-test- Mean, SD, SE_M, r, df and ‘t’ value

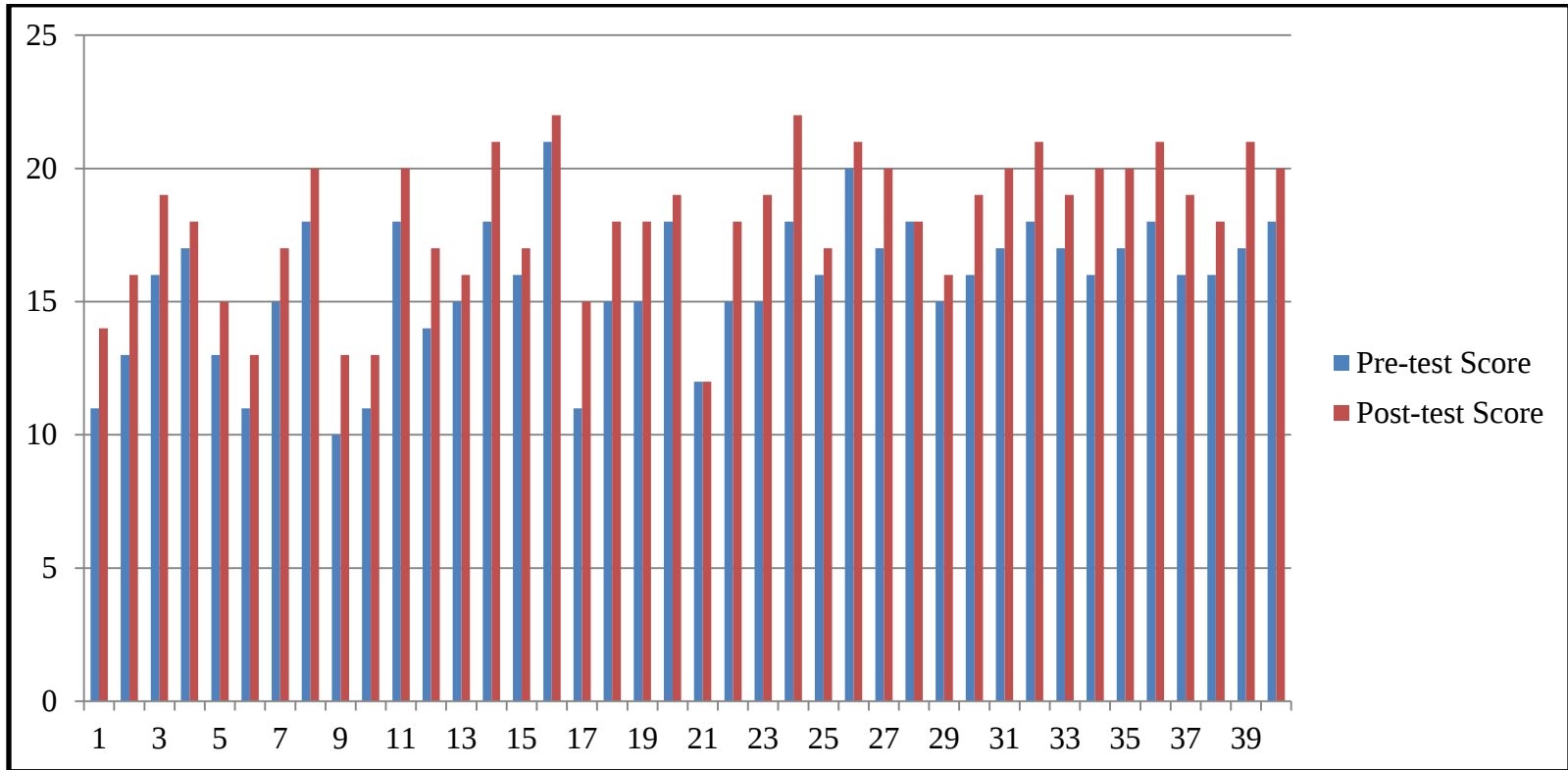
Experimental Group	No. of Students	Mean	SD	SE_M	r	df	t - value
Pre-test	40	15.7	2.55	0.19	0.89	78	12.37
Post-test	40	18.05	2.61				

Interpretation

The computed t value 12.37 for experimental group is greater than that of the table t value 1.99 at 0.05 significant levels and 2.64 at 0.01 levels for 78 degree of freedom.

The calculated r value is 0.89 for controlled group; hence there is positive high correlation between the mean achievement scores of Pre-test & Post-test.

Therefore, the Null hypothesis, There will be no significant difference between the mean achievement scores of Pre-test and Post-test of Rural Area students of secondary level of experimental group was rejected. It means that, there is significant difference between the mean achievement scores of Pre-test & Post-test of Rural Area students of secondary level of experimental group is accepted. Hence, mean achievement scores of Pre-test was higher than Post-test of Rural Area students of secondary level of experimental group. Thus, Effectiveness of a Task Based programme to Develop Environmental Awareness among the Students of Rural Area at the Secondary Level was found effective.



Graph: 4.2.11 Graphical Representations of Achievement Scores of Pre-test and Post-test of Rural Area Students of Experimental Group

Hypothesis- 12

There will be no significant difference between mean achievement scores of Post-test of students of Urban Area and Rural Area schools of secondary level.

To Study the “Effectiveness of a Task Based programme to Develop Environmental Awareness among the Students of Secondary Level” Achievement Tests was used as Post-test for students of Urban Area and Rural Area schools of secondary level to obtain data and descriptive statistics and t – test were computed. Results of descriptive statistics and t – test are presented in Table 4.2.12

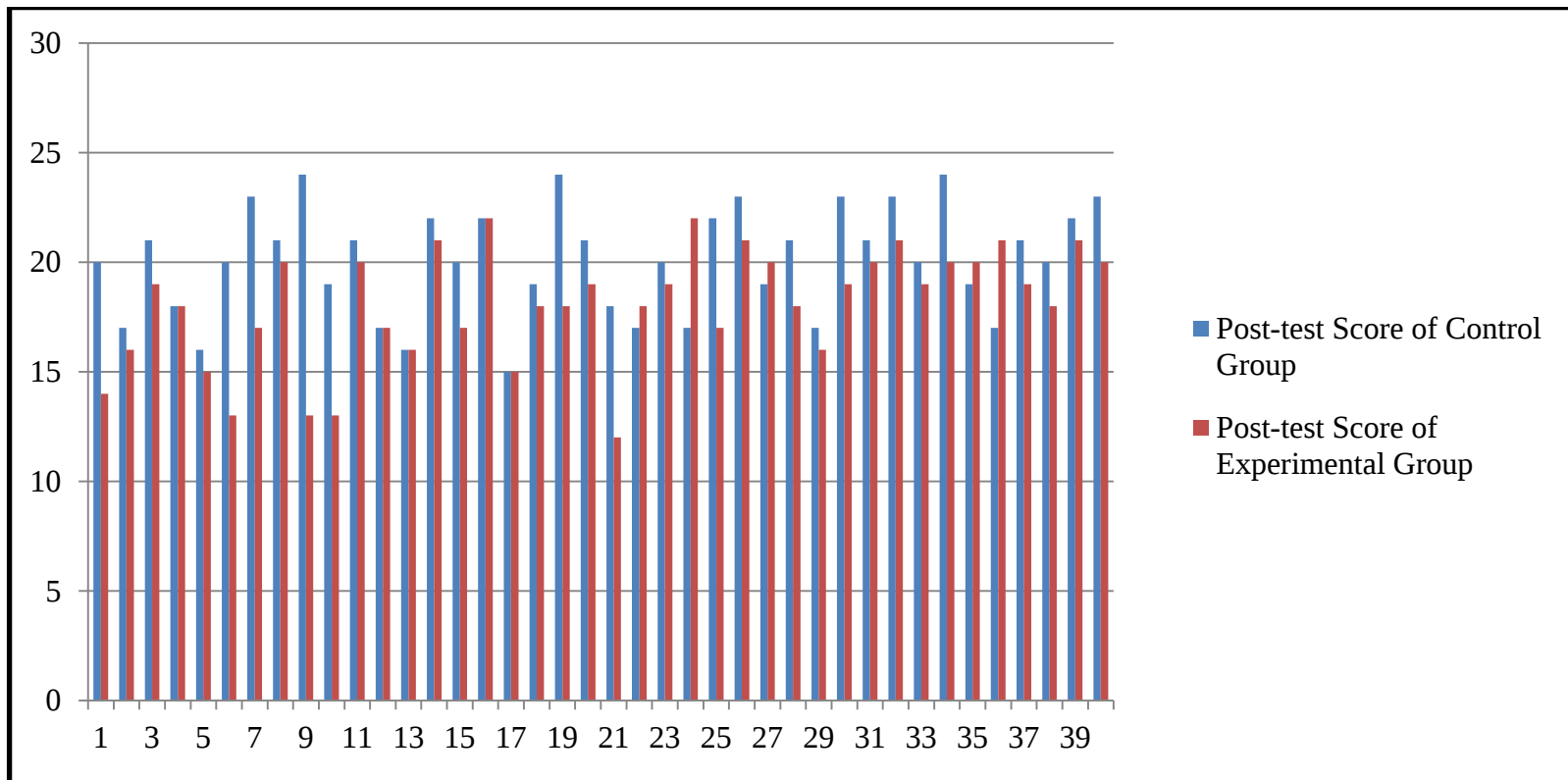
Table 4.2.12: Analysis of Post-test- Mean, SD, SE_M, df and ‘t’ value

