Presentation Analysis & Interpretation

CHAPTER IV

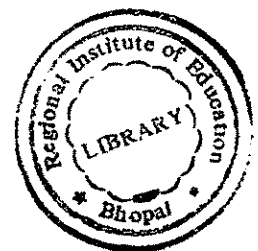## *Presentation, Analysis and Interpretation*

4.1   Introduction

4.2   Data-Presentation, Analysis and Interpretation

4.3   Descriptive Statistics

4.4   Testing of Hypothesis

4.1 Introduction

Statistics is a body of mathematical techniques or processes for gathering, organizing, analyzing and interpreting numerical data. Since research yields such quantitative data statistics is a basic tool of measurement, evaluation and research. The word statistics is sometimes used to describe the numerical data that are gathered. Statistical data describe group behaviour or group characteristics abstracted from a number of individual observations, which are combined to make generalizations possible. The researcher who uses statistics is concerned with more than the manipulation of data. Statistical method goes to the fundamental purposes of description and analysis. By statistics we can analyze and interpret the data and can draw conclusion.

Interpretation of data refers to that important part of the investigation, which is associated with the drawing of inference from the collected facts after an analytical study. It is extremely useful and important part of the study because it makes possible the use of collected data. Statistical facts by themselves have no utility. It is the interpretation that makes it possible for us to utilize collected data in various fields of activity. The usefulness of the collected data lies in its proper interpretation. It provides certain conclusion about the problem under study keeping the objectives of the study in view the data was collected & interpreted one by one.

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4.2 Data Presentation, Analysis and Interpretation :

This part of the study deals with the analysis, presentation and interpretation of data. Since main objective of the study is to find at the correlations among scholastic achievement in science, environmental attitude and environmental practices, and to study the differences among scholastics achievement in science, environmental attitude and environmental practices of students on the basis of their sex and locality, quantitative analysis of data was done by the researcher for deriving conclusions

The researcher collected data from the previous records, environmental attitude scale and environmental practice questionnaire. In environmental attitude scale 5 to 1 marks were given for strongly agree- to strongly disagree responses in case of positive statements while as 1 to 5 marks were given for strongly agree to strongly disagree responses in case of negative statements. The qualitative responses of the environmental practice questionnaire was quantified by distributed them as the best responses, moderate responses and poor responses. 5 marks were given to the best responses, 3 marks were given for moderate responses and 2 marks were given for poor response. Then the percentage marks by the obtained by the students in environmental attitude scale and environmental practices questionnaire were taken.

To study the description statistics and quantitative statistic the researcher has used the mean, standard deviation, coefficient of correlation 'r' and 't' test.

4.3 **Descriptive Statistics** :-

In descriptive Statistics the basic statistical technique like Mean, Standard Deviation, etc were used by the researcher to find out the general picture of the findings regarding the comparison of the means and standard deviation of scholastic achievement in science, environmental attitude and environmental practices.

- ### **Scholastic Achievement in Sciences (SAS)**

The values of scholastic achievement in science of student are as shown in Table : 4.1

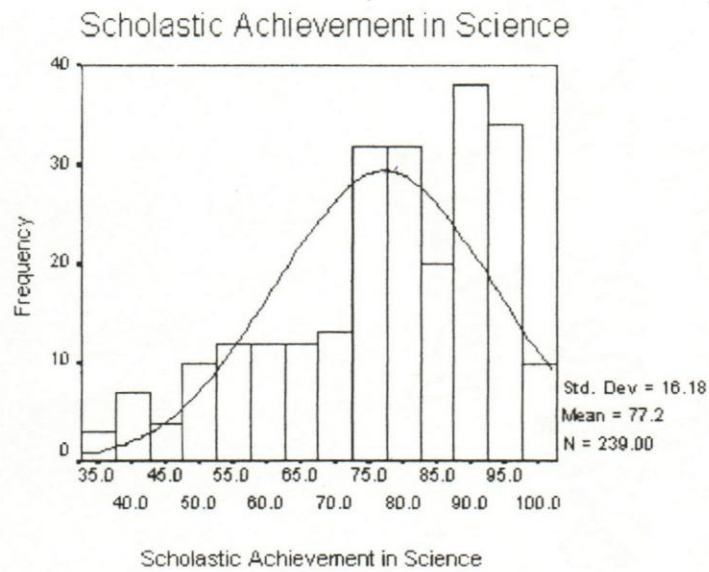**Scholastics Achievement in Science**

C.I.	f
31 – 40	8
41 – 50	11
51 – 60	26
61 – 70	21
71 – 80	55
81 – 90	56
91 – 100	62
N = 239	

Table – 4.1

From the values in the Table : 4.1 it is clear that there is maximum frequency of students in class intervals 91-100 and 81-90 which clearly indicates that the students taken as a sample for research were far better (above average) as their scholastic achievement in science.

