CHAPTER-4
ANALYSIS OF DATA

4.1 Introduction

Data analysis is that important step in research; without the objectives of the study cannot be achieved. It is only after careful analysis of the data that are gathered, the researcher can answer the multivariate question about the study. Researcher make use statistical techniques to draw conclusions and inferences from data. Statistics is that body of mathematical techniques or processes used for gathering, organizing, analyzing and interpreting numerical data. Quantitative studies use two types of statistical analysis are descriptive analysis and inferential analysis.

In the chapter-3, the design of the study described the tools and techniques of data collection; population and sample of data. According to research design, researcher collected raw data from the field. In this chapter, researcher tries to compile the data treatment.

4.2 Variables under Study

The following table gives quick look of variables under study.

Table–4.1 List of Variables under Study

Sr. No.	Name of Variables	Types of Variables
1	Compound wall of the school	Physical facility
2	School entrance gate	Physical facility
3	Compound of the school	Physical facility
4	Building of the school	Physical facility
5	Infrastructure facility in Standard-7 classroom	Physical facility
6	Water arrangement	Physical facility
7	Sanitation facility	Physical facility
8	Scores of Student-classroom ratio	Physical facility
9	T.L.M. in std-7 classroom	Academic facility

Sr. No.	Name of Variables	Types of Variables
10	Different display boards in school	Academic facility
11	Library in school	Academic facility
12	Science Laboratory in school	Academic facility
13	Learning facility through ICT in school (BISEG and other Means)	Academic facility
14	Computer education facility in school	Academic facility
15	Average of teacher indicators	Human resources
16	Average job satisfaction of teachers	Human resources
17	Scores of Pupil-teacher ratio	Human resources
18	Mid day meal scheme in school	Support system
19	Visit of school by CRCC, BRCC and other officials	Support system
20	Community contribution	Support system
21	School management committee (SMC)	Support system
22	Average achievement of standard-7 students	Output variables
23	Participation in sports	Output variables
24	Participation in science - mathematics exhibition	Output variables
25	Percentage of Present students by head count	Output variables

4.3 Descriptive Analysis of Variables:

As the name implies, descriptive statistics is also called ‘summary statistics’. The advantage of descriptive statistics is the summarized presentation of vast raw data, thus few descriptive statistics leads to a simplified interpretation of the data at a glance, though the fear of oversimplifying the data is something the researcher should be aware of. The descriptive analysis of variables is as follows.

4.3.1 Descriptive Analysis of Variables Related to Physical Facility:

1. Compound Wall of the School:

The following table shows the frequency and percentage for scores of compound wall of the school.

Table–4.2 Frequency and Percentage for Scores of Compound Wall of the School

Obtain Score	Frequency	% of Total Sample	Cumulative Percentage	Obtain Score	Frequency	% of Total Sample	Cumulative Percentage
6	1	1.41%	1.41%	13	1	1.41%	16.90%
7	1	1.41%	2.82%	14	4	5.63%	22.54%
8	2	2.82%	5.63%	16	6	8.45%	30.99%
9	2	2.82%	8.45%	17	7	9.86%	40.85%
11	4	5.63%	14.08%	18	42	59.15%	100.00%
12	1	1.41%	15.49%	Total	71	100.00 %	

The following table shows the descriptive statistics for scores of compound wall of the school.

Table – 4.3 Descriptive Statistics for Scores of Compound Wall of the School

Statistical Technique	Value	Statistical Technique	Value
N	71	Skewness	-1.744
Mean	16.10	Kurtosis	1.931
Std. Error of Mean	0.381	Minimum	6
Median	18.00	Maximum	18
Mode	18	25^{th} Percentiles	16.00
Std. Deviation	3.212	75^{th} Percentiles	18.00

Interpretation: In descriptive analysis of scores of compound wall of the school, the value of median is greater than mean, indicating negative skewness. It indicates more score falling on higher values in all the groups. The value of kurtosis is positive. Positive kurtosis indicates that the observation cluster more and have longer tails than those in the normal distribution. (SPSS 15.0, 2006). It indicates leptokurtic curve. The value of standard deviation shows variation in the scores of compound wall of the school. It is reflected in graph 4.1.

2. School Entrance Gate:

The following table shows the frequency and percentage for scores of school entrance gate.

Table – 4.4 Frequency and Percentage for Scores of School Entrance Gate

Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage	Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage
6	4	5.63%	5.63%	14	5	7.04%	16.90%
9	1	1.41%	7.04%	15	13	18.31%	35.21%
11	1	1.41%	8.45%	16	46	64.79%	100.00%
13	1	1.41%	9.86%	Total	71	100.00 %	

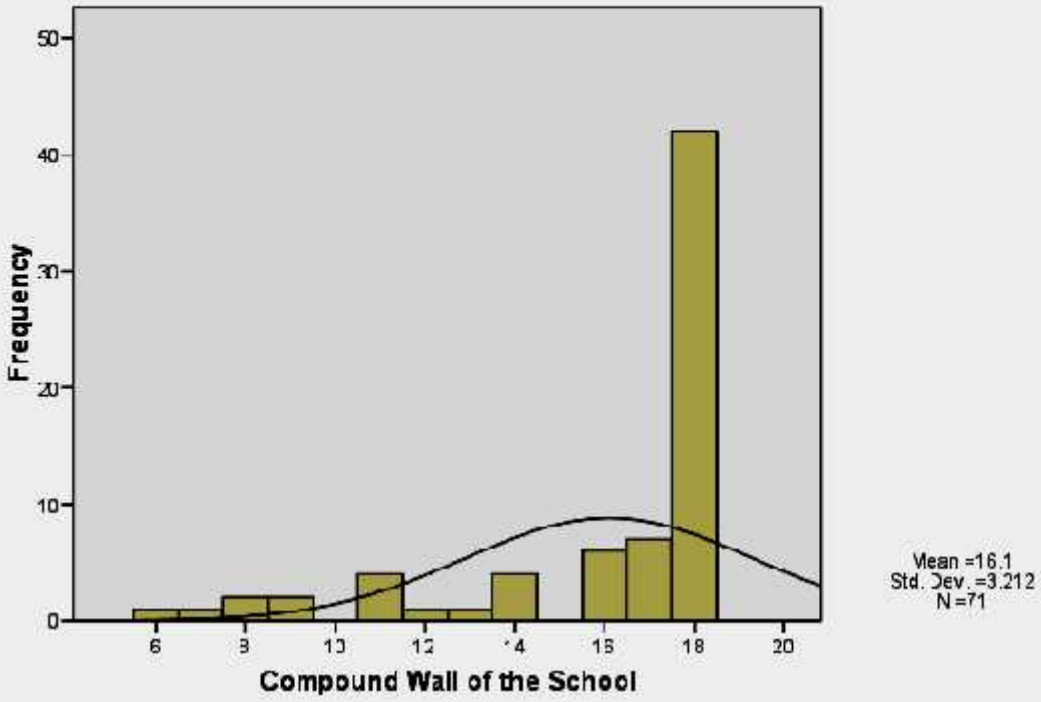
The following table shows the descriptive statistics for scores of school entrance gate.

Table – 4.5 Descriptive Statistics for Scores of School Entrance Gate

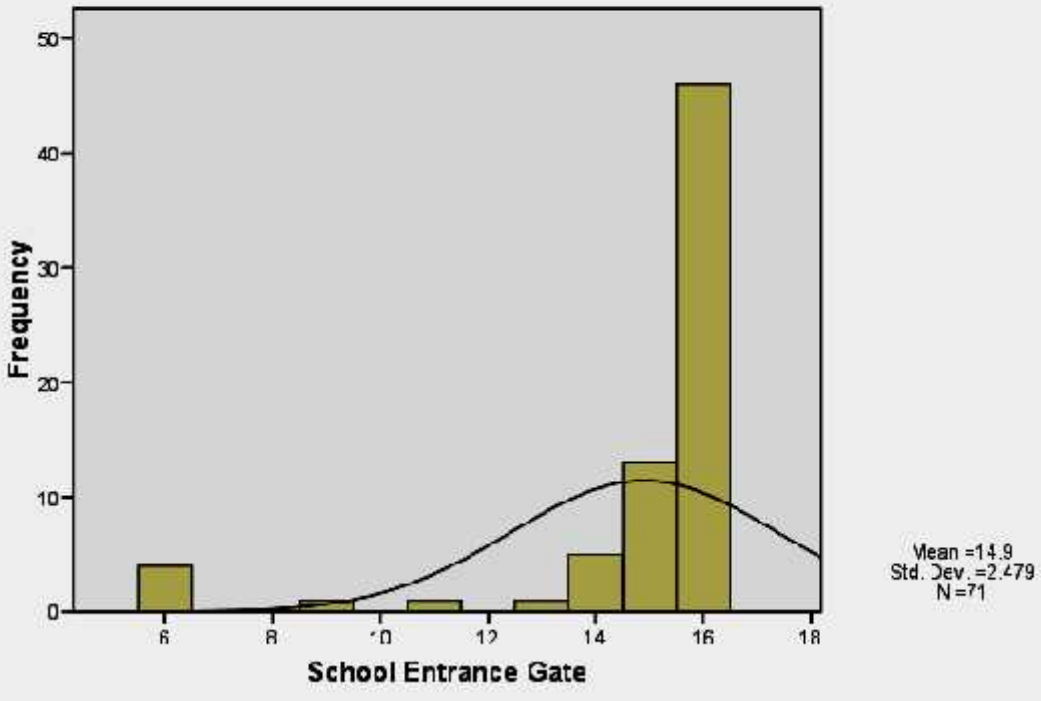
Statistical Technique	Value	Statistical Technique	Value
N	71	Skewness	-2.928
Mean	14.90	Kurtosis	7.840
Std. Error of Mean	.294	Minimum	6
Median	16.00	Maximum	16
Mode	16	25^{th} Percentiles	15.00
Std. Deviation	2.479	75^{th} Percentiles	16.00

Interpretation: In descriptive analysis of scores of school entrance gate, the value of median is greater than mean, indicating negative skewness. It indicates more score falling on higher values in all the groups. The value of kurtosis is positive. Positive kurtosis indicates that the observation cluster more and have longer tails than those in the normal distribution. (SPSS 15.0, 2006). It indicates leptokurtic curve. The value of standard deviation shows variation in the scores of school entrance gate. It is reflected in graph 4.2

Graph:4.1
Histogram with Normal Curve for Scores of Compound Wall of the School



Graph: 4.2
Histogram with Noramal Curve for Scores of School Entrance Gate



3. Compound of the School:

The following table shows the frequency and percentage for scores of compound of the school.

Table – 4.6 Frequency and Percentage of Sample for Compound of the School

Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage	Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage
7	2	2.82%	2.82%	19	2	2.82%	40.85%
9	1	1.41%	4.23%	20	6	8.45%	49.30%
10	1	1.41%	5.63%	21	6	8.45%	57.75%
12	1	1.41%	7.04%	22	11	15.49%	73.24%
13	4	5.63%	12.68%	23	6	8.45%	81.69%
14	2	2.82%	15.49%	24	5	7.04%	88.73%
15	4	5.63%	21.13%	25	5	7.04%	95.77%
16	4	5.63%	26.76%	26	1	1.41%	97.18%
17	3	4.23%	30.99%	27	2	2.82%	100.00%
18	5	7.04%	38.03%	Total	71	100.00 %	

The following table shows the descriptive statistics for scores of compound of the school.

Table – 4.7 Descriptive Statistics for Scores of Compound of the School

Statistical Technique	Value	Statistical Technique	Value
N	71	Skewness	-.748
Mean	19.42	Kurtosis	.091
Std. Error of Mean	.554	Minimum	7
Median	21.00	Maximum	27
Mode	22	25^{th} Percentiles	16.00
Std. Deviation	4.665	75^{th} Percentiles	23.00

Interpretation: In descriptive analysis of scores of compound of the school, the value of median is greater than mean, indicating negative skewness. It indicates more score falling on higher values in all the groups. The value of kurtosis is positive. Positive kurtosis indicates that the observatioan cluster more and have longer tails than those in the normal distribution. (SPSS 15.0, 2006). It indicates leptokurtic curve. The value of standard

deviation shows wide variation in the scores of compound of the school. It is reflected in graph 4.3

4. Building of the School:

The following table shows the frequency and percentage for score of building of the school.