	School boards	No. of Students	Mean	SD	SE_M	df	t – value
Control	CBSE	40	20.07	2.44	0.56	78	3.62
Experimental	GSEB	40	18.05	2.61			

Interpretation

The computed t value 3.62 is greater than that of the table t value 1.99 at 0.05 and 2.64 at 0.01 levels of significant for 78 degree of freedom.

Therefore, the Null hypothesis, There will be no significant difference between mean achievement scores of Post-test of students of Urban Area and Rural Area schools of secondary level was rejected. It means that, there is significant difference between the mean achievement scores of Post-test of students of Urban Area (Control) and Rural Area (Experimental) schools of secondary level is accepted. Hence, mean achievement scores of Post-test of students of Rural Area school was greater than the students of Urban Area school of secondary level. Thus, Effectiveness of a Task Based Programme to Develop Environmental Awareness among the Students studying in Rural Area school of Secondary Level was found effective than the students studying in Urban Area school.



Graph 4.2.12: Graphical Representation of Achievement Score Post-test of both Urban Area and Rural Area Students

Hypothesis – 13

There will be no significant difference between mean achievement scores of Pre-test and Post-test of boys of Rural Area of secondary level of experimental group.

To Study the “Effectiveness of a Task Based programme to Develop Environmental Awareness among the Students of Secondary Level” Achievement Tests was used as Pre-test and Post-test for boys of Rural Area of secondary level of experimental group to obtain data and descriptive statistics and t – test were computed. Results of descriptive statistics and t – test are presented in Table 4.2.13

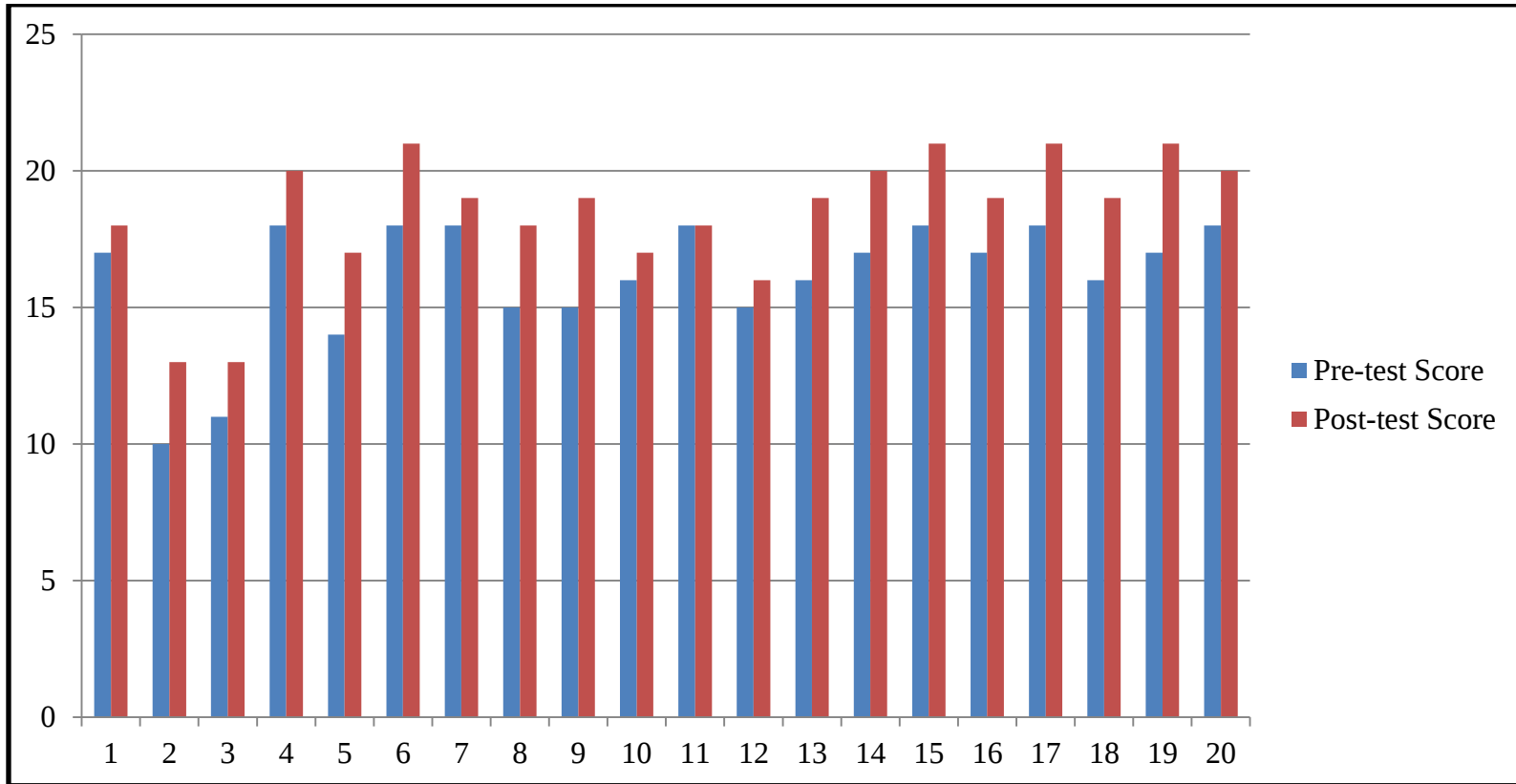
Table 4.2.13: Analysis of Pre-test and Post-test- Mean, SD, SE_M, r, df and ‘t’ value

Experimental Group	No. of Students	Mean	SD	SE_M	r	df	t - value
Pre-test	20	16.1	2.23	0.34	0.77	38	6.91
Post-test	20	18.45	2.29				

Interpretation

The computed t value 6.91 is greater than that of the table t value 2.02 at 0.05 and 2.71 at 0.01 levels of significant for 38 degree of freedom.