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If we plot a graph between the scholastic achievement in science and Frequencies, we get a curve as shown in Graph – I

Scholastic Achievement in Science

Std. Dev = 16.18
Mean = 77.2
N = 239.00

Scholastic Achievement in Science

Graph – I

From above graph it is clear that the Mean & SD values of scholastic achievement in science are 77.2 and 16.18 respectively.
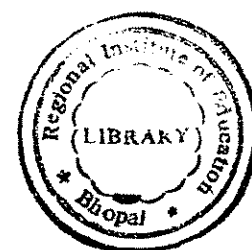
• Environmental Attitude (En.At)

The values of environmental attitude of students are as shown in Table. 4.2
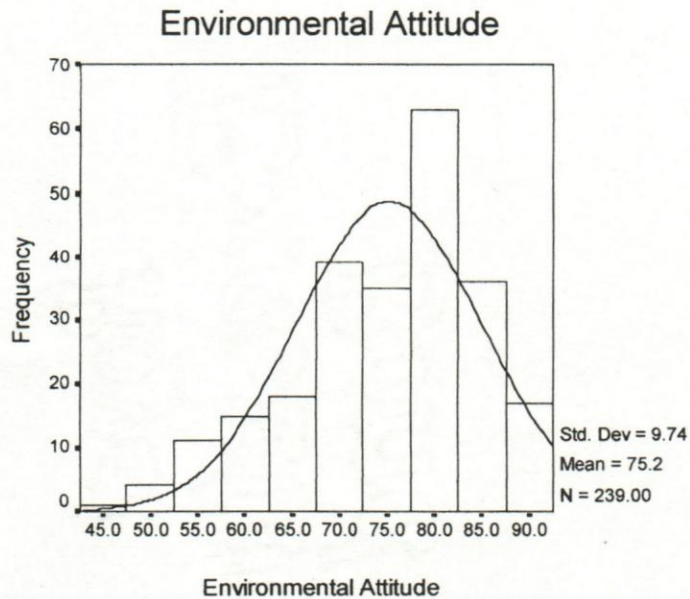
Environmental Attitude

C.I.	f
45 – 50	2
50 – 55	11
55 – 60	9
60 – 65	19
65 – 70	30
70 – 75	31
75 – 80	47
80 – 85	50
85 – 90	40
N = 239	

Table – 4.2

From the values in Table 4.2 it is clear that there is maximum frequency of students in class intervals 75-80 and 8o-85 which clearly indicates that the students taken as a sample for research were better in there environmental attitude.

It we plot a graph between the environmental attitude and frequencies we get a curve as shown in Graph – II

Environmental Attitude

Std. Dev = 9.74
Mean = 75.2
N = 239.00

Environmental Attitude

From above graph it is clear that Mean and S.D value of scholastic achievement in science are 75.2 and 9.42 respectively.
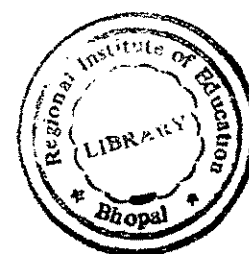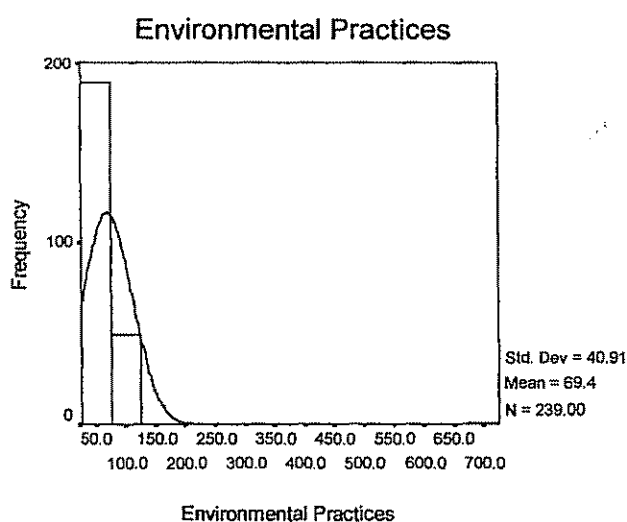
- **Environmental Practices (En. Pr.)** : The value of environmental practices of students are as shown in Table 4.3