Table – 4.8 Frequency and Percentage of Sample for Building of the School

Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage	Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage
10	1	1.41%	1.41%	18	8	11.27%	49.30%
11	1	1.41%	2.82%	19	2	2.82%	52.11%
12	1	1.41%	4.23%	20	12	16.90%	69.01%
13	6	8.45%	12.68%	21	3	4.23%	73.24%
14	3	4.23%	16.90%	22	10	14.08%	87.32%
15	4	5.63%	22.54%	23	3	4.23%	91.55%
16	6	8.45%	30.99%	24	6	8.45%	100%
17	5	7.04%	38.03%	Total	71	100%	

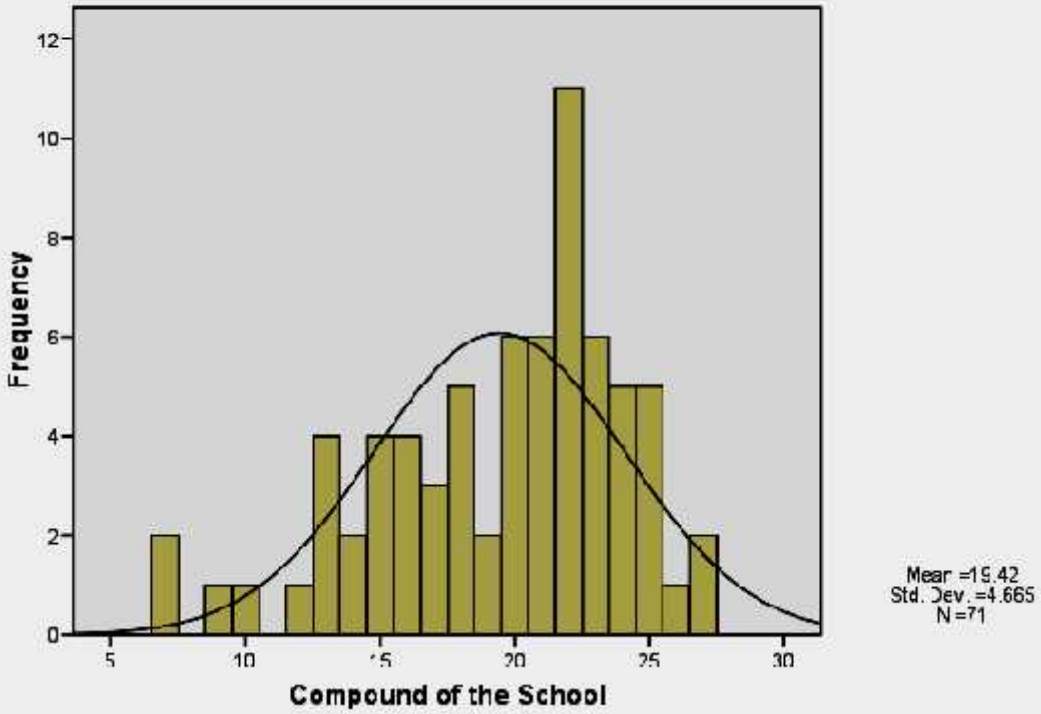
The following table shows the descriptive statistics for scores of building of the school.

Table – 4.9 Descriptive Statistics for Scores of Building of the School

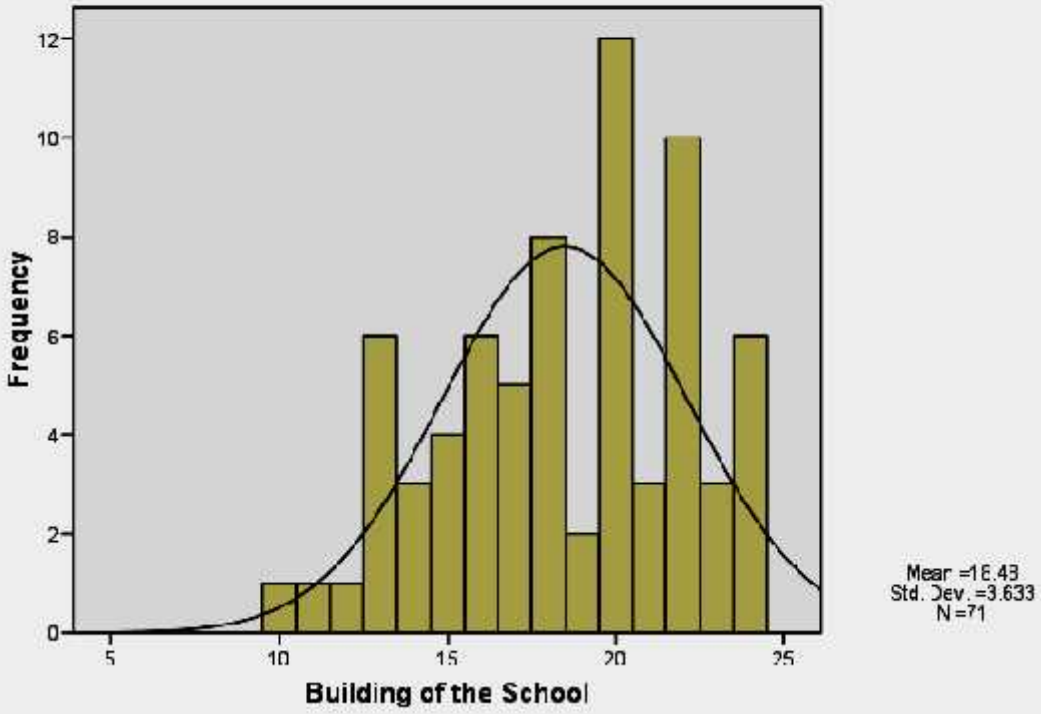
Statistical Technique	Value	Statistical Technique	Value
N	71	Skewness	-.312
Mean	18.48	Kurtosis	-.804
Std. Error of Mean	.431	Minimum	10
Median	19.00	Maximum	24
Mode	20	25^{th} Percentiles	16.00
Std. Deviation	3.633	75^{th} Percentiles	22.00

Interpretation: In descriptive analysis for scores of building of the school, the value of median is greater than mean, indicating negative skewness. It indicates more score falling on higher values in all the groups. The value of kurtosis is negative. Negative kurtosis indicates that the observation cluster less and have shorter tails than those in the normal distribution. (SPSS 15.0, 2006). It indicates platykurtic curve. The value of standard deviation shows less variation in the scores of building of the school. It is reflected in graph 4.4

Graph: 4.3
Histogram with Normal Curve for Scores of Compound of the School



Graph: 4.4
Histogram with Normal Curve for Scores of Building of the School



5. Infrastructure Facility in Stdandard-7 Classroom

The following table shows the frequency and percentage for scores of infrastructure facility in standard-7 classroom.

Table – 4.10 Frequency and Percentage for Scores of Infrastructure Facility in Standard-7 Classroom

Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage	Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage
20	1	1.41%	1.41%	25	9	12.68%	25.35%
22	3	4.23%	5.63%	26	11	15.49%	40.85%
23	1	1.41%	7.04%	27	42	59.15%	100%
24	4	5.63%	12.68%	Total	71	100%	

The following table shows the descriptive statistics for scores of infrastructure facility in standard-7 classroom.

Table – 4.11 Descriptive Statistics for scores of Infrastructure Facility in Standard-7 Classroom

Statistical Technique	Value	Statistical Technique	Value
N	71	Skewness	-1.965
Mean	26.06	Kurtosis	3.920
Std. Error of Mean	.179	Minimum	20
Median	27.00	Maximum	27
Mode	27	25^{th} Percentiles	25
Std. Deviation	1.511	75^{th} Percentiles	27

Interpretation: In descriptive analysis of scores of infrastructure facility in std-7 classroom, the value of median is greater than mean, indicating negative skewness. It indicates more score falling on higher values in all the groups. The value of kurtosis is positive. Positive kurtosis indicates that the observation cluster more and have longer tails than those in the normal distribution. It indicates leptokurtic curve. The value of standard deviation shows wide variation in the scores of infrastructure facility in std-7 classroom. It is reflected in graph 4.5

6. Water Arrangement:

The following table shows the frequency and percentage for score of water arrangement.

Table – 4.12 Frequency and Percentage for Scores of Water Arrangement

Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage	Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage
3	2	2.82%	2.82%	12	3	4.23%	66.20%
4	5	7.04%	9.86%	13	5	7.04%	73.24%
5	5	7.04%	16.90%	14	7	9.86%	83.10%
6	2	2.82%	19.72%	15	4	5.63%	88.73%
7	5	7.04%	26.76%	16	4	5.63%	94.37%
8	2	2.82%	29.58%	17	1	1.41%	95.77%
9	6	8.45%	38.03%	18	2	2.82%	98.59%
10	7	9.86%	47.89%	20	1	1.41%	100.00%
11	10	14.08%	61.97%	Total	71	100.00%	

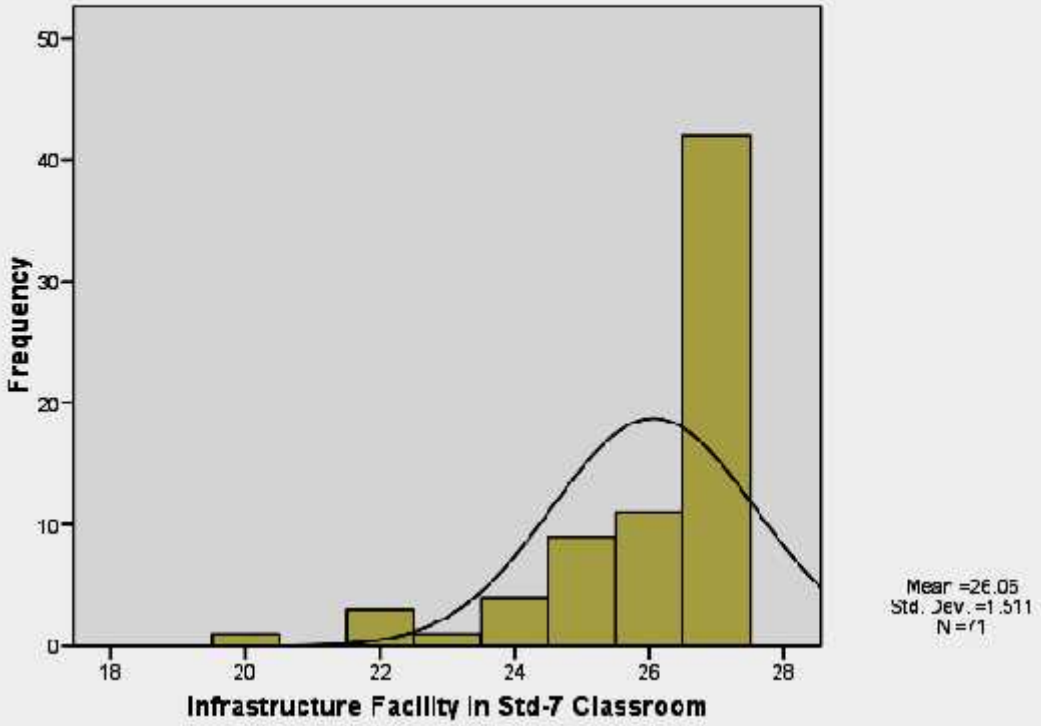
The following table shows the descriptive statistics for scores of water arrangement

Table – 4.13 Descriptive Statistics for Sores of Water Arrangement

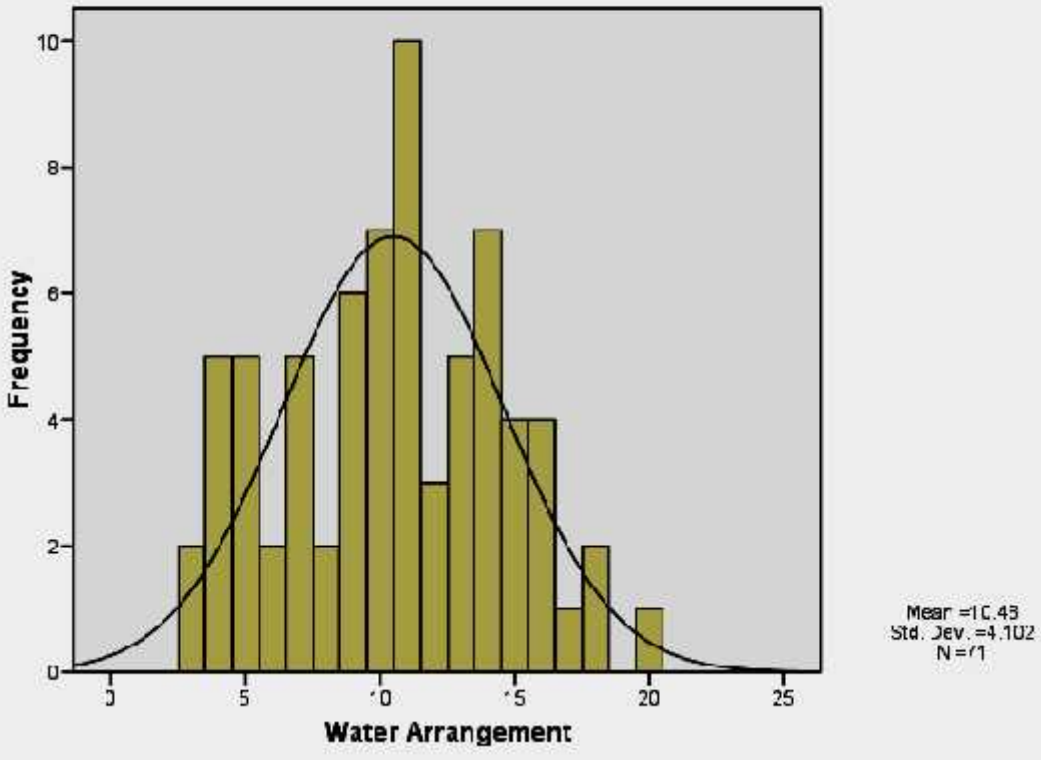
Statistical Technique	Value	Statistical Technique	Value
N	71	Skewness	-.006
Mean	10.48	Kurtosis	-.696
Std. Error of Mean	.487	Minimum	3
Median	11.00	Maximum	20
Mode	11	25^{th} Percentiles	7
Std. Deviation	4.102	75^{th} Percentiles	14

Interpretation: In descriptive analysis of scores of water arrangement, the value of median is nearly equal to mean, indicating nearly zero skewness. It indicates normal distribution in the groups. The value of kurtosis is negative. Negative kurtosis indicates that the observation cluster less and have shorter tails than those in the normal distribution. It indicates platykurtic curve. The values of standard deviation show less variation in the scores of water arrangement. It is reflected in graph 4.6

Graph: 4.5
Histogram with Normal Curve For Scores of Infrastructure Facility in Std-7 Classroom



Graph: 4.6
Histogram with Normal Curve for Scores of Water Arrangement



7. Sanitation Facility

The following table shows the frequency and percentage for scores of sanitation facility.

Table–4.14 Frequency and Percentage for Scores of Sanitation Facility

Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage	Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage
1	12	16.90%	16.90%	5	14	19.72%	80.28%
2	12	16.90%	33.80%	6	2	2.82%	83.10%
3	9	12.68%	46.48%	7	12	16.90%	100.00%
4	10	14.08%	60.56%	Total	71	100.00%	

The following table shows the descriptive statistics for scores of Sanitation Facility.