Therefore, the Null hypothesis, There will be no significant difference between mean achievement scores of Pre-test and Post-test of boys of Rural Area of secondary level of experimental group was accepted. It means that, there is significant difference between the mean achievement scores of Pre-test and Post-test of boys of Rural Area of secondary level of experimental group is accepted. Hence, mean achievement scores of Post-test of boys was higher than Pre-test of boys of Rural Area of secondary level. Thus, Effectiveness of a Task Based programme to Develop Environmental Awareness among the boys of Rural Area of Secondary Level was found effective.



Graph 4.2.13: Graphical Representation of Achievement Score of Pre-test and Post-test of boys of Rural Area of Experimental Group

Hypothesis – 14

There will be no significant difference between mean achievement scores of Pre-test and Post-test of girls of Rural Area students of secondary level of experimental group.

To Study the “Effectiveness of a Task Based programme to Develop Environmental Awareness among the Students of Secondary Level” Achievement Tests was used as Pre-test and Post-test of girls of Rural Area of secondary level of experimental group to obtain data and descriptive statistics and t – test were computed. Results of descriptive statistics and t – test are presented in Table 4.2.14

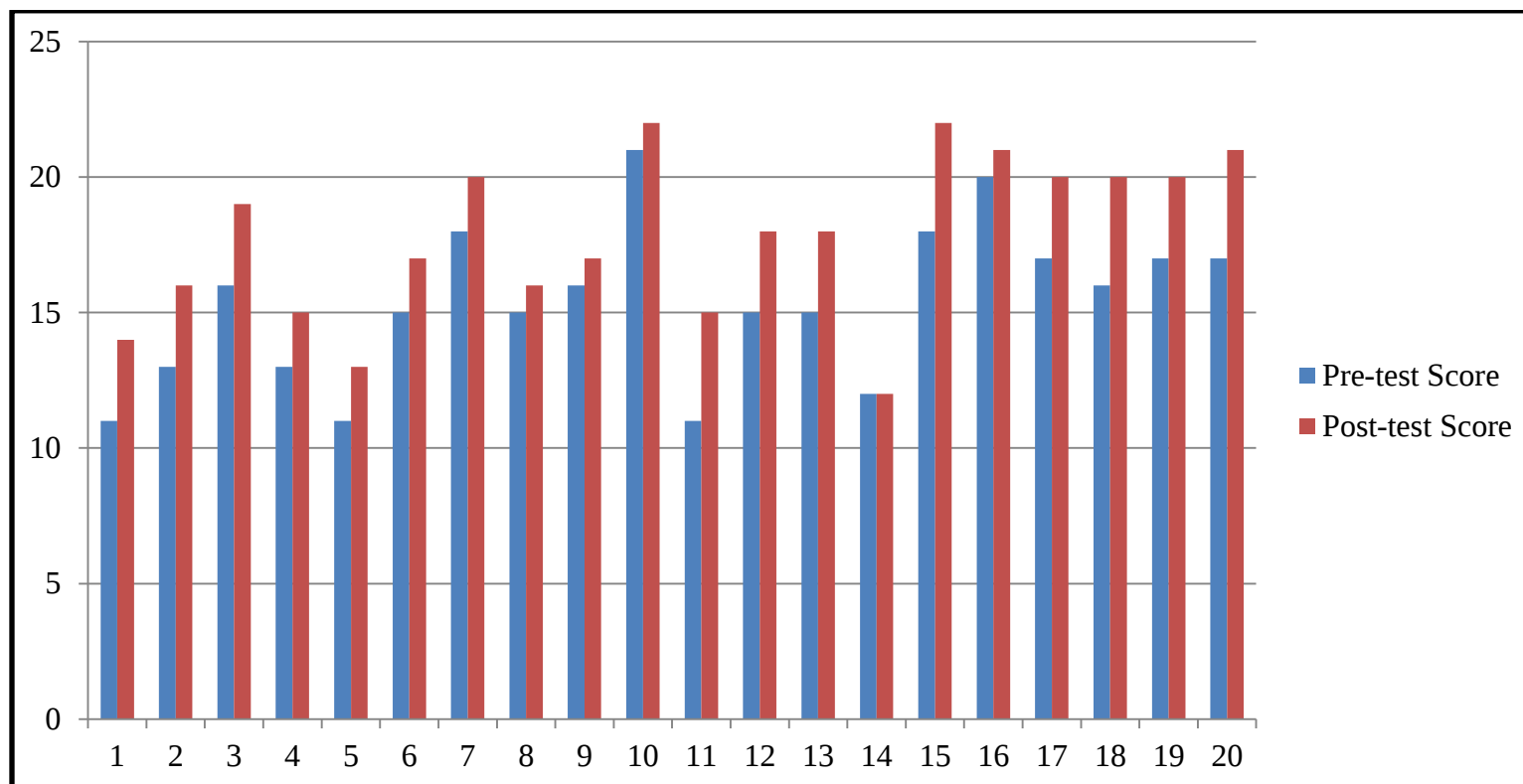
Table 4.2.14: Analysis of Pre-test and Post-test- Mean, SD, SE_M, r, df and ‘t’ value

Experimental Group	No. of Students	Mean	SD	SE_M	r	df	t - value
Pre-test	20	15.35	2.8	0.24	0.74	38	10.21
Post-test	20	17.8	2.93				

Interpretation

The computed t value 10.21 is greater than that of the table t value 2.02 at 0.05 and 2.71 at 0.01 levels of significant for 38 degree of freedom.

Therefore, the Null hypothesis, There will be no significant difference between mean achievement scores of Pre-test and Post-test of girls of Rural Area of secondary level of experimental group was rejected. It means that, there is significant difference between the mean achievement scores of Pre-test and Post-test of girls of Rural Area (experimental group) is accepted. Hence, mean achievement scores of Post-test of girls studying in Rural Area of secondary level was greater than Pre-test of girls studying in Rural Area of secondary level. Thus, Effectiveness of a Task Based programme to Develop Environmental Awareness among the girls studying in Rural Area of Secondary Level was found effective.



Graph 4.2.14: Graphical Representation of Achievement Scores of Pre-test and Post-test of girls of Rural Area of Experimental Group

4.3 Data Analysis and Interpretation of Reaction Scale

Prior to commencing the research through the intervention, the researcher had formulated a null hypothesis, i.e. “There will be no significant difference in the observed frequencies and frequencies expected against equality hypothesis on various statements of reaction scale”.

To test the hypothesis on each statement frequencies and χ^2 (chi-square) was calculated and then % analysis was done to get a more precise picture of responses.

Reaction of the students were analysed in terms of frequencies, percentage responses, χ^2 they have been presented below in the table 4.3.1

Table 4.3.1 Analysis of Reaction of students in terms of percentage analysis and χ^2

Sr. No	Statements	Never	Rarely	Sometimes	Often	Always	χ^2
1	Has the programme improved environmental responsibility among you?	0%	12.5%	7.5%	12.5%	67.5%	58.5
2	Have the activities conducted during the programme created environmental awareness?	0%	2.5%	5%	27.5%	65%	60.25
3.	Have the activities clearly defined, balanced, fair and educational?	0%	0%	5%	5%	90%	123
4	Have the activities suitable for information delivery?	0%	2.5%	5%	17.5%	75%	79.25
5	Have the activities helped to enrich your thinking skills, creative skills, scientific attitude?	0%	7.5%	15%	22.5%	55%	36.25
6	Will you talk to others about helping the environment?	0%	0%	15%	17.5%	67.5%	61.75
7	Will you use reduce, recycle, reuse in your	0%	7.5%	20%	47.5%	25%	26.75

	day-to-day life?						
8	Do you think this programme can help to solve the current issues of environment?	0%	0%	22.5%	25%	52.5%	37.75
9	Will you now prefer organic food rather than junk food?	5%	2.5%	2.5%	2.5%	87.5%	114
10	Will you use paper, jute and cloth bags instead of plastic bags?	0%	0%	0%	37.5%	62.5%	66.25

Statement 1

Has the programme improved environmental responsibility among you?