Environmental Practices

C.I.	f
45 – 50	9
50 – 55	21
55 – 60	23
60 – 65	37
65 – 70	61
70 – 75	55
75 – 80	29
80 – 85	3
85 – 90	1
N = 239	

Table – 4.3

From the values in the Table 4.3 it is clear that there is maximum frequency of students in class interval 65-70. which clearly indicates that the student taken as a sample for researches were average in their environmental practices. If we plot a graph between environmental practices and frequencies,w e get a curve as shown in Graph - III

Environmental Practices

Std. Dev = 40.91
Mean = 69.4
N = 239.00

Environmental Practices

Graph – III

From above graph it is clear that the Mean and SD values of environmental practices are 69.4 and 40.91 respectively.

- **Comparison of Mean and SD** : The comparison of Mean and Standard Deviation values in scholastic achievement in science, environmental attitude and environmental practices of student is as shown in Table 4.4

Comparison of Mean and S.D.

| Variable	S.A.S.	En. At.	En. Pr.
Mean	77.23	75.19	69.38
Standard Deviation	16.18	9.74	40.91

N = 239

TABLE – 4.4

It is clear from the values in Table 4.4 that the level of Mean of scholastic achievement in science and environmental attitude are just similar while the values of Mean of environmental practices is much less than the environmental attitude. Also there is great deviation from NPC in environmental practices than that of scholastic achievement in sciences and environmental attitude.

As shown in following Graph – IV

Comparison of Means
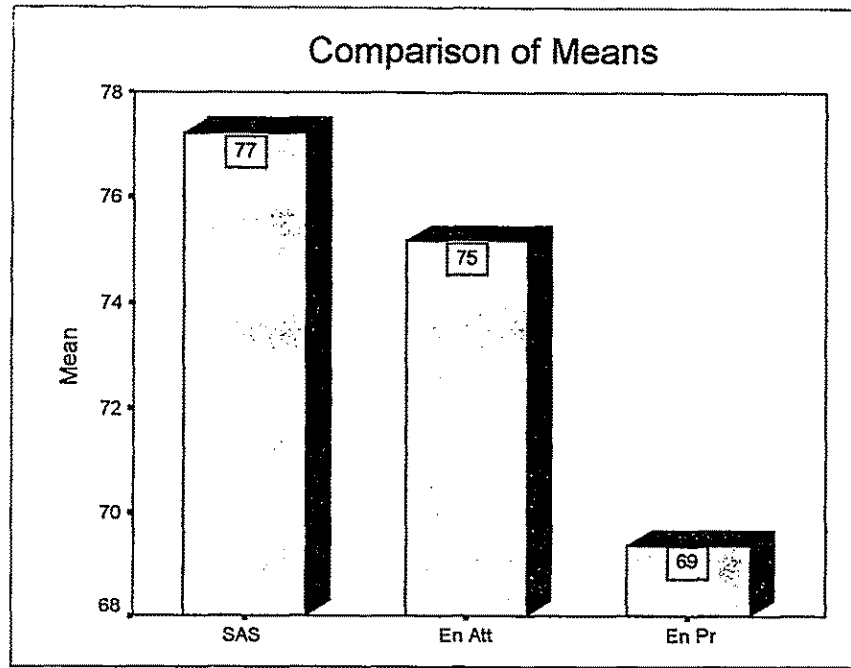
Graph – IV

• Comparison of Environmental Attitude and Practices

The values of environmental attitude and environmental practices are as shown in Table - 4.5

Comparison of En.At and En. Pr.

| Class Interval No.	C.I.	En. At.	En. Pr.
1	45 – 50	2	9
2	50 – 55	11	21
3	55 – 60	9	23
4	60 – 65	19	37
5	65 – 70	30	61
6	70 – 75	31	55
7	75 – 80	47	29
8	80 – 85	50	3
9	85 – 90	40	1

Table – 4.5

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If we compare the values of En. At and En. Pr in Table 4.5 we find that up to C.I. 5 both the values are increasing but after C.I. 5, the values of environmental practices goes against the increasing values of environmental attitude. Which clearly indicates that the students having high environmental attitude have not best environmental practices as shown in Graph – V