Table–4.15 Descriptive Statistics for scores of Sanitation Facility

Statistical Technique	Value	Statistical Technique	Value
N	71	Std. Error of Skewness	.285
Mean	3.79	Kurtosis	-1.157
Std. Error of Mean	.242	Std. Error of Kurtosis	.563
Median	4.00	Minimum	1
Mode	5	Maximum	7
Std. Deviation	2.042	25^{th} Percentiles	2
Skewness	.191	75^{th} Percentiles	5

Interpretation: In descriptive analysis of scores of sanitation facility, the value of median is less than mean, indicating positive skewness. It indicates more score falling on lower values in the groups. The value of kurtosis is negative. Negative kurtosis indicates that the observation cluster less and have shorter tails than those in the normal distribution. It indicates platykurtic curve. The values of standard deviation show less variation in the scores of sanitation facility. It is reflected in graph 4.7

8. Scores of Student-Classroom Ratio

The following table shows the frequency and percentage of student-classroom ratio.

Table–4.16 Frequency and Percentage of Student-Classroom Ratio

Interval	Frequency	% of Total Sample	Cumulative Percentage
Below 15	1	1.41%	1.41%
15-16	2	2.82%	4.23%
17-18	1	1.41%	5.63%
19-20	4	5.63%	11.27%
21-22	11	15.49%	26.76%
23-24	6	8.45%	35.21%
25-26	0	0.00%	35.21%
27-28	8	11.27%	46.48%
29-30	6	8.45%	54.93%
31-32	4	5.63%	60.56%
33-34	4	5.63%	66.20%
35-36	7	9.86%	76.06%
37-38	8	11.27%	87.32%
39-40	2	2.82%	90.14%
41-42	1	1.41%	91.55%
43-44	2	2.82%	94.37%
45-46	2	2.82%	97.18%
Above 46	2	2.82%	100.00%
Total	71	100.00%	

The raw data of classroom-student ratio was converted in score. The following table shows Scores of classroom-student ratio.

Table–4.17 Frequency and Percentage for Scores of Student-Classroom Ratio

Scores	Frequency	Percentage	Cumulative Percentage	Scores	Frequency	Percentage	Cumulative Percentage
35	1	1.41%	1.41%	25	2	2.82%	35.21%
34	1	1.41%	2.82%	24	0	0.00%	35.21%
33	1	1.41%	4.23%	23	0	0.00%	35.21%
32	0	0.00%	4.23%	22	6	8.45%	43.66%
31	1	1.41%	5.63%	21	2	2.82%	46.48%
30	4	5.63%	11.27%	20	3	4.23%	50.70%
29	0	0.00%	11.27%	19	3	4.23%	54.93%
28	5	7.04%	18.31%	18	0	0.00%	54.93%
27	6	8.45%	26.76%	17	4	5.63%	60.56%
26	4	5.63%	32.39%	16	3	4.23%	64.79%

Scores	Frequency	Percentage	Cumulative Percentage	Scores	Frequency	Percentage	Cumulative Percentage
15	1	1.41%	66.20%	7	0	0.00%	91.55%
14	3	4.23%	70.42%	6	1	1.41%	92.96%
13	4	5.63%	76.06%	5	1	1.41%	94.37%
12	2	2.82%	78.87%	4	2	2.82%	97.18%
11	6	8.45%	87.32%	3	0	0.00%	97.18%
10	1	1.41%	88.73%	2	1	1.41%	98.59%
9	1	1.41%	90.14%	1	1	1.41%	100.00%
8	1	1.41%	91.55%	Total	71	100.00%	

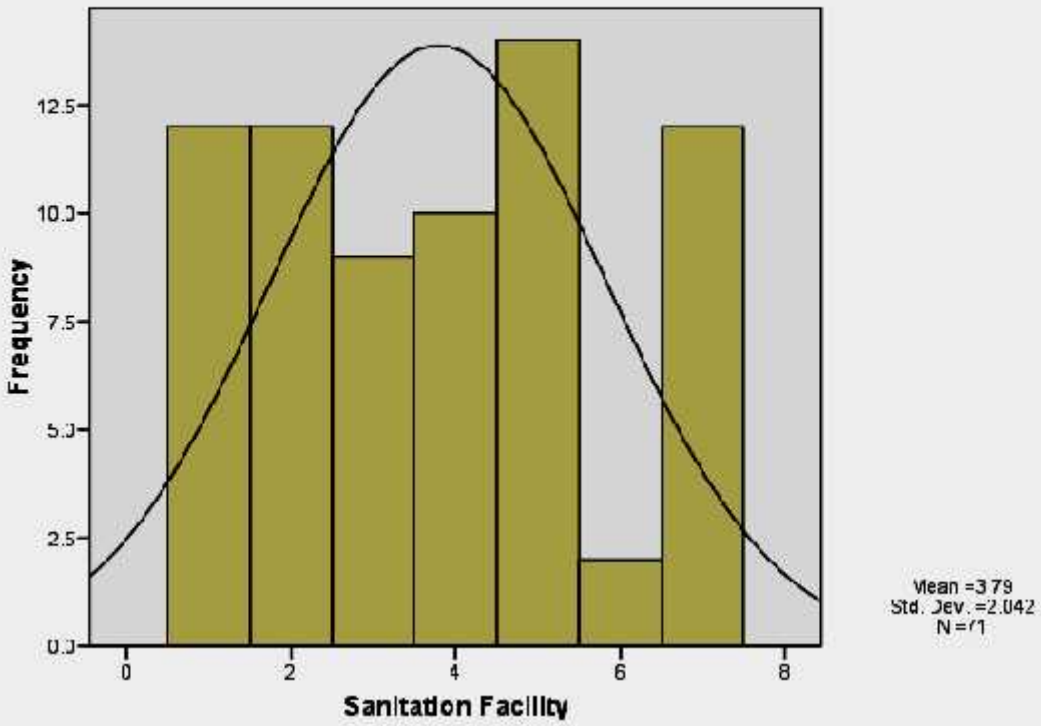
The following table shows the descriptive statistics for Scores of Student-Classroom Ratio.

Table–4.18 Descriptive Statistics for Scores of Student- Classroom Ratio

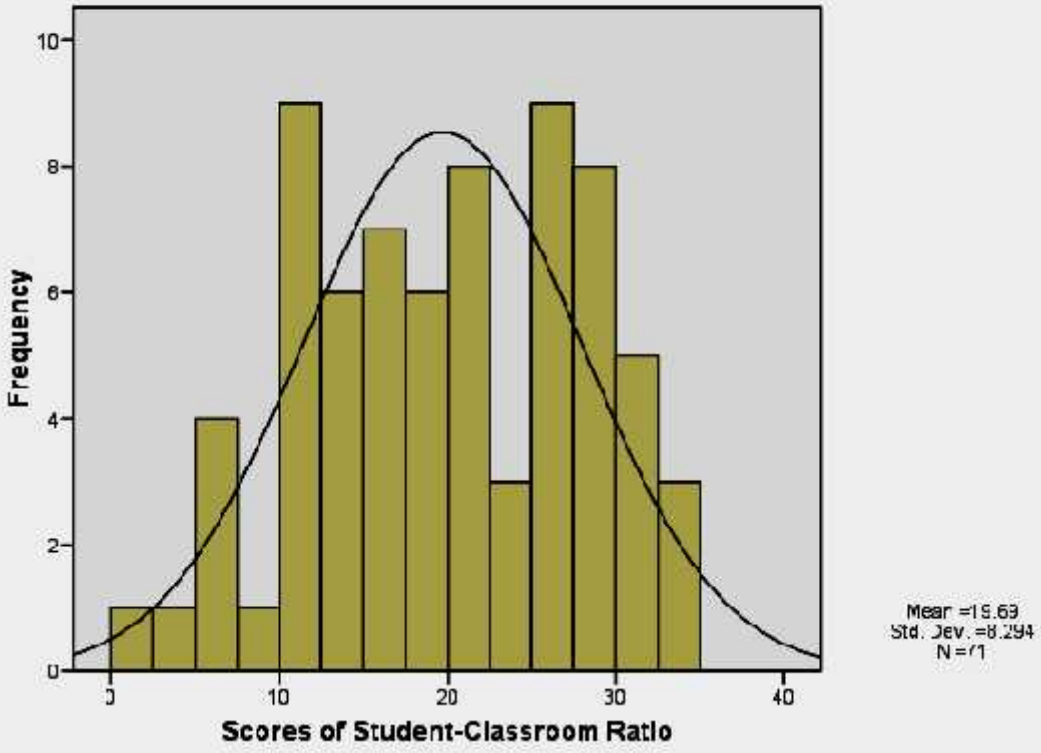
Statistical Technique	Value	Statistical Technique	Value
N	71	Std. Error of Skewness	.285
Mean	19.69	Kurtosis	-.815
Std. Error of Mean	.984	Std. Error of Kurtosis	.563
Median	20.00	Minimum	1
Mode	28	Maximum	35
Std. Deviation	8.294	25^{th} percentiles	13.00
Skewness	-.180	75^{th} percentiles	27.00

Interpretation: In descriptive analysis of Scores of Student-Classroom Ratio, the value of median is greater than mean, indicating negative skewness. It indicates more score falling on higher values in the groups. The value of kurtosis is negative. Negative kurtosis indicates that the observation cluster less and have shorter tails than those in the normal distribution. It indicates platykurtic curve. The values of standard deviation show less variation in the Scores of Student-Classroom Ratio. It is reflected in graph 4.8

Graph: 4.7
Histogram With Normal Curve for Scores of Sanitation Facility



Graph: 4.8
Histogram with Normal Curve for Scores of Student-Classroom Ratio



4.3.2 Descriptive Analysis of Variables Related to Academic Facility

9. T.L.M. in Std-7 Classroom

The following table shows the frequency and percentage for scores of T.L.M. in std-7 classroom.

Table–4.19 Frequency and Percentage for Score of T.L.M. in Std-7 Classroom

Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage
1	29	40.85%	40.85%
2	7	9.86%	50.70%
3	9	12.68%	63.38%
4	8	11.27%	74.65%
5	6	8.45%	83.10%
6	12	16.90%	100.00%
Total	71	100.00%	

The following table shows the descriptive statistics for scores of T.L.M. in Std-7 Classroom.

Table – 4.20 Descriptive Statistics for scores of T.L.M. in Std-7 Classroom

Statistical Technique	Value	Statistical Technique	Value
N	71	Std. Error of Skewness	.285
Mean	2.87	Kurtosis	-1.305
Std. Error of Mean	.230	Std. Error of Kurtosis	.563
Median	2.00	Minimum	1
Mode	1	Maximum	6
Std. Deviation	1.934	25^{th} Percentiles	1
Skewness	.489	75^{th} Percentiles	5

Interpretation: In descriptive analysis of scores of T.L.M. in Std-7 Classroom, the value of median is less than mean, indicating positive skewness. It indicates more score falling on lower values in the groups. The value of kurtosis is negative. Negative kurtosis indicates that the observation cluster less and have shorter tails than those in the normal distribution. It indicates platykurtic curve. The values of standard deviation show less variation in the scores of T.L.M. in Std-7 Classroom. It is reflected in graph 4.9

10. Different Display Boards in School:

The following table shows the frequency and percentage for scores of different Display boards in school.

Table–4.21 Frequency and Percentage for Scores of Different display Boards in School

Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage	Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage
0	8	11.27%	11.27%	9	1	1.41%	56.34%
2	1	1.41%	12.68%	12	7	9.86%	66.20%
3	6	8.45%	21.13%	14	1	1.41%	67.61%
4	1	1.41%	22.54%	15	5	7.04%	74.65%
6	22	30.99%	53.52%	18	18	25.35%	100.00%
8	1	1.41%	54.93%	Total	71	100.00%	

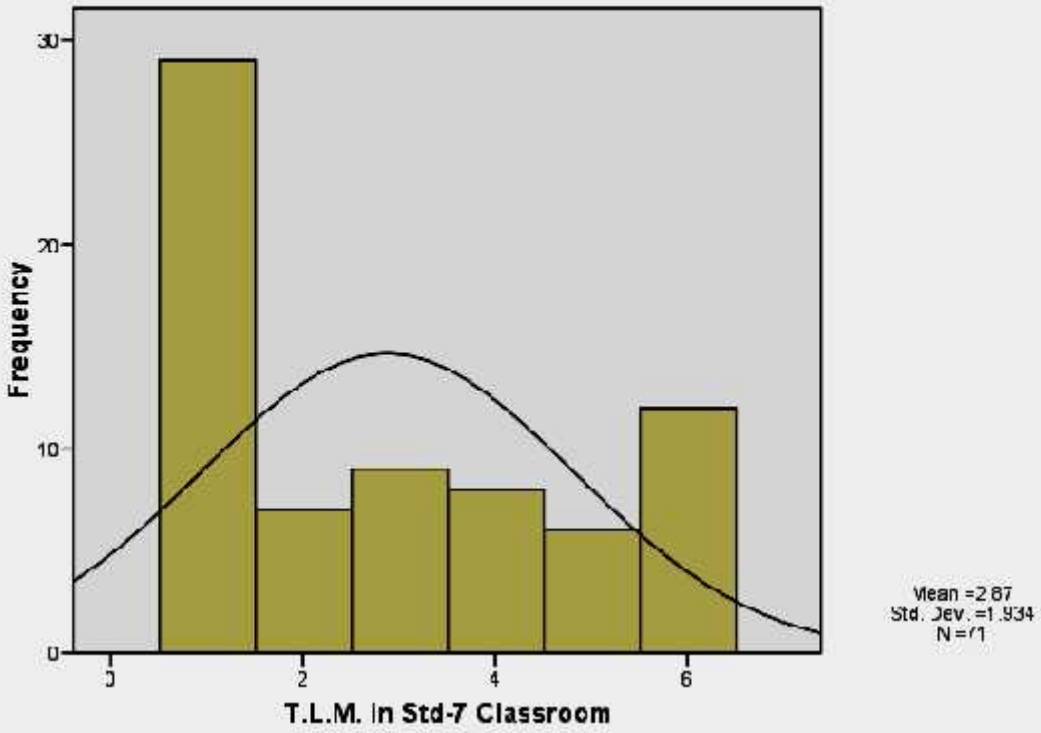
The following table shows the descriptive statistics for scores of different display boards in School.