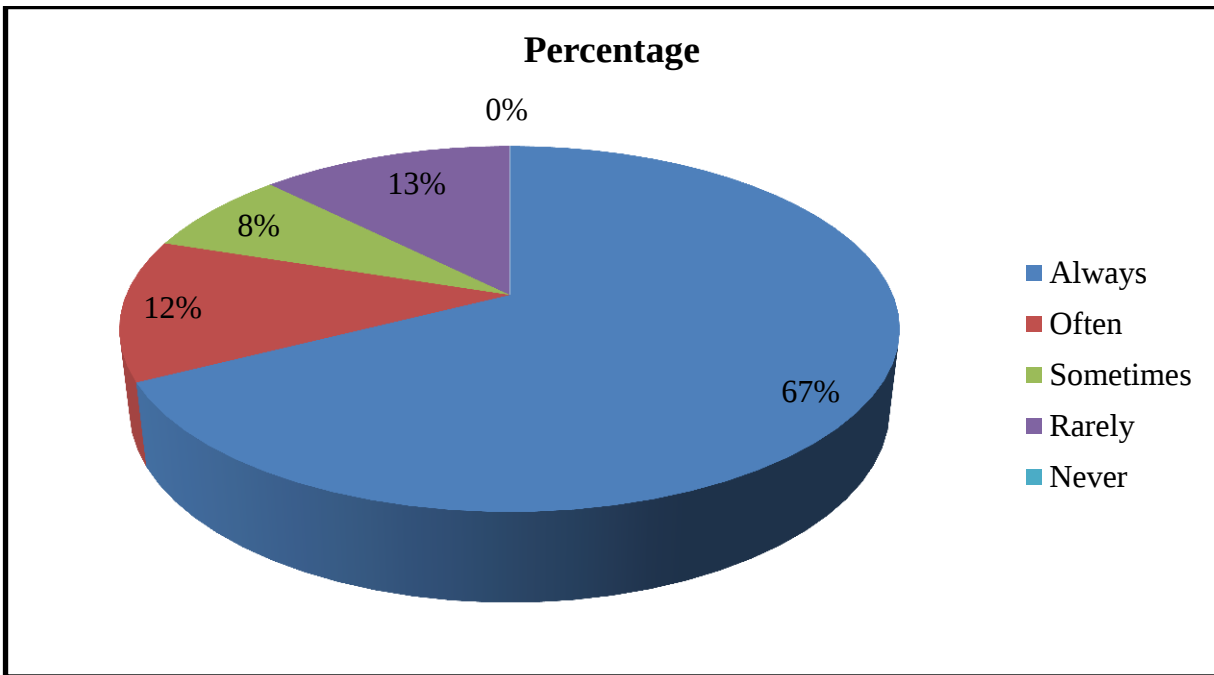
Table No 4.3.2: Chi Square calculated for the Statement – 1 of Reaction Scale

Statements	Never	Rarely	Sometimes	Often	Always	χ^2
Has the programme improved environmental responsibility among you?	0%	12.5%	7.5%	12.5%	67.5%	58.5

For the statement – 1

Calculated Chi square is 58.5 which is greater than table Chi Square value 9.488 at 0.05 level and 13.277 at 0.01 levels of Significance. Therefore, there will be no significant difference between calculated frequency and expected frequency was rejected. Hence, the alternate hypothesis there will be significant difference between calculated frequency and expected frequency is accepted. Hence, Task based programme improved environmental responsibility among students.

Pie Chart – 4.3.1 Percentage Analysis of Students Reaction on Improvement for Environmental Responsibility through the Programme



As shown in the above pie chart 67.5 % students commented that, the programme always improved environmental responsibility among them, 12.5 % students responded that, the programme often improved environmental responsibility among them, 7.5 % students reacted that, the programme sometimes improved environmental responsibility among them, 12.5 % students commented that, the programme rarely improved environmental responsibility among them and 0 % students said that the programme never improved environmental responsibility among them.

Statement 2

Have the activities conducted during the programme created environmental awareness?

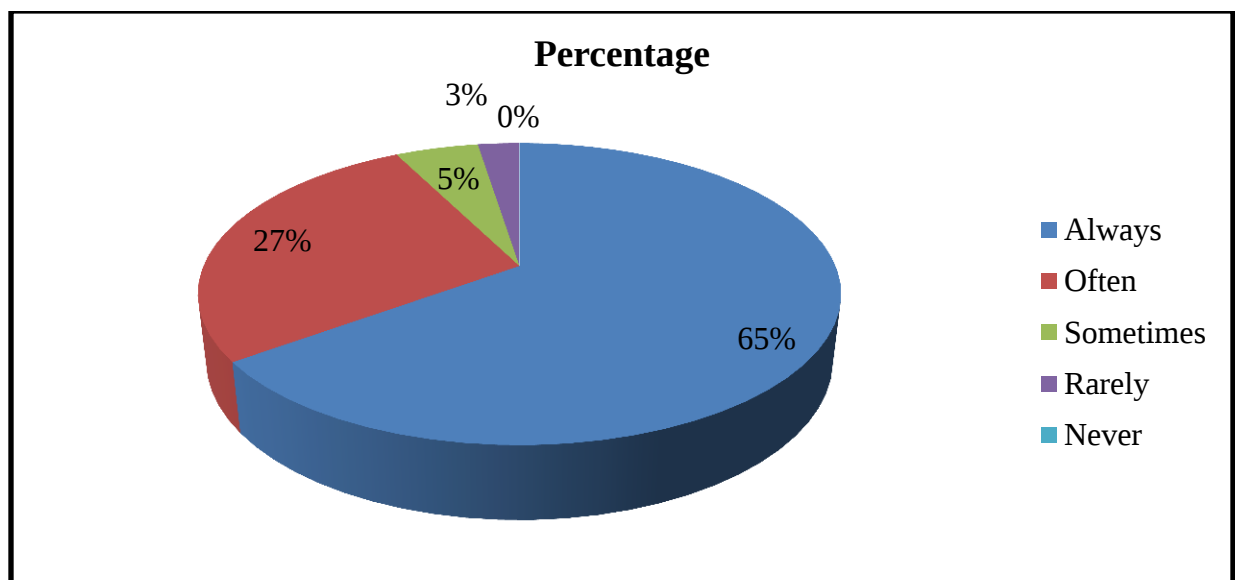
Table No 4.3.3: Chi Square calculated for the Statement – 2 of Reaction Scale

Statements	Never	Rarely	Sometimes	Often	Always	χ^2
Have the activities conducted during the programme created environmental awareness?	0%	2.5%	5%	27.5%	65%	60.25

For the statement – 2

Calculated Chi square is 60.25 which is greater than table Chi Square value 9.488 at 0.05 level and 13.277 at 0.01 levels of Significance. Therefore, there will be no significant difference between calculated frequency and expected frequency was rejected. Hence, the alternate hypothesis there will be significant difference between calculated frequency and expected frequency is accepted. Hence, the activities conducted during the programme created environmental awareness.

Pie Chart – 4.3.2 Percentage Analysis of Students Reaction on Creation of Environmental Awareness though programme



As shown in the above pie chart 65 % students reacted that, the activities conducted during the programme always created environmental awareness, 27.5 % students commented, that the activities conducted during the programme often created environmental awareness, 5 % students responded, that the activities conducted during the programme sometimes created environmental awareness, 2.5 % students replied that, the activities conducted during the programme rarely created environmental awareness and 0 % students felt that, the activities conducted during the programme never created environmental awareness.

Statement 3

Have the activities clearly defined, balanced, fair and educational?