Comparison of Environmental Attitude and Practices
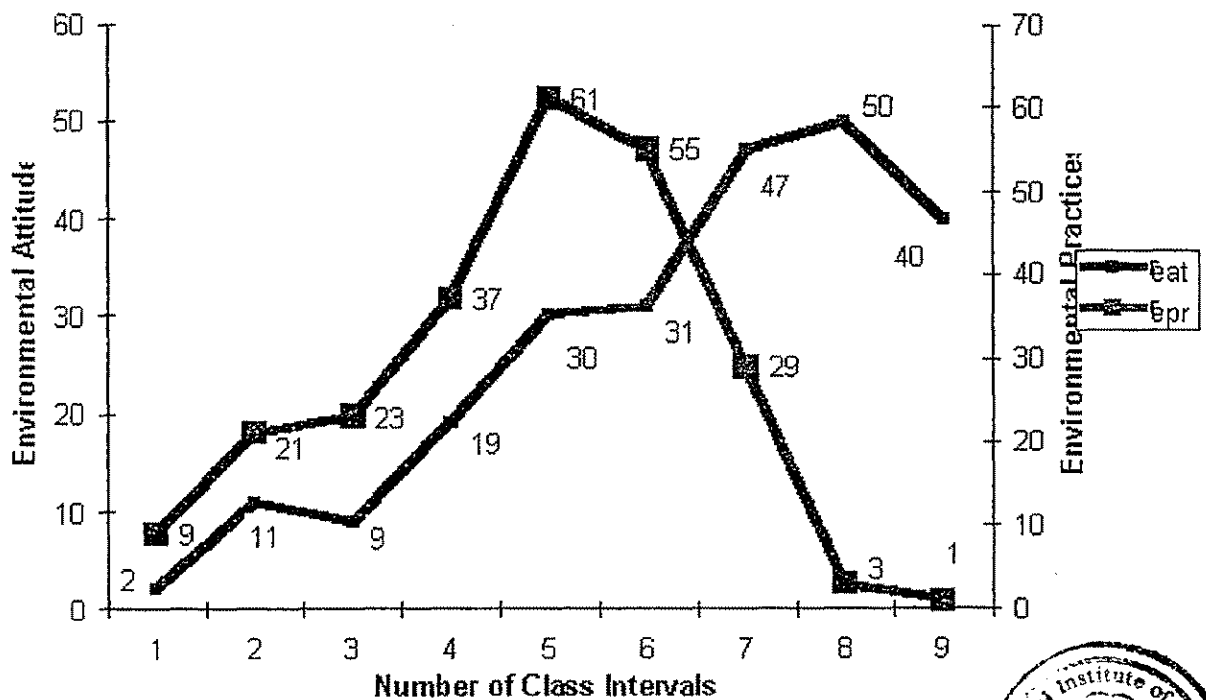
Graph – V
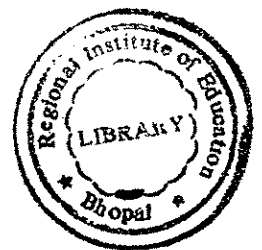
4.4 Testing of Hypotheses

> **HO[1]** – There is no significant correlation between scholastic achievement in science and environmental attitude of VIII grade students.

The value of correlations between scholastic achievement in science (SAS) and environmental Attitude (En. At) are as shown in Table – 4.6.1

Correlation Between S.A.S. and En. At.

Variables	S.A.S.	En. At.	En. Pr.
S.A.S.	1	0.707**	- 0.007

** Correlation is significant at the 0.01 level (2-tailed)

Table – 4.6.1

As the coefficient of correlation between S.A.S. and En. At. is 0.707 and it is significant at 0.01 level of significance, we may say that there is strong and significant correlation between scholastic achievement in science and environmental attitude hence the above null hypothesis H0[1] is rejected.

➢ **HO[2]** – There is no significant correlation between scholastic achievement in science (SAS) and environmental practices (En. Pr.) of VIII grade students.

The value of correlation between scholastic achievement in science (SAS) and environmental practices (En.Pr) are as shown in Table 4.6.2

Correlation Between En. At. and En. Pr

Variables	S.A.S.	En. At.	En. Pr.
En. At.	0.707**	1	0.052^{NS}

Table – 4.6.3

** Correlation is significant at the 0.01 level (2-tailed)

NS – not significant

As the coefficient of correlation between En. At. and En. Pr. is 0.052, which is not significant we may say that there is no significant correlation between En. At. and En. Pr. hence the above null hypothesis HO^3 is accepted.