Table – 4.22 Descriptive Statistics for Scores of Different Display Boards in School

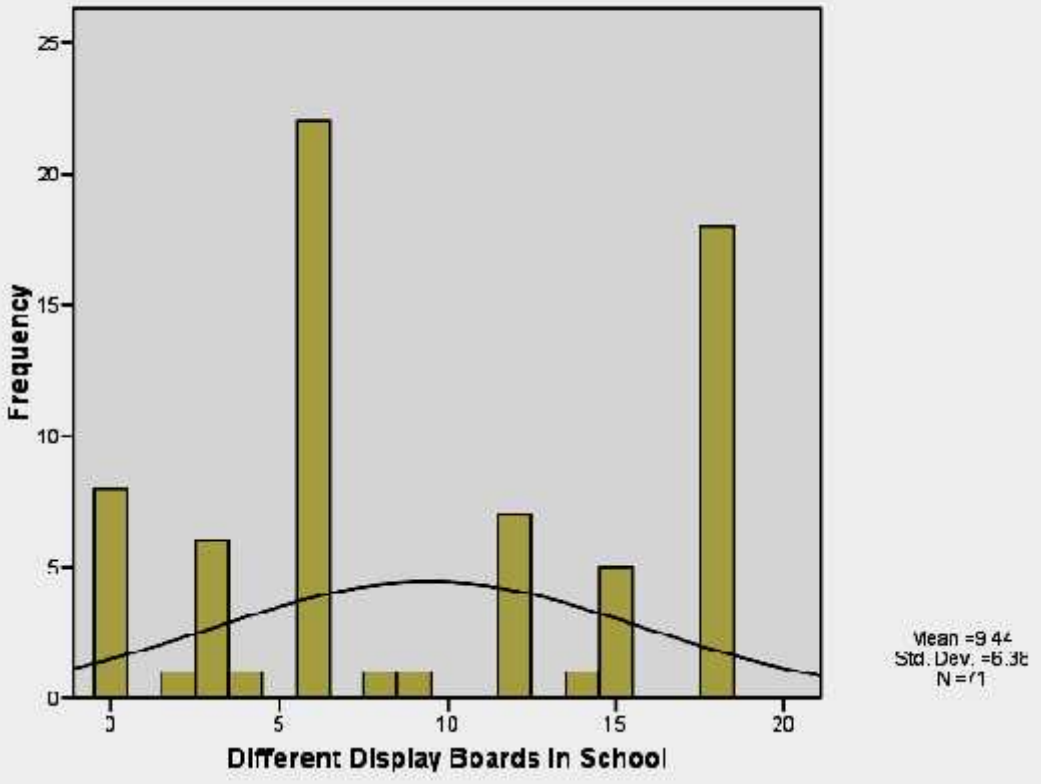
Statistical Technique	Value	Statistical Technique	Value
N	71	Skewness	.146
Mean	9.44	Kurtosis	-1.413
Std. Error of Mean	.757	Minimum	0
Median	6.00	Maximum	18
Mode	6	25^{th} Percentiles	6.00
Std. Deviation	6.380	75^{th} Percentiles	18.00

Interpretation: In descriptive analysis of scores of different display boards in School, the value of median is less than mean, indicating positive skewness. It indicates more score falling on lower values in the groups. The value of kurtosis is negative. Negative kurtosis indicates that the observation cluster less and have shorter tails than those in the normal distribution. It indicates platykurtic curve. The values of standard deviation show less variation in the scores of different display boards in School. It is reflected in graph 4.10

Graph: 4.9
Histogram with Normal for Scores of T.L.M. in Std-7 Classroom



Graph: 4.10
Histogram with Noramal Curve for Scores of Different Display Boards in School



11. Library in School:

The following table shows the frequency and percentage for Scores of library in school.

Table–4.23 Frequency and Percentage for Score of Library in School

Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage	Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage
1	1	1.41%	1.41%	8	7	9.86%	83.10%
3	2	2.82%	4.23%	9	2	2.82%	85.92%
4	11	15.49%	19.72%	10	4	5.63%	91.55%
5	17	23.94%	43.66%	11	6	8.45%	100.00%
6	9	12.68%	56.34%	Total	71	100.00%	
7	12	16.90%	73.24%				

The following table shows the descriptive statistics for scores of library in school.

Table–4.24 Descriptive Statistics for scores of Library in School

Statistical Technique	Value	Statistical Technique	Value
N	71	Skewness	.504
Mean	6.39	Kurtosis	-.239
Std. Error of Mean	.271	Minimum	1
Median	6.00	Maximum	11
Mode	5	25^{th} Percentiles	5.00
Std. Deviation	2.283	75^{th} Percentiles	8.00

Interpretation: In descriptive analysis of scores of library in school, the value of median is less than mean, indicating positive skewness. It indicates more score falling on lower values in the groups. The value of kurtosis is negative. Negative kurtosis indicates that the observation cluster less and have shorter tails than those in the normal distribution. It indicates platykurtic curve. The values of standard deviation show less variation in the scores of library in school. It is reflected in graph 4.11

12. Science Laboratory in School:

The following table shows the frequency and percentage for scores of science laboratory in school.

Table–4.25 Frequency and Percentage for Scores of Laboratory in School

Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage	Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage
1	17	23.94%	23.94%	5	2	2.82%	90.14%
2	15	21.13%	45.07%	6	7	9.86%	100.00%
3	30	42.25%	87.32%	Total	71	100.00%	

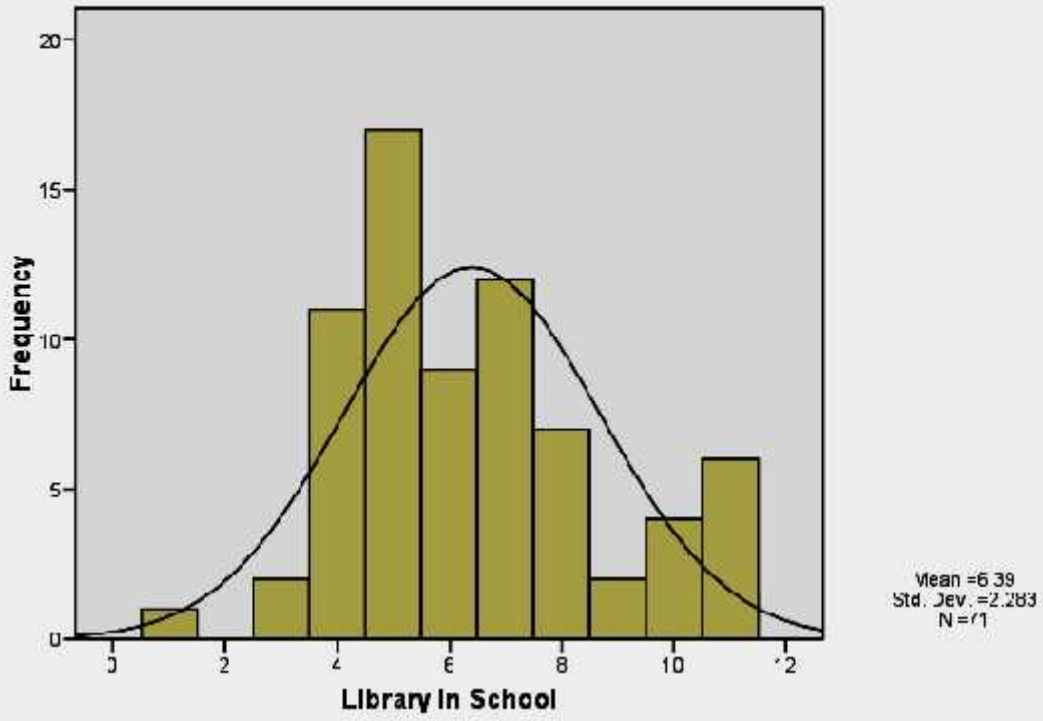
The following table shows the descriptive statistics for scores of science laboratory in school.

Table–4.26 Descriptive Statistics for scores of Science Laboratory in School

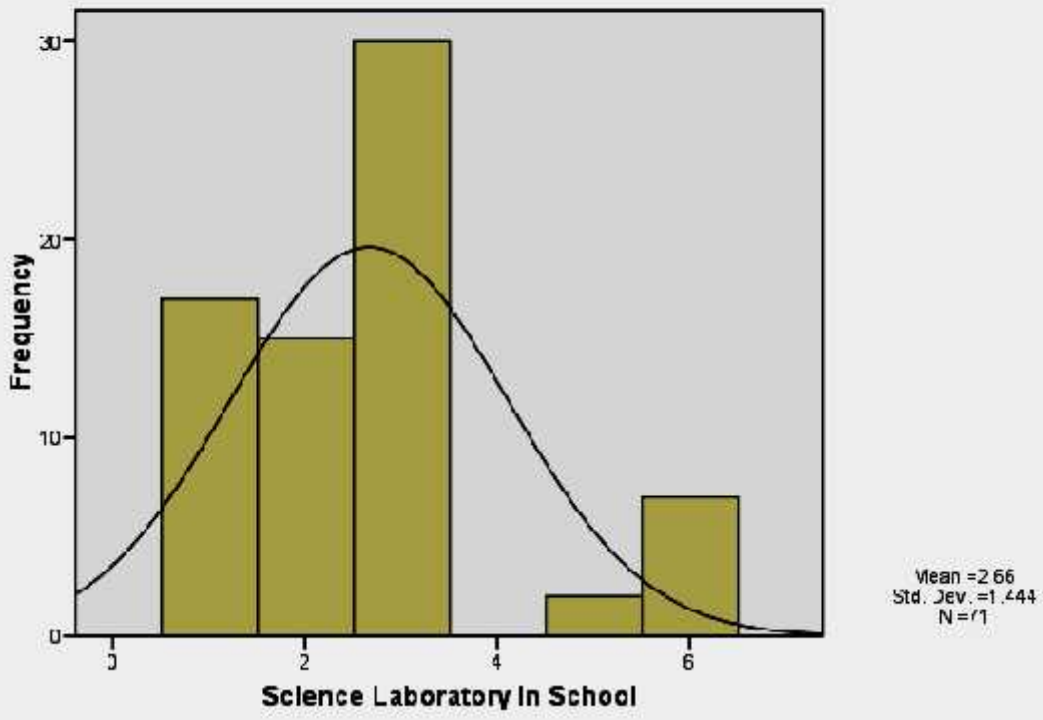
Statistical Technique	Value	Statistical Technique	Value
N	71	Skewness	1.000
Mean	2.66	Kurtosis	.672
Std. Error of Mean	.171	Minimum	1
Median	3.00	Maximum	6
Mode	3	25^{th} Percentiles	2
Std. Deviation	1.444	75^{th} Percentiles	3

Interpretation: In descriptive analysis of scores of science laboratory in school, the value of median is less than mean, indicating positive skewness. It indicates more score falling on lower values in the groups. The value of kurtosis is positive. Positive kurtosis indicates that the observation cluster more and have longer tails than those in the normal distribution. It indicates leptokurtic curve. The values of standard deviation show wide variation in the scores of science laboratory in school. It is reflected in graph 4.12

Graph: 4.11
Histogram with Normal Curve for Scores of Library in School



Graph: 4.12
Histogram with Normal Curve for Scores of Science Laboratory in School



13. Learning Facility through ICT in School:

The following table shows the frequency and percentage for scores of learning facility through ICT in school.

Table–4.27 Frequency and Percentage for Scores of Learning Facility through ICT in School

Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage	Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage
2	4	5.63%	5.63%	10	3	4.23%	57.75%
3	3	4.23%	9.86%	11	13	18.31%	76.06%
4	1	1.41%	11.27%	12	8	11.27%	87.32%
5	5	7.04%	18.31%	13	1	1.41%	88.73%
6	7	9.86%	28.17%	14	3	4.23%	92.96%
7	9	12.68%	40.85%	15	2	2.82%	95.77%
8	3	4.23%	45.07%	16	3	4.23%	100.00%
9	6	8.45%	53.52%	Total	71	100.00%	

The following table shows the descriptive statistics for scores of learning facility through ICT in school.

Table – 4.28 Descriptive Statistics for scores of Learning Facility through ICT in School

Statistical Technique	Value	Statistical Technique	Value
N	71	Skewness	-.055
Mean	8.89	Kurtosis	-.689
Std. Error of Mean	.437	Minimum	2
Median	9.00	Maximum	16
Mode	11	25^{th} Percentiles	6
Std. Deviation	3.678	75^{th} Percentiles	11

Interpretation: In descriptive analysis of scores of learning facility through ICT in school, the value of median is nearly equal to mean, indicating zero skewness. It indicates normal distribution in the groups. The value of kurtosis is negative. Negative kurtosis indicates that the observation cluster less and have shorter tails than those in the normal distribution. It indicates platykurtic curve. The values of standard deviation show less

variation in the scores of learning facility through ICT in school. It is reflected in graph 4.13

14. Computer Education Facility in School:

The following table shows the frequency and percentage for scores of computer education facility in school.