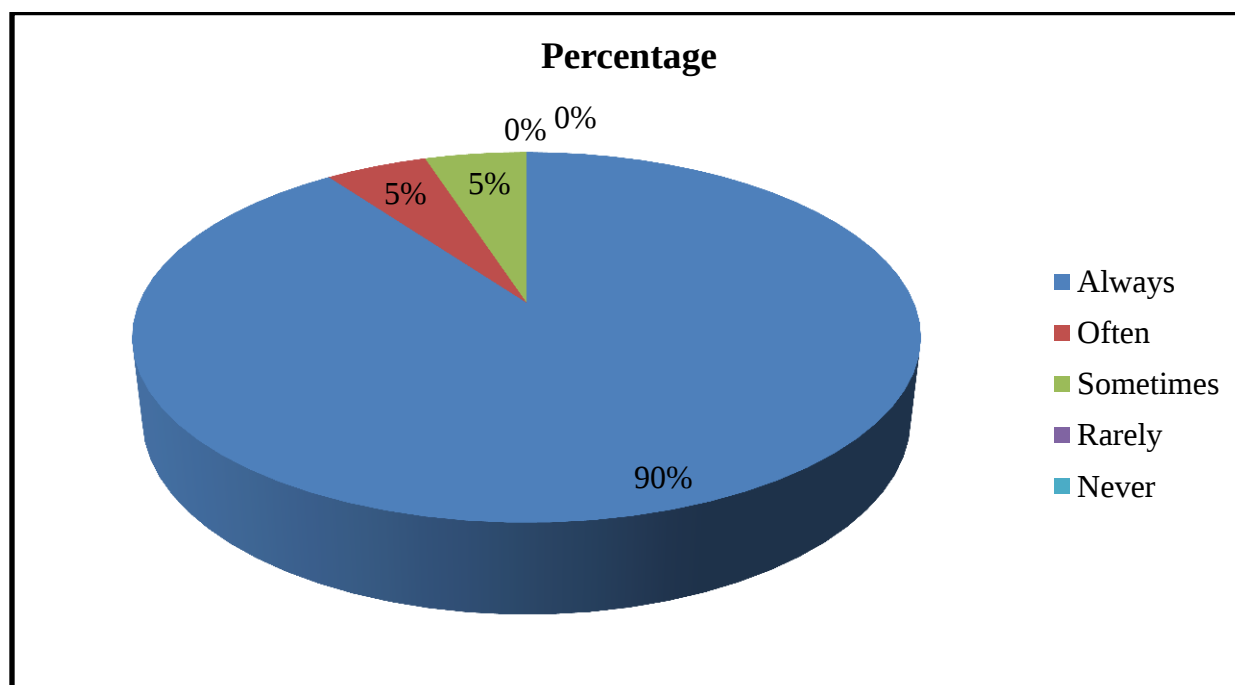
Table No 4.3.4: Chi Square calculated for the Statement – 3 of Reaction Scale

Statement	Never	Rarely	Sometimes	Often	Always	χ^2
Have the activities clearly defined, balanced, fair and educational?	0%	0%	5%	5%	90%	123

For the statement – 3

Calculated Chi square is 123 which is greater than table Chi Square value 9.488 at 0.05 level and 13.277 at 0.01 levels of Significance. Therefore, there will be no significant difference between calculated frequency and expected frequency was rejected. Hence, the alternate hypothesis there will be significant difference between calculated frequency and expected frequency is accepted. Hence, the activities were clearly defined, balanced fair and educational.

Pie Chart – 4.3.3 Percentage Analysis of Students Reaction on Clarity, Balanced, Fair and Educational Concepts through the Programme



As shown in the above pie chart 90 % students responded that, the activities have always clearly defined, balanced, fair and educational, 5% students replied that, the activities have often clearly defined, balanced, fair and educational, 5% students reacted that, the activities have sometimes clearly defined, balanced, fair and educational, 0% students commented that, the activities have rarely clearly defined, balanced, fair and educational and 0% students felt that, the activities have never clearly defined, balanced, fair and educational.

Statement 4

Have the activities suitable for information delivery?

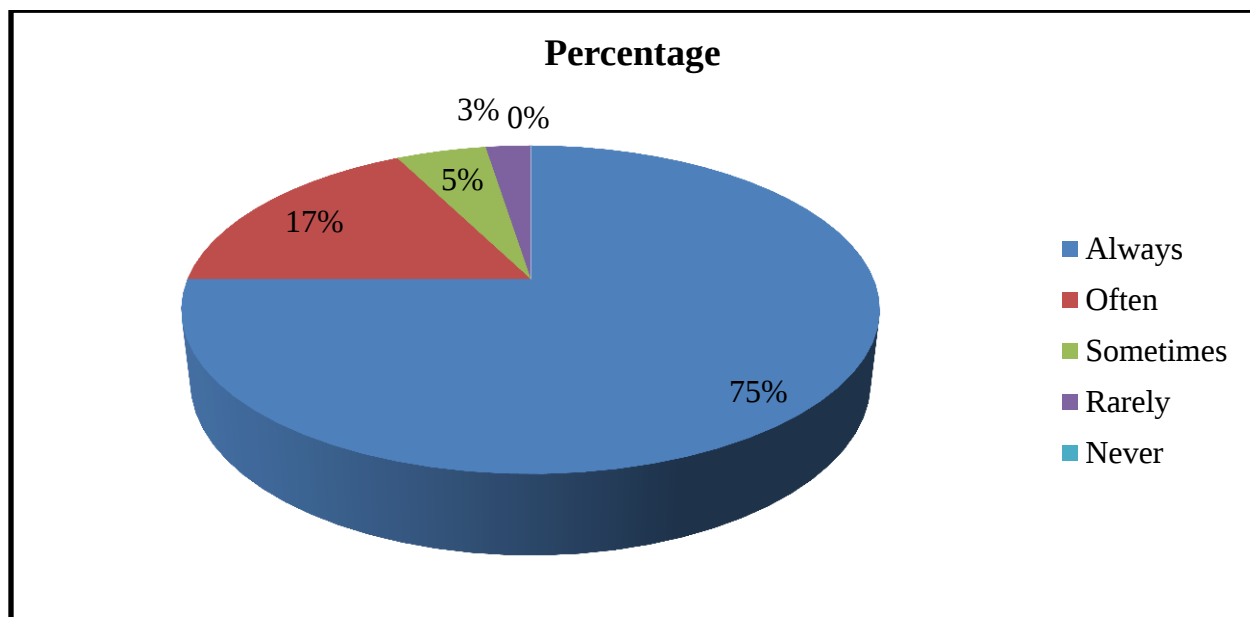
Table No 4.3.5: Chi Square calculated for the Statement – 4 of Reaction Scale

Statement	Never	Rarely	Sometimes	Often	Always	χ^2
Have the activities suitable for information delivery?	0%	2.5%	5%	17.5%	75%	79.25

For the statement – 4

Calculated Chi square is 79.25 which is greater than table Chi Square value 9.488 at 0.05 level and 13.277 at 0.01 levels of Significance. Therefore, there will be no significant difference between calculated frequency and expected frequency was rejected. Hence, the alternate hypothesis there will be significant difference between calculated frequency and expected frequency is accepted. Hence, the activities have suitable for information delivery.

Pie Chart – 4.3.4 Percentage Analysis of Students Reaction suitable for information delivery though the Programme



75% students responded that the activities have always suitable for information delivery, 17.5% students felt that the activities have often suitable for information delivery, 5% students replied that the activities have sometimes suitable for information delivery, 2.5% students reacted that the activities have rarely suitable for information delivery and 0% students commented that the activities have never suitable for information delivery.

Statement 5

Have the activities helped to enrich your thinking skills, creative skills and scientific attitude?