> HO^4 - There is no significant difference between scholastic achievement in science (SAS) of VIII- grade urban students and rural students.

The values of Mean of scholastic achievement in science (SAS) of urban students and rural students are as shown in following Table 4.7.1

Comparison of Mean of S.A.S. of Urban & Rural Students

Variable	Locality	N	Mean	S.D.	t
S.A.S.	Urban	179	78.60	16.19	$2 \cdot 26^{**}$
	Rural	60	73.17	15.58	

** Significant at the 0.01 level (2-tailed)

Table – 4.7.1

As the Mean value of SAS of urban students is 78.60 while as the SAS of rural student is 73.17 there is significant difference between the SAS of urban students and rural student hence the above null hypothesis HO^4 is rejected.
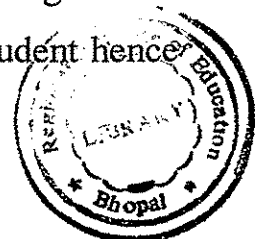
> **HO⁵** - There is no significant difference between environmental attitude (En. At.) of VIII- grade urban students and rural students.

The values of Mean of environmental attitude (En. At.) of urban students and rural students are as shown in following Table 4.7.2

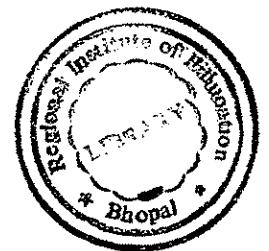**Comparison of Mean of En. At. of Urban & Rural Students**

Variable	Locality	N	Mean	S.D.	t
En. At.	Urban	179	75.49	9.56	-1.40 NS
	Rural	60	74.30	10.30	

Table – 4.7.2   (NS - Not significant)

As the Mean value of En. At. of urban student is 75.49 while as the En. At. of rural student is 74.30 there is no significant difference between the En. At. of urban students and rural student hence the above null hypothesis HO⁵ is accepted.

> **HO⁶** - There is no significant difference between environmental practices (En. Pr.) of VIII- grade urban students and rural students.

The values of Mean of environmental Practices (En. Pr.) of urban students and rural students are as shown in following Table 4.7.3

Comparison of Mean of En. Pr. of Urban & Rural Students

| Variable	Locality	N	Mean	S.D.	t
En. Pr.	Urban	179	69.97	47.06	NS −1·07
	Rural	60	67.65	8.27	

(NS- Not significant)

Table – 4.7.3

As the Mean values of En. Pr. of urban studenst is 69.97 while as the En. Pr. of rural students is 67.65, there is no significant difference between the En. Pr. of urban students and rural student hence the above null hypothesis HO[6] is accepted.

From above three results it is clear that rural students have less scholastic achievement in science than that of urban students but their environmental attitude and environmental practices are approximately same to that of urban students.

The comparison of Mean of S.A.S., En. At, and En. Pr. of urban and rural students. are as shown in following Graph – VI
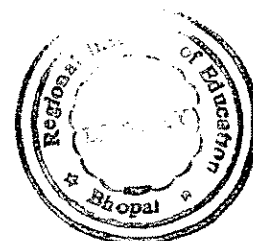
Comparison of Means

Science Achievement, Environmental Attitude & Practices

Urban & Rural
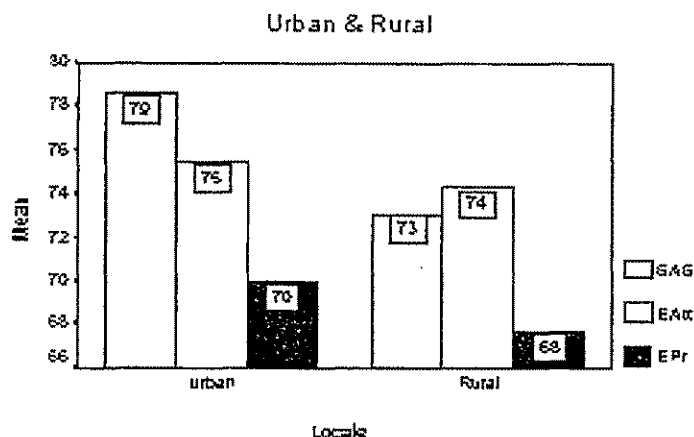
Graph – VI

> **HO[7]** - There is no significant difference between scholastic achievement in science (S.A.S.) of VIII- grade boys and girls students.