Table–4.29 Frequency and Percentage for Scores of Computer Education Facility in School

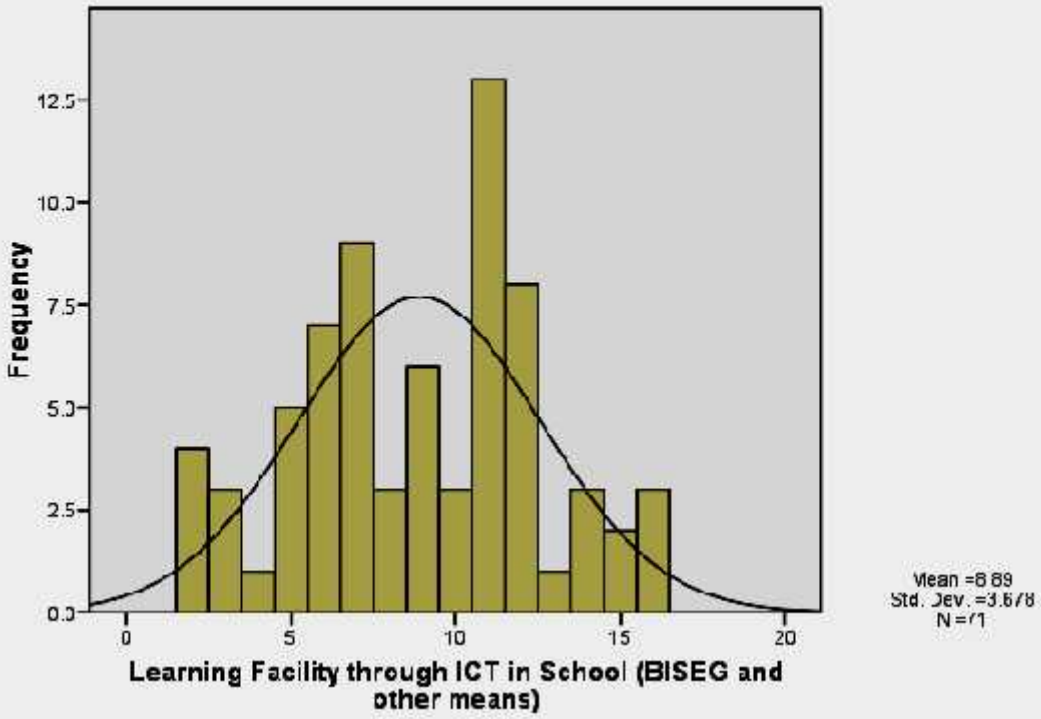
Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage	Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage
4	1	1.41%	1.41%	16	1	1.41%	67.61%
5	6	8.45%	9.86%	17	7	9.86%	77.46%
6	3	4.23%	14.08%	18	3	4.23%	81.69%
7	3	4.23%	18.31%	19	2	2.82%	84.51%
8	3	4.23%	22.54%	20	4	5.63%	90.14%
9	3	4.23%	26.76%	21	2	2.82%	92.96%
10	3	4.23%	30.99%	22	1	1.41%	94.37%
11	1	1.41%	32.39%	23	2	2.82%	97.18%
12	5	7.04%	39.44%	26	1	1.41%	98.59%
13	8	11.27%	50.70%	29	1	1.41%	100.00%
14	6	8.45%	59.15%	Total	71	100.00%	
15	5	7.04%	66.20%				

The following table shows the descriptive statistics for scores of computer education facility in school.

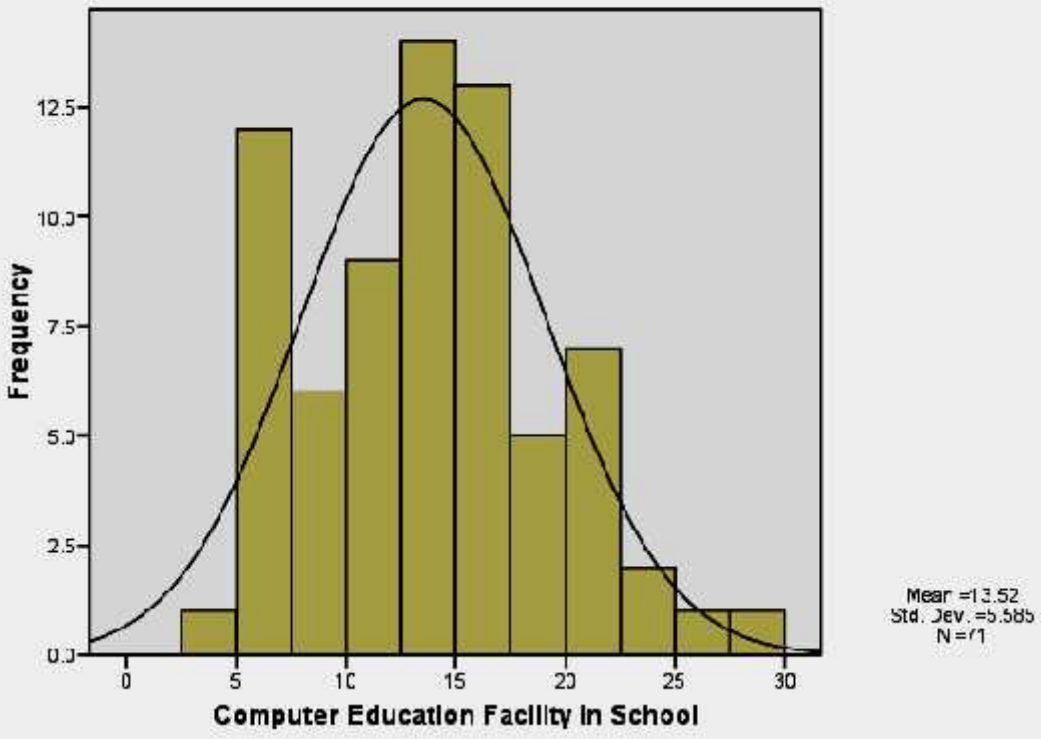
Table – 4.30 Descriptive Statistics for scores of Computer Education Facility in School

Statistical Technique	Value	Statistical Technique	Value
N	71	Skewness	.269
Mean	13.52	Kurtosis	-.257
Std. Error of Mean	.663	Minimum	4
Median	13.00	Maximum	29
Mode	13	25^{th} Percentiles	9
Std. Deviation	5.585	75^{th} Percentiles	17

Graph: 4.13
Histogram with Normal Curve for Scores of Learning Facility through ICT in School (BISEG and other means)



Graph: 4.14
Histogram with Normal Curve for Scores of Computer Education Facility in School



Interpretation: In descriptive analysis of scores of computer education facility in school, the value of median is less than mean, indicating positive skewness. It indicates more score falling on lower values in the groups. The value of kurtosis is negative. Negative kurtosis indicates that the observation cluster less and have shorter tails than those in the normal distribution. It indicates platykurtic curve. The values of standard deviation show less variation in the scores of computer education facility in school. It is reflected in graph 4.14

4.3.3 Descriptive Analysis of Variables Related to Human Resources

15. Average of Teacher Indicators:

The following table shows the school wise descriptive analysis for scores of average teacher indicators.

Table:4.31 Descriptive Analysis for Scores of Average of Teacher Indicators School Wise

No of School	Number of teacher	Mean	Standard Deviation	No of School	Number of teacher	Mean	Standard Deviation
1	9	13.56	2.351	13	13	10.46	2.504
2	14	10.36	3.296	14	7	12.57	3.952
3	6	12.00	3.406	15	8	12.50	3.780
4	6	13.83	4.535	16	17	10.88	3.371
5	9	12.22	4.086	17	3	13.33	3.786
6	10	11.70	2.541	18	11	10.73	2.649
7	7	12.14	3.078	19	6	11.50	2.168
8	10	11.30	3.802	20	8	10.63	3.583
9	7	13.29	3.147	21	8	8.75	3.105
10	6	10.17	2.137	22	9	12.78	3.420
11	13	12.85	3.532	23	11	12.64	3.529
12	10	11.70	3.368	24	11	12.73	3.003

No of School	Number of teacher	Mean	Standard Deviation	No of School	Number of teacher	Mean	Standard Deviation
25	18	11.44	2.749	49	13	10.92	5.737
26	12	10.08	2.678	50	16	11.75	2.793
27	8	11.00	4.781	51	4	10.75	0.500
28	8	10.88	4.086	52	9	11.56	4.216
29	11	10.45	3.012	53	7	12.29	3.402
30	8	12.38	3.701	54	7	11.71	3.251
31	12	11.00	3.247	55	18	11.06	2.623
32	13	10.62	4.426	56	10	11.50	4.552
33	16	12.00	3.983	57	14	11.21	3.068
34	7	9.71	1.976	58	11	11.55	2.423
35	6	9.17	1.602	59	13	11.92	3.593
36	12	12.25	3.306	60	6	11.67	4.457
37	5	10.20	1.789	61	7	12.00	3.606
38	10	11.40	2.319	62	7	12.43	4.928
39	2	10.00	1.414	63	7	10.00	2.000
40	6	13.17	4.167	64	9	8.44	2.698
41	7	11.71	4.680	65	8	11.13	4.486
42	4	11.25	1.893	66	6	12.17	5.913
43	9	11.78	3.801	67	14	10.29	3.429
44	7	12.43	5.224	68	11	11.45	2.911
45	13	10.85	3.436	69	8	12.00	5.014
46	10	10.70	2.406	70	7	9.57	2.149
47	7	12.43	4.158	71	8	10.50	1.852
48	8	10.75	2.964	Total	658	11.38	3.433

The following table shows the frequency and percentage for scores of average teacher indicators.

Table–4.32 Frequency and Percentage for Scores of Average Teacher Indicators

Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage	Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage
9	2	2.82%	2.82%	13	15	21.13%	92.96%
10	5	7.04%	9.86%	14	5	7.04%	100.00%
11	20	28.17%	38.03%	Total	71	100.00%	
12	24	33.80%	71.83%				

The following table shows the descriptive statistics for scores of average teacher indicators.

Table – 4.33 Descriptive Statistics for Scores of Average Teacher Indicators

Statistical Technique	Value	Statistical Technique	Value
N	71	Skewness	-.253
Mean	11.410	Kurtosis	.066
Std. Error of Mean	.131	Minimum	8.444
Median	11.500	Maximum	13.833
Mode	12.000	25^{th} Percentiles	10.7
Std. Deviation	1.108	75^{th} Percentiles	12.22

Interpretation: In descriptive analysis of scores of average teacher indicators, the value of median is greater than mean, indicating negative skewness. It indicates more score falling on higher values in the groups. The value of kurtosis is nearly zero. Zero kurtosis indicates that the observation cluster has the normal distribution. It indicates mesokurtic curve. The values of standard deviation show normal variation in the scores of average teacher indicators. It is reflected in graph 4.15

16. Teachers' Job Satisfaction Scores:

The following table shows the school wise descriptive analysis of teacher's job satisfaction scores.

Table-4.34 Descriptive analysis for scores of teachers' job satisfaction school wise

No of School	Number of teacher	Mean	Standard Deviation	No of School	Number of teacher	Mean	Standard Deviation
1	9	335.89	22.975	25	18	333.33	29.526
2	14	325.43	9.104	26	12	329.08	9.395
3	6	348.67	3.933	27	8	306.13	10.021
4	6	335.67	29.784	28	8	321.50	19.574
5	9	330.44	9.748	29	11	335.73	16.156
6	10	326.00	20.116	30	8	354.63	20.085
7	7	317.14	31.217	31	12	336.25	20.087
8	10	305.40	22.367	32	13	313.46	20.831
9	7	316.14	24.355	33	16	319.38	30.080
10	6	307.00	17.297	34	7	331.71	19.906
11	13	338.15	18.743	35	6	345.50	12.161
12	10	320.40	29.406	36	12	326.83	23.610
13	13	297.77	19.720	37	5	320.00	16.202
14	7	330.57	5.473	38	10	314.40	36.604
15	8	323.38	18.593	39	2	315.00	15.556
16	17	322.06	33.450	40	6	331.00	12.182
17	3	325.67	44.636	41	7	342.43	15.043
18	11	324.55	17.863	42	4	347.25	13.841
19	6	292.17	7.600	43	9	328.44	10.126
20	8	313.00	16.133	44	7	315.57	13.415
21	8	320.25	36.035	45	13	330.08	21.968
22	9	331.56	20.640	46	10	329.40	27.508
23	11	305.00	17.703	47	7	312.14	26.092
24	11	339.73	25.589	48	8	340.25	29.822

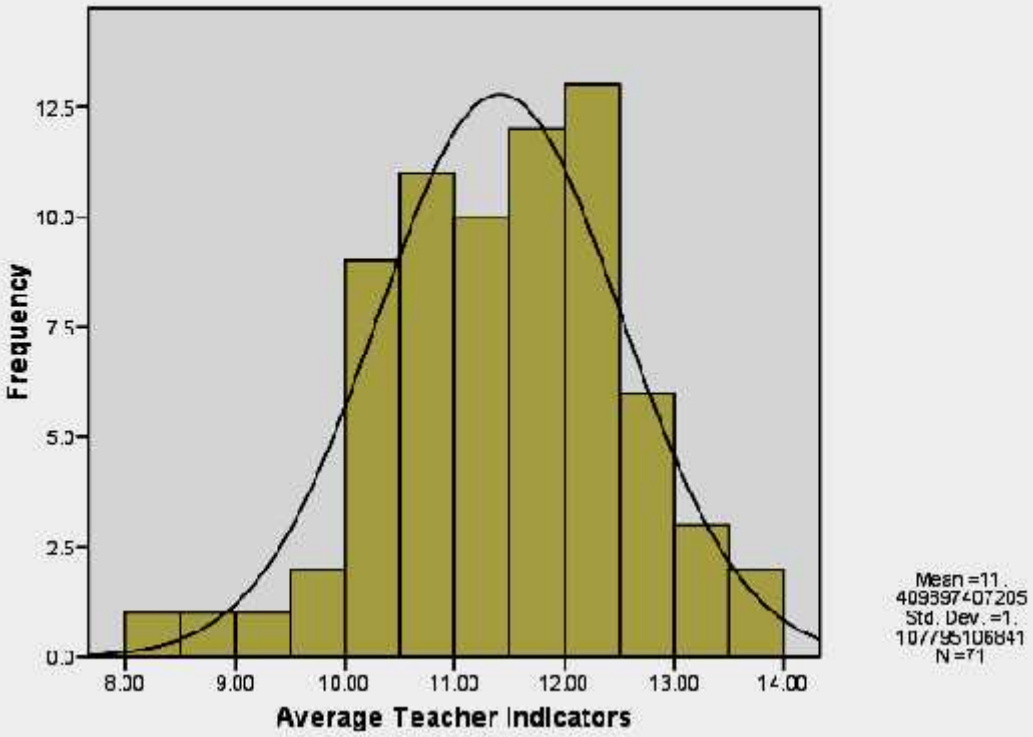
No of School	Number of teacher	Mean	Standard Deviation	No of School	Number of teacher	Mean	Standard Deviation
49	13	337.85	29.572	61	7	343.71	23.634
50	16	291.50	34.695	62	7	322.71	15.446
51	4	330.25	19.973	63	7	325.57	28.901
52	9	343.67	17.600	64	9	322.33	22.361
53	7	336.43	8.772	65	8	320.00	23.604
54	7	310.14	13.384	66	6	336.17	10.980
55	18	327.33	23.639	67	14	308.57	15.815
56	10	341.30	18.031	68	11	330.36	27.696
57	14	320.36	16.046	69	8	334.88	29.367
58	11	325.27	19.683	70	7	326.00	21.166
59	13	312.85	21.625	71	8	337.50	9.636
60	6	334.50	16.646	Total	658	325.00	24.832

The following table shows the frequency and percentage for scores of teachers' job satisfaction.