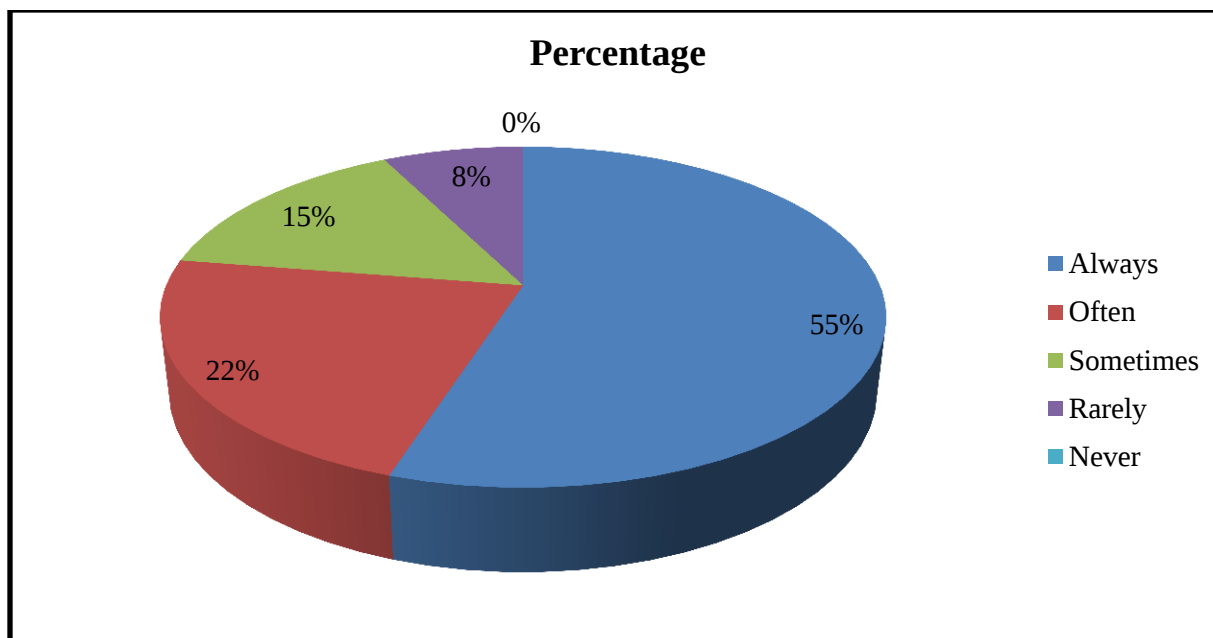
Table No 4.3.6: Chi Square calculated for the Statement – 5 of Reaction Scale

Statement	Never	Rarely	Sometimes	Often	Always	χ^2
Have the activities helped to enrich your thinking skills, creative skills, scientific attitude?	0%	7.5%	15%	22.5%	55%	36.25

For the statement – 5

Calculated Chi square is 36.25 which is greater than table Chi Square value 9.488 at 0.05 level and 13.277 at 0.01 levels of Significance. Therefore, there will be no significant difference between calculated frequency and expected frequency was rejected. Hence, the alternate hypothesis there will be significant difference between calculated frequency and expected frequency is accepted. Hence, activities helped to enrich students' thinking skills, creative skills and scientific attitude.

Pie Chart – 4.3.5 Percentage Analysis of Students Reaction on Enrichment of thinking skills, creative skills, scientific attitude through the Programme



As shown in the above pie chart 55% students felt that, the activities have always helped to enrich their thinking skills, creative skills, scientific attitude, 22.5% students reacted that, the activities have often helped to enrich their thinking skills, creative skills, scientific attitude, 15% students replied that, the activities have sometimes helped to enrich their thinking skills, creative skills, scientific attitude, 7.5% students commented that, the activities have rarely helped to enrich their thinking skills, creative skills, scientific attitude and 0% students responded that, the activities have never helped to enrich their thinking skills, creative skills, scientific attitude.

Statement 6

Will you talk to others about helping the environment?

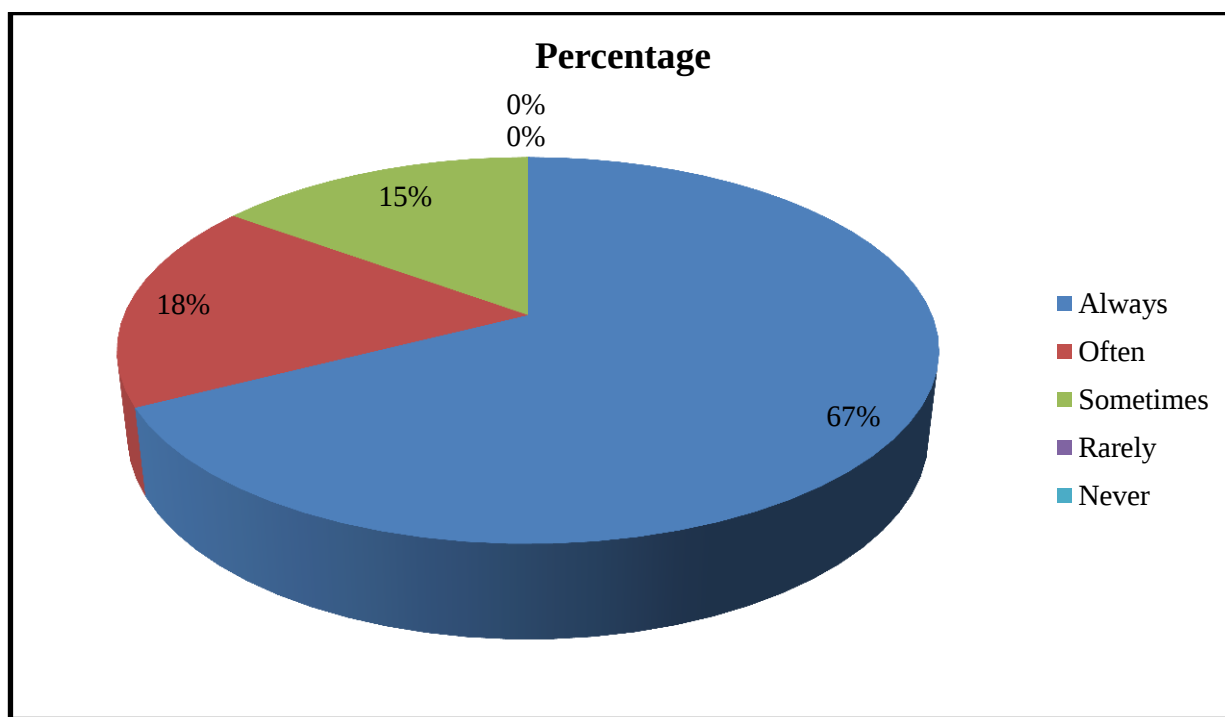
Table No 4.3.7: Chi Square calculated for the Statement – 6 of Reaction Scale

Statement	Never	Rarely	Sometimes	Often	Always	χ^2
Will you talk to others about helping the environment?	0%	0%	15%	17.5%	67.5%	61.75

For the statement – 6

Calculated Chi square is 61.75 which is greater than table Chi Square value 9.488 at 0.05 level and 13.277 at 0.01s level of Significance. Therefore, there will be no significant difference between calculated frequency and expected frequency was rejected. Hence, the alternate hypothesis there will be significant difference between calculated frequency and expected frequency is accepted. Hence, the students will talk to others about helping the environment.

Pie Chart – 4.3.6 Percentage Analysis of Students Reaction on the students talk to others about helping the Environment



As shown in the above pie chart 67.5% students reacted that, they will always talk to others about helping environment, 17.5% students commented that, they will often talk to others about helping environment, 15% students felt that, they will sometimes talk to others about helping environment, 0% students responded that they will rarely talk to others about helping environment and 0% students replied that they will never talk to others about helping environment.