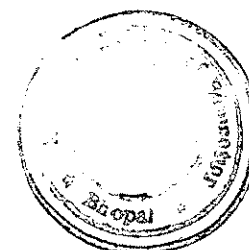The value of Mean of S.A.S. of boys and girls students are as shown in Table 4.8.1

Comparison of Mean of S.A.S. of Boys and Girls Students

Variable	Sex	N	Mean	S.D.	t
S.A.S.	Boys	131	75.10	15.17	2·73*
	Girls	108	79.82	17.14	

* - Significant at 0·05 level (2-tailed)

Table – 4.8.1

As the Mean of value of S.A.S. of girls student is 79.82 and mean value of S.A.S. of boys students is 75.10 there is significant difference between them. The S.A.S. of girls student is significantly greater than that of boys students hence above null hypothesis HO[7] is rejected.

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➢ HO^8 - There is no significant difference between environmental attitude (En. At.) of VIII- grade boys and girls students.

The value of Mean of En. At. of boys and girls students are as shown in Table 4.8.2

Comparison of Mean of En. At. of boys and girls Students

Variable	Sex	N	Mean	S.D.	t
En. At.	Boys	131	74.34	9.62	2.27 NS
	Girls	108	76.21	9.84	

(NS- Not Significant)

Table – 4.8.2

As the mean of value of En. At. of girls students is 76.21 and mean value of boys students is 74.34 there is no significant difference between the En. At. of girls students and boys students hence above null hypothesis HO^8 is accepted.

➢ HO^9 - There is no significant difference between environmental practices (En. Pr.) of VIII- grade boys and girls students.
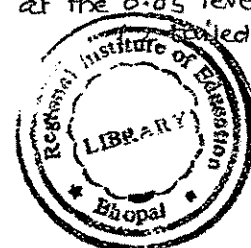
The value of Mean of En. Pr. of boys and girls students are as shown in Table 4.8.3

Comparison of Mean of En. Pr. of boys and girls Students

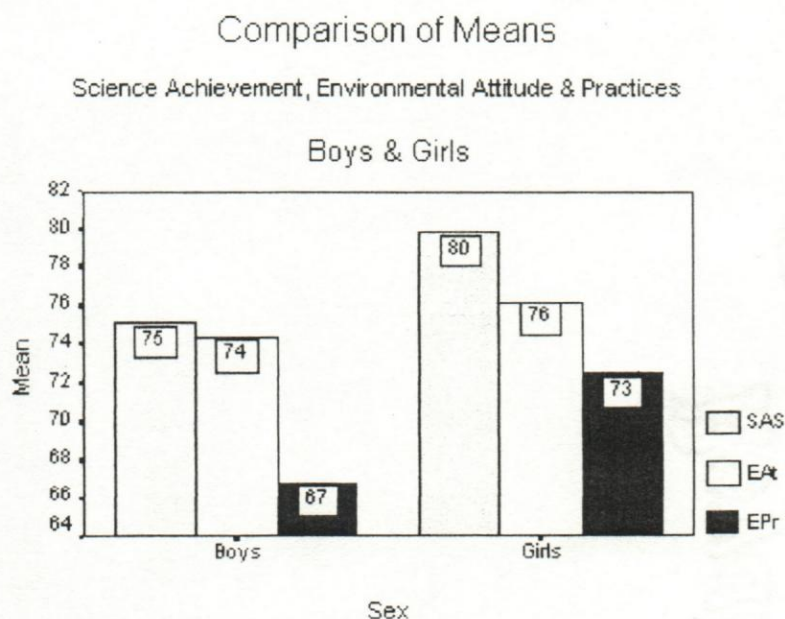| Variable	Sex	N	Mean	S.D.	t
En. Pr..	Boys	131	66.80	7.79	2.15 *
	Girls	108	72.52	60.26	

Table – 4.8.3   * Significant at the 0.05 level

As the Mean of value of En. Pr. of girls students is 72.52 and Mean value of boys students is 66.80, there is significant difference between the En. Pr. of girls students and boys students hence above null hypothesis HO^9 is rejected.

From above three results it is clear that the girls students have greater S.A.S. En. At., and En. Pr. of boys students. The comparison of Mean of S.A.S. En. At. and En. Pr. of girls and boys students is as shown in following Graph – VII

Comparison of Means

Science Achievement, Environmental Attitude & Practices

Graph – VII