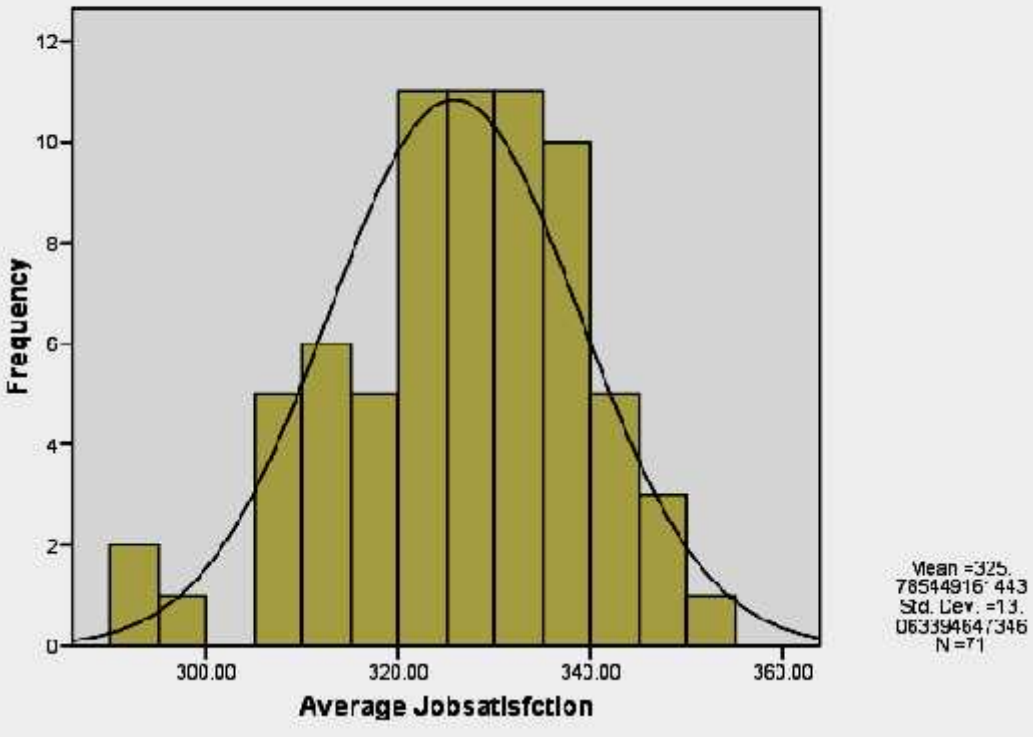
Table–4.35 Frequency and Percentage for Scores of Teachers' Job Satisfaction

Interval	Frequency	Percentage	Cumulative Percentage	Interval	Frequency	Percentage	Cumulative Percentage
285-289	0	0.00%	0.00%	325-329	10	14.08%	54.93%
290-294	2	2.82%	2.82%	330-334	11	15.49%	70.42%
295-299	1	1.41%	4.23%	335-339	11	15.49%	85.92%
300-304	0	0.00%	4.23%	340-344	6	8.45%	94.37%
305-309	5	7.04%	11.27%	345-349	3	4.23%	98.59%
310-314	5	7.04%	18.31%	350-354	0	0.00%	98.59%
315-319	5	7.04%	25.35%	355-359	1	1.41%	100.00%
320-324	11	15.49%	40.85%	Total	71	100.00%	

Graph: 4.15
Histogram with Normal Curve for Scores of Average Teacher Indicators



Graph: 4.16
Histogram with Normal Curve for Scores of Average Jobsatisfction of Teachers



The following table shows the descriptive statistics for scores of average job satisfaction of teachers.

Table–4.36 Descriptive Statistics for Scores of Average Job satisfaction of Teachers

Statistical Technique	Value	Statistical Technique	Value
N	71	Skewness	-.412
Mean	325.785	Kurtosis	.145
Std. Error of Mean	1.550	Minimum	291.500
Median	326.000	Maximum	354.625
Mode	320.000(a)	25^{th} Percentiles	317.143
Std. Deviation	13.063	75^{th} Percentiles	335.727

a Multiple modes exist. The smallest value is shown.

Interpretation: In descriptive analysis of scores of average job satisfaction of teachers, the value of median is greater than mean, indicating negative skewness. It indicates more score falling on higher values in the groups. The value of kurtosis is positive. Positive kurtosis indicates that the observation cluster more and have longer tails than those in the normal distribution. It indicates leptokurtic curve. The values of standard deviation show wide variation in the scores of average job satisfaction of teachers. It is reflected in graph 4.16

17. Scores of Pupil-Teacher Ratio:

The following table shows the frequency and percentage for pupil-teacher ratio.

Table–4.37 Frequency and Percentage for Pupil-Teacher Ratio

Interval	Frequency	% of Total Sample	Cumulative Percentage	Interval	Frequency	% of Total Sample	Cumulative Percentage
~18	2	2.82%	2.82%	37-39	12	16.90%	85.92%
19-21	1	1.41%	4.23%	40-42	3	4.23%	90.14%
22-24	9	12.68%	16.90%	43-45	5	7.04%	97.18%
25-27	10	14.08%	30.99%	46-48	0	0.00%	97.18%
28-30	6	8.45%	39.44%	49-51	1	1.41%	98.59%
31-33	8	11.27%	50.70%	52-54	1	1.41%	100.00%
34-36	13	18.31%	69.01%	Total	71	100.00%	

The raw data of pupil-teacher ratio was converted in score. The following table shows Scores of pupil-teacher ratio.

Table–4.38 Frequency and Percentage for Scores of Pupil-Teacher Ratio

Scores	Frequency	Percentage	Cumulative Percentage	Scores	Frequency	Percentage	Cumulative Percentage
27	2	2.82%	2.82%	13	2	2.82%	53.52%
26	1	1.41%	4.23%	12	8	11.27%	64.79%
25	5	7.04%	11.27%	11	3	4.23%	69.01%
24	2	2.82%	14.08%	10	4	5.63%	74.65%
23	2	2.82%	16.90%	9	6	8.45%	83.10%
22	0	0.00%	16.90%	8	2	2.82%	85.92%
21	3	4.23%	21.13%	7	2	2.82%	88.73%
20	7	9.86%	30.99%	6	1	1.41%	90.14%
19	2	2.82%	33.80%	5	0	0.00%	90.14%
18	1	1.41%	35.21%	4	1	1.41%	91.55%
17	3	4.23%	39.44%	3	3	4.23%	95.77%
16	4	5.63%	45.07%	2	1	1.41%	97.18%
15	2	2.82%	47.89%	1	2	2.82%	100.00%
14	2	2.82%	50.70%	Total	71	100%	

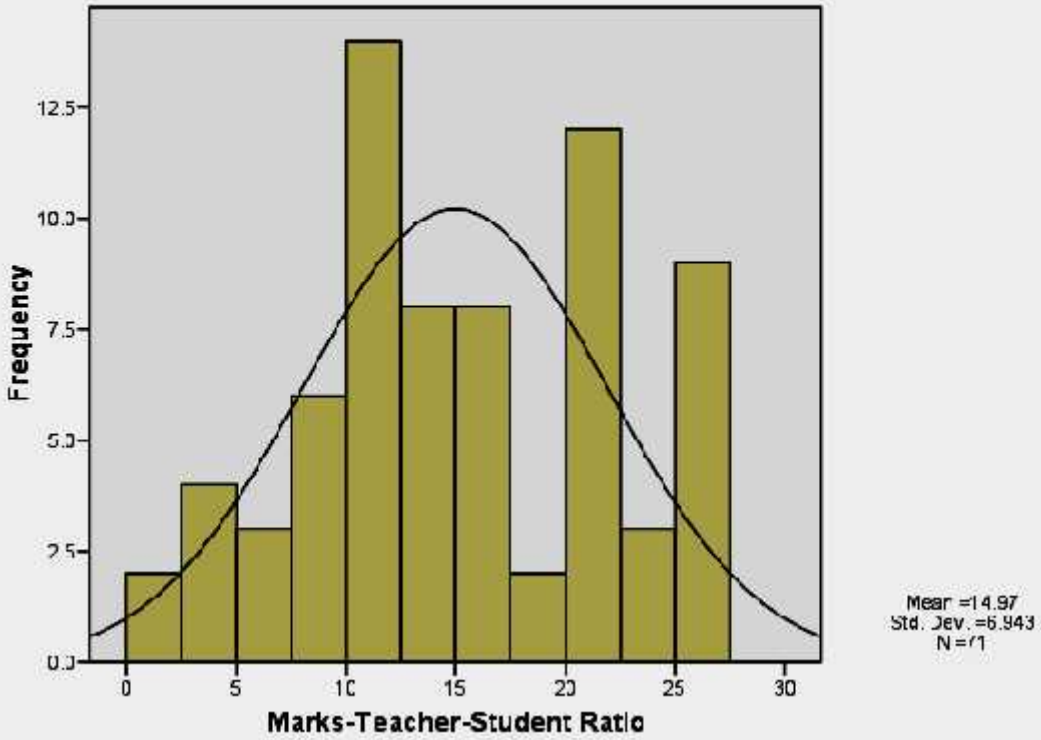
The following table shows the descriptive statistics for scores of pupil-teacher ratio.

Table–4.39 Descriptive Statistics for scores of Pupil-Teacher Ratio

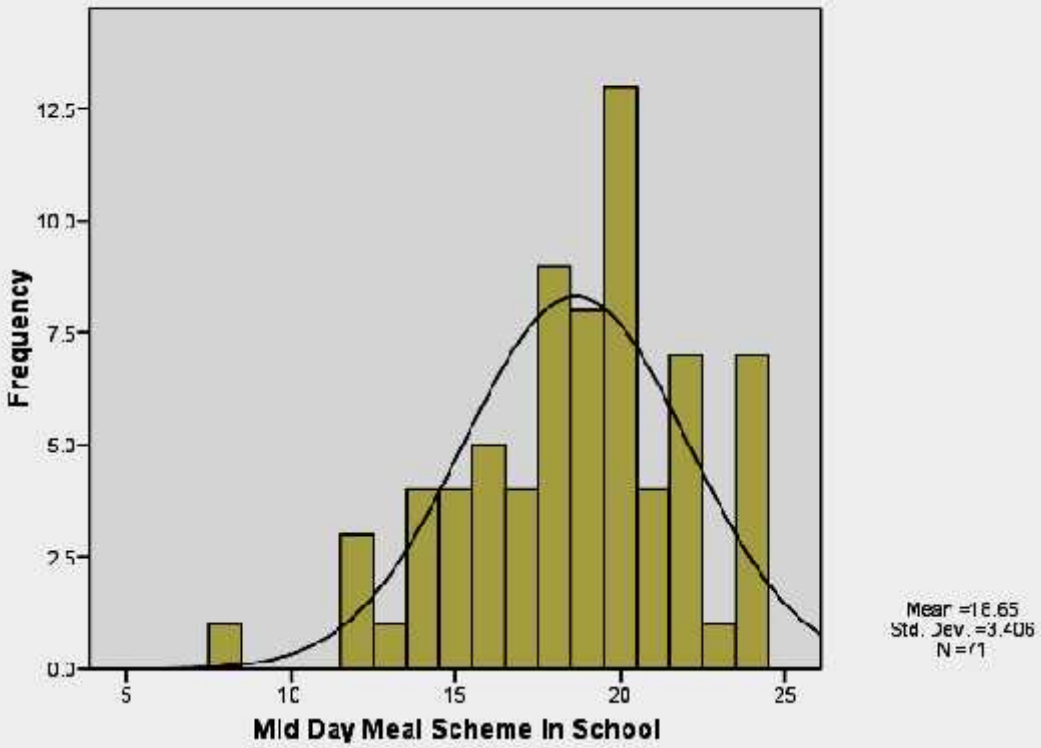
Statistical Technique	Value	Statistical Technique	Value
N	71	Skewness	-.043
Mean	14.97	Kurtosis	-.839
Std. Error of Mean	.824	Minimum	1
Median	14.00	Maximum	27
Mode	12(a)	25^{th} Percentiles	10.00
Std. Deviation	6.943	75^{th} Percentiles	21.00

(a) Multiple modes exist. The smallest value is shown.