Statement 7

Will you use reduce, recycle, reuse in your day-to-day life?

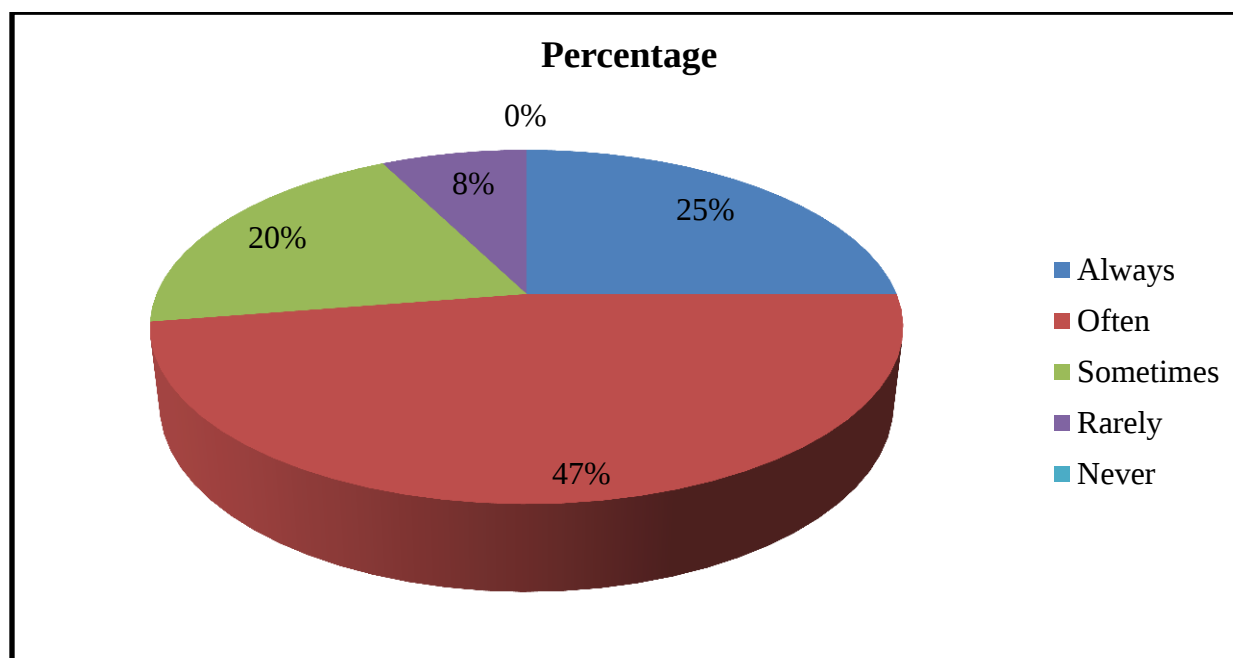
Table No 4.3.8: Chi Square calculated for the Statement – 7 of Reaction Scale

Statement	Never	Rarely	Sometimes	Often	Always	χ^2
Will you use reduce, recycle, reuse in your day-to-day life?	0%	7.5%	20%	47.5%	25%	26.75

For the statement – 7

Calculated Chi square is 26.75 which is greater than table Chi Square value 9.488 at 0.05 level and 13.277 at 0.01 levels of Significance. Therefore, there will be no significant difference between calculated frequency and expected frequency was rejected. Hence, the alternate hypothesis there will be significant difference between calculated frequency and expected frequency is accepted. Hence, the students will use reduce, recycle, reuse in their day-to-day life.

Pie Chart – 4.3.7 Percentage Analysis of Students Reaction on using reduce, recycle, reuse in day-to-day life



As shown in the above pie chart 25% students replied that, they will always use reduce, recycle, reuse in your day-to-day life, 47.5% students reacted that, they will often use reduce, recycle, reuse in your day-to-day life, 20% students commented that, they will sometimes use reduce, recycle, reuse in your day-to-day life, 7.5 % students responded that, they will rarely use reduce, recycle, reuse in your day-to-day life and 0% students felt that they will never use reduce, recycle, reuse in your day-to-day life.

Statement 8

Do you think this programme can help to solve the current issues of environment?

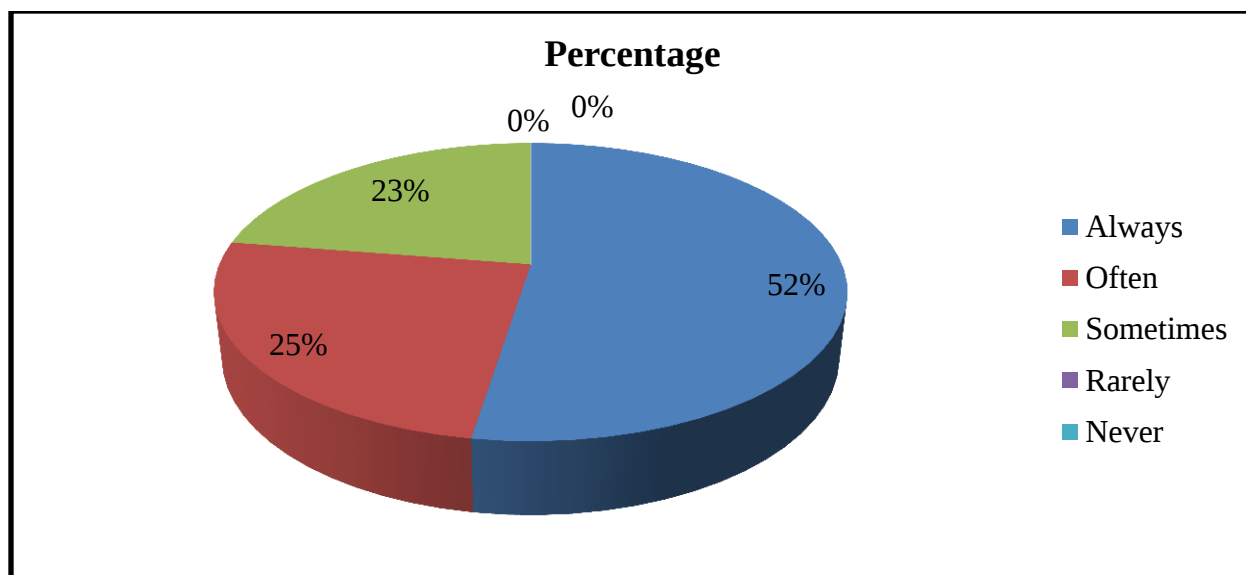
Table No 4.3.9: Chi Square calculated for the Statement – 8 of Reaction Scale

Statement	Never	Rarely	Sometimes	Often	Always	χ^2
Do you think this programme help to solve the current issues of environment?	5%	0%	22.5%	25%	52.5%	37.75

For the statement – 8

Calculated Chi square is 37.75 which is greater than table Chi Square value 9.488 at 0.05 level and 13.277 at 0.01 levels of Significance. Therefore, there will be no significant difference between calculated frequency and expected frequency was rejected. Hence, the alternate hypothesis there will be significant difference between calculated frequency and expected frequency is accepted. Hence, the programme will help students to solve the current issues of environment.

Pie Chart – 4.3.8 Percentage Analysis of Students Reaction to solve the current issues of environment through the Programme



As shown in the above pie chart 52.5% students felt that, this programme always help to solve the current issues of environment, 25%students commented that, this programme help to solve the current issues of environment, 22.5% students responded that this programme sometimes help to solve the current issues of environment, 0% students reacted that this programme rarely help to solve the current issues of environment and 0% students replied that this programme never help to solve the current issues of environment.

Statement 9

Will you prefer organic food rather than junk food?

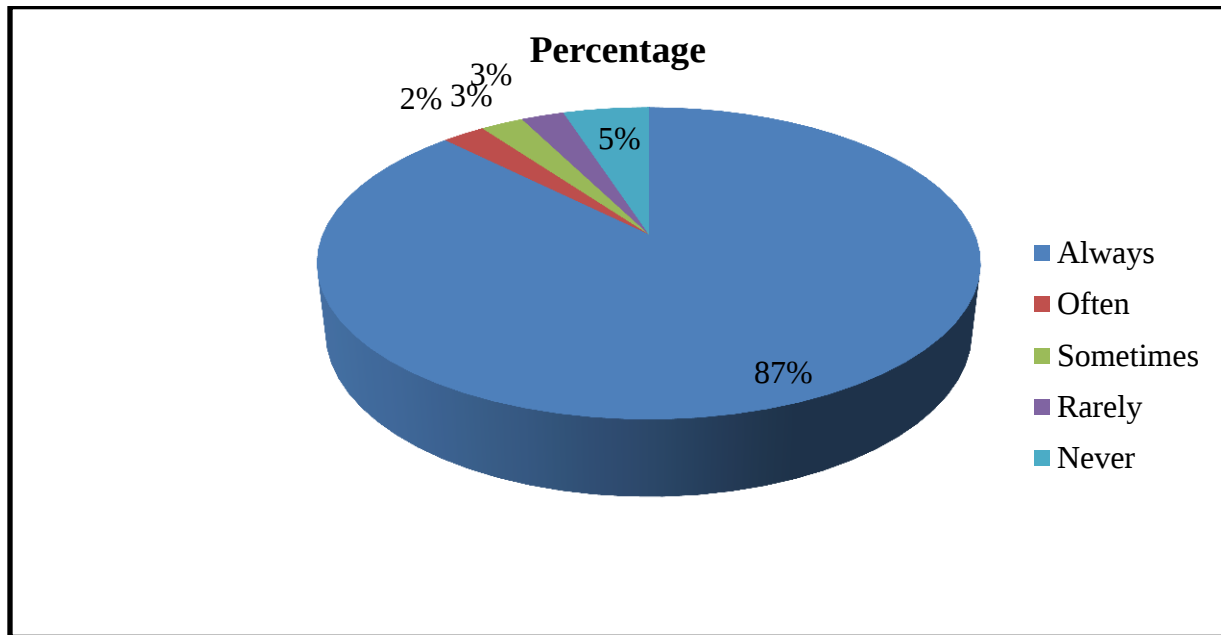
Table No 4.3.10: Chi Square calculated for the Statement – 9 of Reaction Scale

Statement	Never	Rarely	Sometimes	Often	Always	χ^2
Will you prefer organic food rather than junk food?	0%	2.5%	2.5%	2.5%	87.5%	114

For the statement – 9

Calculated Chi square is 114 which is greater than table Chi Square value 9.488 at 0.05 level and 13.277 at 0.01 levels of Significance. Therefore, there will be no significant difference between calculated frequency and expected frequency was rejected. Hence, the alternate hypothesis there will be significant difference between calculated frequency and expected frequency is accepted. Hence, students will prefer organic food rather than junk food.

Pie Chart – 4.3.9 Percentage Analysis of Students reaction on prefer organic food rather than junk food



As shown in the above pie chart 87.5% students responded that, they will always prefer organic food rather than junk food, 2.5% students reacted that, they will often prefer organic food rather than junk food, 2.5% students replied that, they will sometimes prefer organic food rather than junk food, 2.5% students felt that, they will often prefer organic food rather than junk food and 5% students commented that they will never prefer organic food rather than junk food.

Statement 10:

Will you use paper and cloth bags instead of plastic bags?

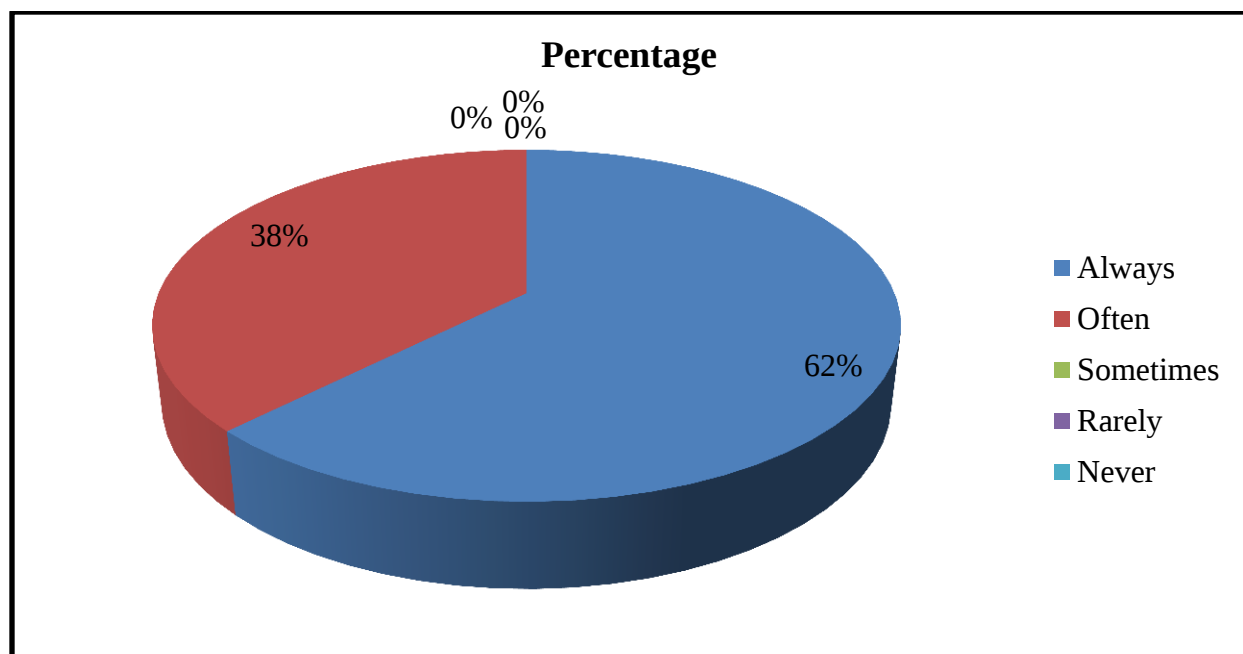
Table No 4.3.11: Chi Square calculated for the Statement – 10 of Reaction Scale

Statement	Never	Rarely	Sometimes	Often	Always	χ^2
Will you use paper, jute and cloth bags instead of plastic bags?	0%	0%	0%	37.5%	62.5%	66.25

For the statement – 10

Calculated Chi square is 66.25 which is greater than table Chi Square value 9.488 at 0.05 level and 13.277 at 0.01 levels of Significance. Therefore, there will be no significant difference between calculated frequency and expected frequency was rejected. Hence, the alternate hypothesis there will be significant difference between calculated frequency and expected frequency is accepted. Hence, students will use paper and cloth bags instead of plastic bags.

Pie Chart – 4.3.10 Percentage Analysis of Students Reaction on Usage of paper, jute and cloth bags instead of plastic bags



As shown in the above pie chart 62.5% students commented that, they will always use paper, jute and cloth bags instead of plastic bags, 37.5 % students felt that, they will often use paper, jute and cloth bags instead of plastic bags, 0% students responded that, they will sometimes use paper, jute and cloth bags instead of plastic bags, 0% students reacted that, they will rarely use paper, jute and cloth bags instead of plastic bags and 0% students replied that they will never use paper, jute and cloth bags instead of plastic bags

4.4 Conclusion

Thus, from the above data analysis a Task Based Programme has been found effective to develop environmental awareness among students of secondary level as evident through the significant difference between the mean achievement score of Pre-test & Post-test and also through responses given by the students on reaction scale.