Graph:4.17
Histogram with Normal Curve for Scores of Pupil-Teacher Ratio



Graph: 4.18
Histogram with Normal Curve for Scores of Mid Day Meal Scheme in School



Interpretation: In descriptive analysis of scores of pupil-teacher ratio, the value of median is nearly equal to mean, indicating zero skewness. It indicates normal distribution in the groups. The value of kurtosis is negative. Negative kurtosis indicates that the observation cluster less and have shorter tails than those in the normal distribution. It indicates platykurtic curve. The values of standard deviation show less variation in the scores of pupil-teacher ratio. It is reflected in graph 4.17

4.3.4 Descriptive Analysis of Variables Related to Support System

18. Mid-Day Meal Scheme in School:

The following table shows the frequency and percentage for scores of mid-day meal scheme in school.

Table–4.40 Frequency and Percentage for Scores of Mid-Day Meal Scheme in School

Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage	Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage
8	1	1.41%	1.41%	19	8	11.27%	54.93%
12	3	4.23%	5.63%	20	13	18.31%	73.24%
13	1	1.41%	7.04%	21	4	5.63%	78.87%
14	4	5.63%	12.68%	22	7	9.86%	88.73%
15	4	5.63%	18.31%	23	1	1.41%	90.14%
16	5	7.04%	25.35%	24	7	9.86%	100.00%
17	4	5.63%	30.99%	Total	71	100.00%	
18	9	12.68%	43.66%				

The following table shows the descriptive statistics for scores of mid-day meal scheme in school.

Table–4.41 Descriptive Statistics for Scores of Mid-Day Meal Scheme in School

Statistical Technique	Value	Statistical Technique	Value
N	71	Mode	20
Mean	18.65	Std. Deviation	3.406
Std. Error of Mean	.404	Skewness	-.548
Median	19.00	Kurtosis	.305

Statistical Technique	Value	Statistical Technique	Value
Minimum	8	25^{th} Percentiles	16.00
Maximum	24	75^{th} Percentiles	21.00

Interpretation: In descriptive analysis of scores of mid-day meal scheme in school, the value of median is greater than mean, indicating negative skewness. It indicates more score falling on higher values in the groups. The value of kurtosis is positive. Positive kurtosis indicates that the observation cluster more and have longer tails than those in the normal distribution. It indicates leptokurtic curve. The values of standard deviation show wide variation in the scores of mid-day meal scheme in school. It is reflected in graph 4.18

19. Visit of School by CRCC, BRCC and Other Officials:

The following table shows the frequency and percentage of sample for visit of school by CRCC, BRCC and Other Officials.

Table–4.42 Frequency and Percentage of Sample for Visit of School by CRCC, BRCC and Other Officials

Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage	Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage
0	4	5.63%	5.63%	15	5	7.04%	78.87%
3	2	2.82%	8.45%	16	3	4.23%	83.10%
4	1	1.41%	9.86%	17	3	4.23%	87.32%
6	2	2.82%	12.68%	18	3	4.23%	91.55%
7	1	1.41%	14.08%	19	1	1.41%	92.96%
8	3	4.23%	18.31%	20	1	1.41%	94.37%
9	3	4.23%	22.54%	21	1	1.41%	95.77%
10	7	9.86%	32.39%	25	1	1.41%	97.18%
11	5	7.04%	39.44%	29	1	1.41%	98.59%
12	4	5.63%	45.07%	35	1	1.41%	100.00%
13	9	12.68%	57.75%	Total	71	100.00%	
14	10	14.08%	71.83%				

The following table shows the descriptive statistics for scores of visit of school by CRCC, BRCC and Other Officials.

Table–4.43 Descriptive Statistics for scores of Visit of School by CRCC, BRCC and Other Officials

Statistical Technique	Value	Statistical Technique	Value
N	71	Skewness	.610
Mean	12.49	Kurtosis	2.935
Std. Error of Mean	.709	Minimum	0
Median	13.00	Maximum	35
Mode	14	25^{th} Percentiles	10.00
Std. Deviation	5.971	75^{th} Percentiles	15.00

Interpretation: In descriptive analysis of scores of visit of school by CRCC, BRCC and Other Officials, the value of median is less than mean, indicating positive skewness. It indicates more score falling on lower values in the groups. The value of kurtosis is positive. Positive kurtosis indicates that the observation cluster more and have longer tails than those in the normal distribution. It indicates leptokurtic curve. The values of standard deviation show wide variation in the scores of visit of school by CRCC, BRCC and Other Officials. It is reflected in graph 4.19

20. Community Contribution:

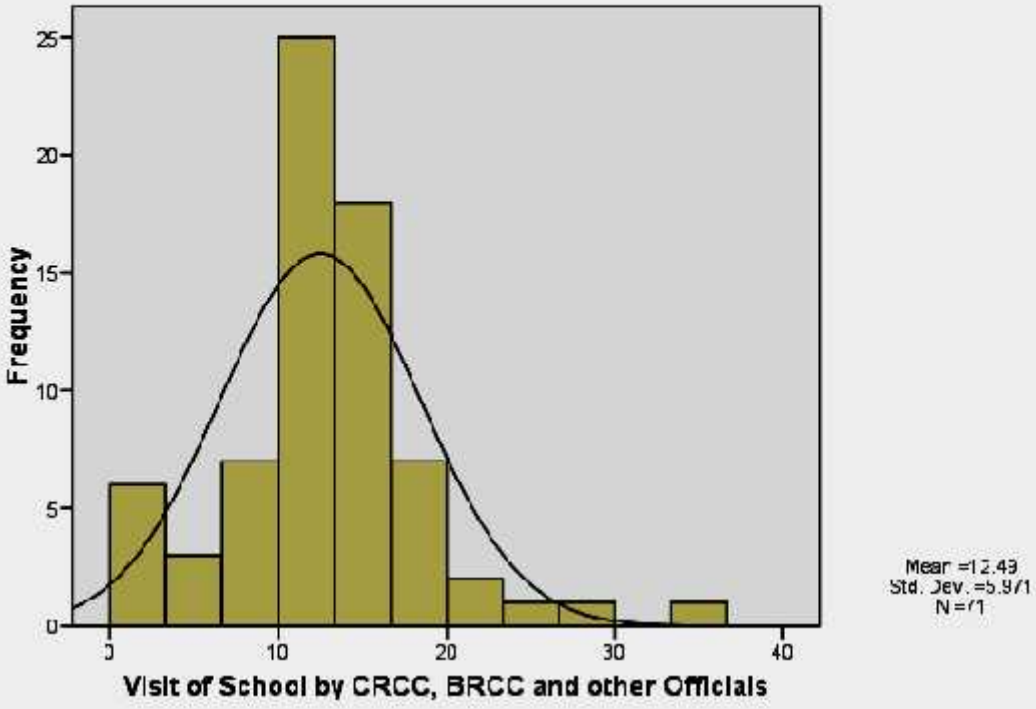
The following table shows the frequency and percentage for scores community contribution.

Table–4.44 Frequency and Percentage for Scores of Community Contribution

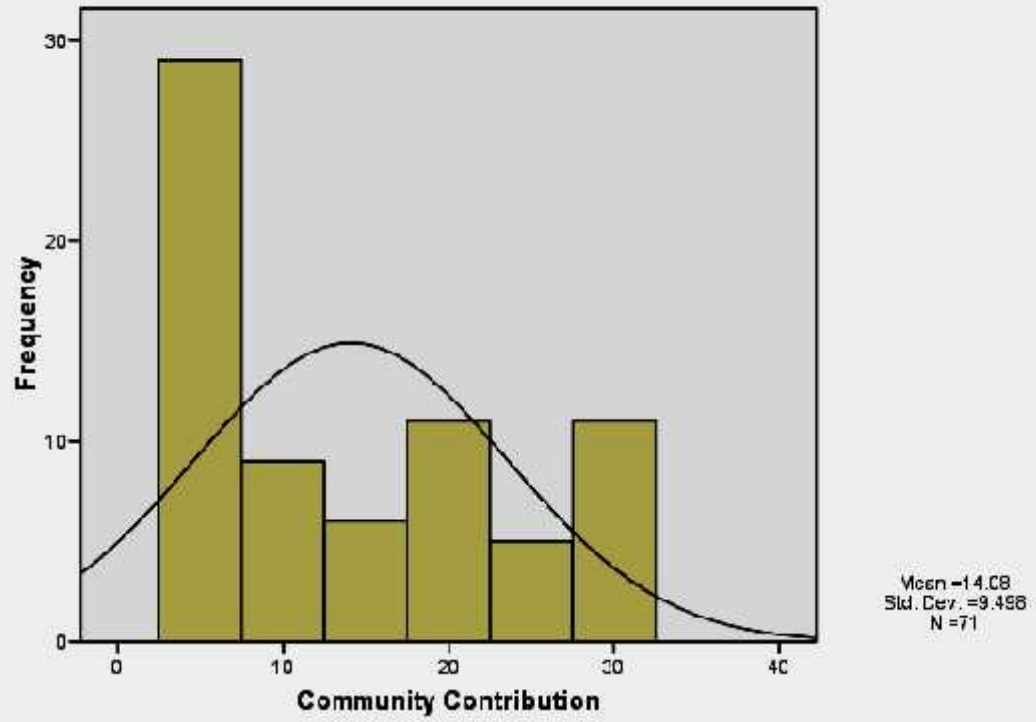
Obtain Scores	Frequency	Percentage	Cumulative Percentage	Obtain Scores	Frequency	Percentage	Cumulative Percentage
5	29	40.85%	15.49%	25	5	7.04%	92.96%
10	9	12.68%	23.94%	30	11	15.49%	100.00%
15	6	8.45%	64.79%	Total	71	100.00 %	
20	11	15.49%	80.28%				

The following table shows the descriptive statistics for scores of community contribution.

Graph: 4.19
Histogram with Normal Curve for Score of Visit of School by CRCC, BRCC and other Officials



Graph: 4.20
Histogram with Normal Curve for Scores of Community Contribution



Table–4.45 Descriptive Statistics for scores of Community Contribution

Statistical Technique	Value	Statistical Technique	Value
N	71	Skewness	.528
Mean	14.08	Kurtosis	-1.239
Std. Error of Mean	1.127	Minimum	5
Median	10.00	Maximum	30
Mode	5	25^{th} Percentiles	5.00
Std. Deviation	9.498	75^{th} Percentiles	20.00

Interpretation: In descriptive analysis of scores of community contribution, the value of median is less than mean, indicating positive skewness. It indicates more score falling on lower values in the groups. The value of kurtosis is negative. Negative kurtosis indicates that the observation cluster less and have shorter tails than those in the normal distribution. It indicates platykurtic curve. The values of standard deviation show less variation in the scores of community contribution. It is reflected in graph 4.20

21. School Management Committee (SMC):

The following table shows the frequency and percentage for scores of school management committee.

Table–4.46 Frequency and Percentage for Scores of School Management Committee

Obtain Scores	Frequency	Percentage	Cumulative Percentage	Obtain Scores	Frequency	Percentage	Cumulative Percentage
5	2	2.82%	2.82%	13	9	12.68%	52.11%
6	2	2.82%	5.63%	14	16	22.54%	74.65%
7	2	2.82%	8.45%	15	6	8.45%	83.10%
8	2	2.82%	11.27%	16	5	7.04%	90.14%
9	6	8.45%	19.72%	17	5	7.04%	97.18%
10	6	8.45%	28.17%	18	2	2.82%	100.00%
11	3	4.23%	32.39%	Total	71	100.00 %	
12	5	7.04%	39.44%				

The following table shows the descriptive statistics for scores of school management committee.

Table – 4.47 Descriptive Statistics for Scores of School Management Committee

Statistical Technique	Value	Statistical Technique	Value
N	71	Std. Error of Skewness	.285
Mean	12.55	Kurtosis	-.322
Std. Error of Mean	.379	Std. Error of Kurtosis	.563
Median	13.00	Minimum	5
Mode	14	Maximum	18
Std. Deviation	3.197	25^{th} Percentiles	10.00
Skewness	-.550	75^{th} Percentiles	15.00

Interpretation: In descriptive analysis of scores of school management committee, the value of median is greater than mean, indicating negative skewness. It indicates more score falling on higher values in the groups. The value of kurtosis is negative. Negative kurtosis indicates that the observation cluster less and have shorter tails than those in the normal distribution. It indicates platykurtic curve. The values of standard deviation show less variation in the scores of school management committee. It is reflected in graph 4.21

4.3.5 Descriptive Analysis of Variables Related to Output Variables

22. Average Achievement Scores of Standard-7 Students:

The following table shows the school wise descriptive analysis of Average achievement scores of standard-7 students.

Table-4.48 Descriptive Analysis of Average Achievement scores of Standard – 7 Students School Wise

No of School	Number of Student	Mean	Standard Deviation	No of School	Number of Student	Mean	Standard Deviation
1	47	50.38	12.312	8	24	51.21	15.444
2	33	25.67	10.529	9	17	67.00	22.338
3	14	75.93	11.276	10	26	50.54	14.561
4	21	58.67	13.879	11	19	35.89	12.741
5	29	73.00	7.635	12	48	56.73	18.979
6	45	57.96	17.684	13	48	42.73	22.141
7	16	60.13	7.658	14	9	57.11	24.344

No of School	Number of Student	Mean	Standard Deviation	No of School	Number of Student	Mean	Standard Deviation
15	15	41.67	24.150	44	22	32.14	11.449
16	61	43.56	14.599	45	54	56.00	18.438
17	9	49.56	6.930	46	28	84.25	15.553
18	35	91.49	13.356	47	33	77.48	19.834
19	16	42.94	14.215	48	26	97.27	12.752
20	32	65.66	16.996	49	51	94.22	15.328
21	30	52.07	15.660	50	50	35.06	16.419
22	29	40.00	19.365	51	8	75.63	3.623
23	45	55.47	17.308	52	25	63.88	15.664
24	32	86.81	11.655	53	21	43.76	21.993
25	67	63.01	10.932	54	25	68.16	18.147
26	52	67.60	19.652	55	84	68.47	21.843
27	11	45.73	15.531	56	47	62.85	25.497
28	25	74.52	18.201	57	48	90.81	17.023
29	50	52.34	22.142	58	22	59.55	24.682
30	25	81.80	19.185	59	28	31.89	15.310
31	42	68.50	21.447	60	15	56.40	15.606
32	32	57.84	18.406	61	22	70.77	20.045
33	50	30.46	19.270	62	24	86.71	8.233
34	13	56.54	14.569	63	12	76.00	4.243
35	15	51.13	6.999	64	35	82.77	13.408
36	47	46.36	23.727	65	21	67.19	31.755
37	16	44.94	16.213	66	14	76.64	17.809
38	45	54.96	17.564	67	61	80.21	21.844
39	5	70.20	24.753	68	44	65.27	20.953
40	33	61.33	14.389	69	20	66.80	23.092
41	26	78.62	14.667	70	23	57.00	8.863
42	15	47.33	19.906	71	24	76.96	20.942
43	50	58.92	18.953	**Total**	**2,206**	**61.80**	**24.765**

The following table shows the frequency and percentage of average achievement scores of standard-7 students.

Table–4.49 Frequency and Percentage of Average Achievement scores of Standard – 7 Students

Interval	Frequency	Percentage	Cumulative Percentage	Interval	Frequency	Percentage	Cumulative Percentage
25-29	1	1.41%	1.41%	65-69	9	12.68%	71.83%
30-34	3	4.23%	5.63%	70-74	3	4.23%	76.06%
35-39	2	2.82%	8.45%	75-79	7	9.86%	85.92%
40-44	6	8.45%	16.90%	80-84	3	4.23%	90.14%
45-49	4	5.63%	22.54%	85-89	3	4.23%	94.37%
50-54	7	9.86%	32.39%	90-94	2	2.82%	97.18%
55-59	13	18.31%	50.70%	95-99	2	2.82%	100.00%
60-64	6	8.45%	59.15%	Grand Total	71	100.00%	

The following table shows the descriptive statistics of average achievement scores of standard -7 students.

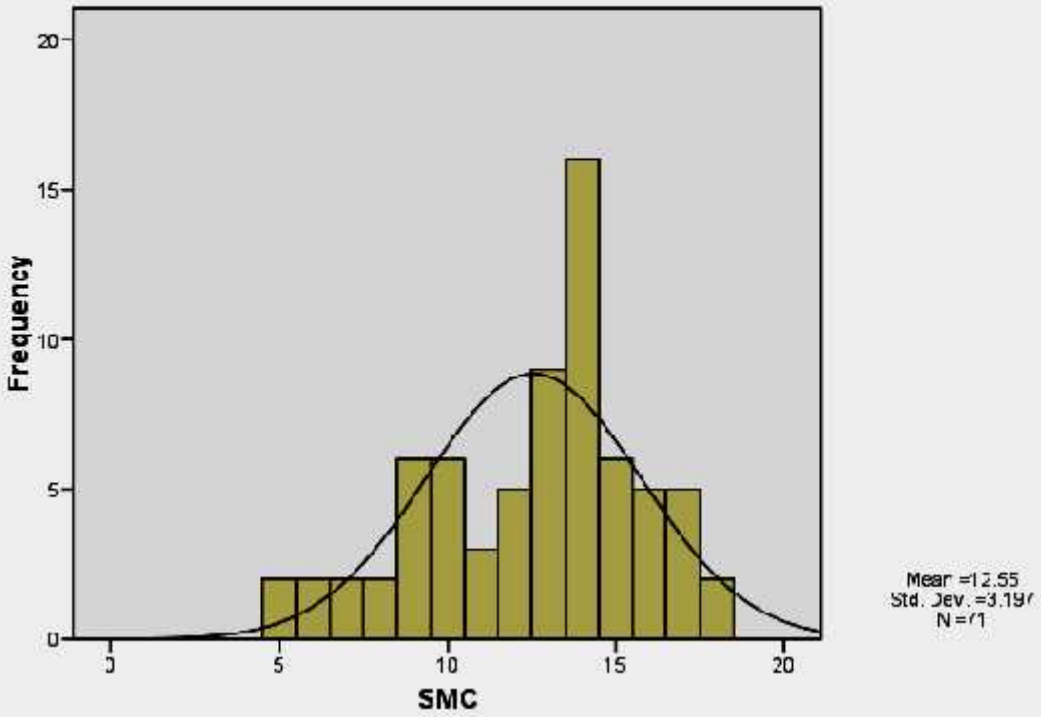
Table–4.50 Descriptive Statistics for Scores of Average Achievement Scores of Standard-7 Students

Statistical Technique	Value	Statistical Technique	Value
N	71	Skewness	.099
Mean	61.006	Kurtosis	-.444
Std. Error of Mean	1.946	Minimum	25.667
Median	59.000	Maximum	97.269
Mode	25.667(a)	25^{th} Percentiles	50.383
Std. Deviation	16.401	75^{th} Percentiles	73.000

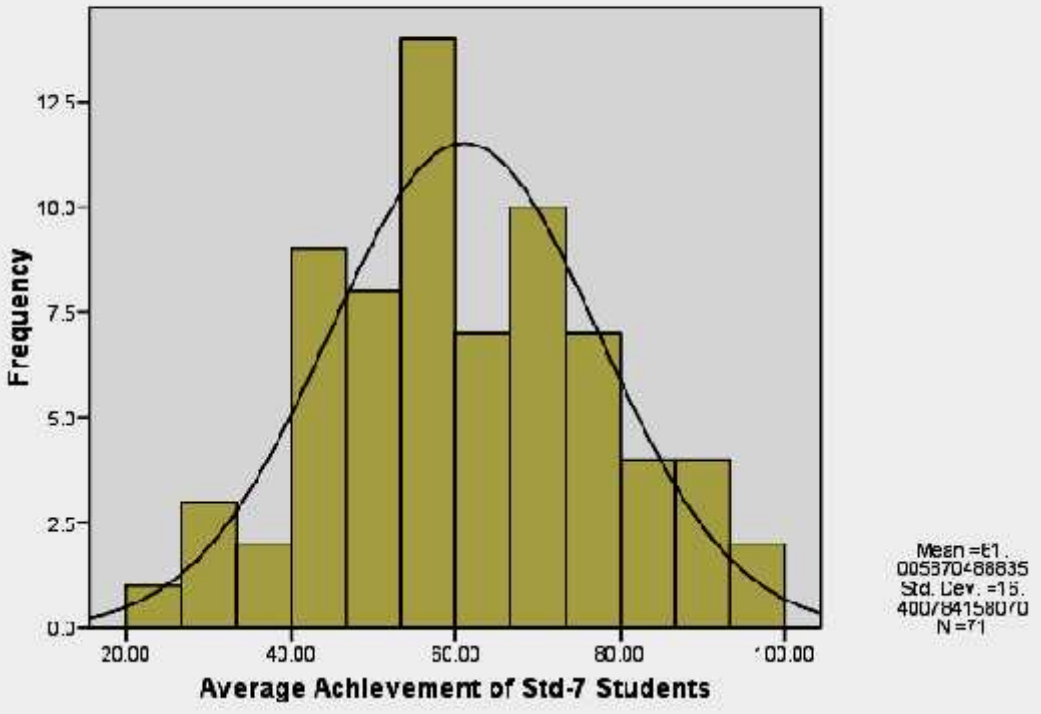
a Multiple modes exist. The smallest value is shown.

Interpretation: In descriptive analysis of average achievement scores of standard -7 students, the value of median is less than mean, indicating positive skewness. It indicates more score falling on lower values in the groups. The value of kurtosis is negative. Negative kurtosis indicates that the observation cluster less and have shorter tails than those in the normal distribution. It indicates platykurtic curve. The values of standard deviation show less variation in the scores of average achievement scores of standard -7 students. It is reflected in graph 4.22

Graph: 4.21
Histogram with Normal Curve for Scores of School Management Committee



Graph: 4.22
Histogram with Normal Curve for Scores of Average Achievement of Standard-7 Students



23. Participation in Sports:

The following table shows the frequency and percentage for scores of participation in sports.

Table–4.51 Frequency and Percentage for Scores of Participation in Sports

Interval	Frequency	Percentage	Cumulative Percentage	Interval	Frequency	Percentage	Cumulative Percentage
0 – 4	9	12.68%	12.68%	45-49	4	5.63%	80.28%
5-9	6	8.45%	21.13%	50-54	4	5.63%	85.92%
10-14	11	15.49%	36.62%	55-59	1	1.41%	87.32%
15-19	3	4.23%	40.85%	60-64	3	4.23%	91.55%
20-24	5	7.04%	47.89%	65-69	1	1.41%	92.96%
25-29	8	11.27%	59.15%	70-74	2	2.82%	95.77%
30-34	5	7.04%	66.20%	75-79	1	1.41%	97.18%
35-39	4	5.63%	71.83%	Above 79	2	2.82%	100.00%
40-44	2	2.82%	74.65%	Total	71	100.00%	

The following table shows the descriptive statistics for scores of participation in sports

Table – 4.52 Descriptive Statistics for scores of Participation in Sports

Statistical Technique	Value	Statistical Technique	Value
N	71	Skewness	1.874
Mean	34.93	Kurtosis	5.760
Std. Error of Mean	3.358	Minimum	0
Median	30.00	Maximum	162
Mode	0(a)	25^{th} Percentiles	15.00
Std. Deviation	28.295	75^{th} Percentiles	50.00

a Multiple modes exist. The smallest value is shown

Interpretation: In descriptive analysis of scores of participation in sports, the value of median is less than mean, indicating positive skewness. It indicates more score falling on lower values in the groups. The value of kurtosis is positive. Positive kurtosis indicates that the observation cluster more and have longer tails than those in the normal distribution. It indicates leptokurtic curve. The values of standard deviation show wide variation in the scores of participation in sports. It is reflected in graph 4.23

24. Participation in Science Mathematics Exhibition:

The following table shows the frequency and percentage for scores of science mathematics exhibition.

Table–4.53 Frequency and Percentage for Scores of Participation in Science Mathematics Exhibition

Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage	Obtain Scores	Frequency	% of Total Sample	Cumulative Percentage
0	5	7.04%	7.04%	22	1	1.41%	90.14%
5	27	38.03%	45.07%	24	2	2.82%	92.96%
7	1	1.41%	46.48%	27	1	1.41%	94.37%
10	3	4.23%	50.70%	29	1	1.41%	95.77%
12	19	26.76%	77.46%	34	2	2.82%	98.59%
15	1	1.41%	78.87%	38	1	1.41%	100.00%
17	5	7.04%	85.92%	Total	71	100.00%	
20	2	2.82%	88.73%				

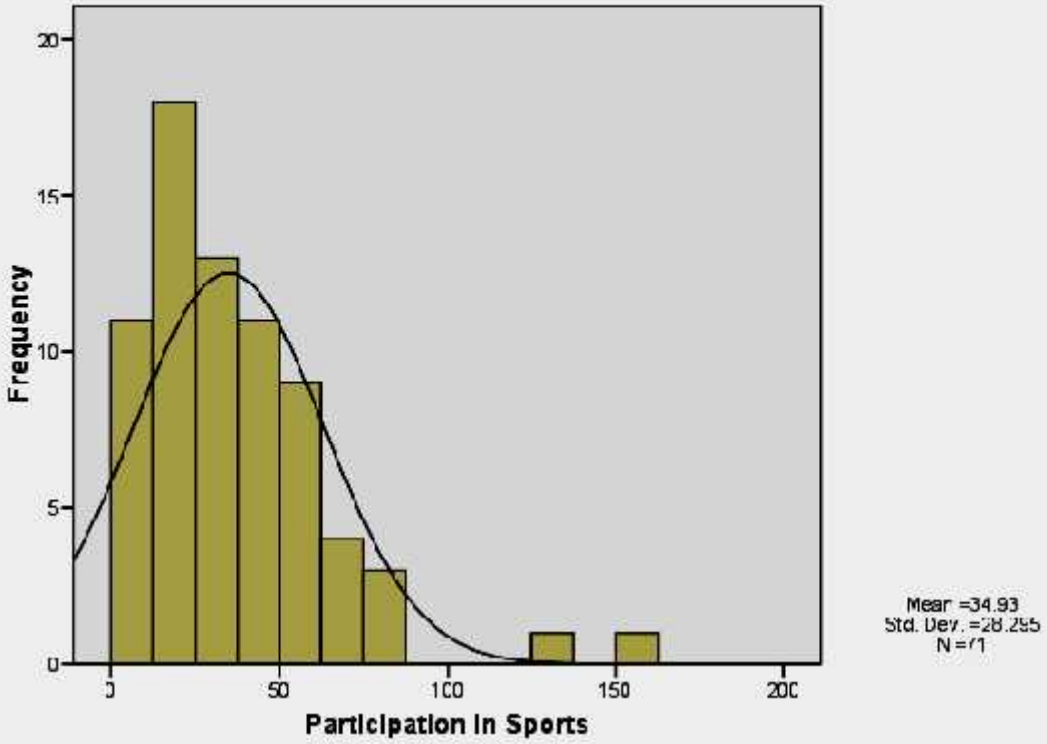
The following table shows the descriptive statistics for scores of science mathematics exhibition.

Table – 4.54 Descriptive Statistics for scores of Participation in Science Mathematics Exhibition

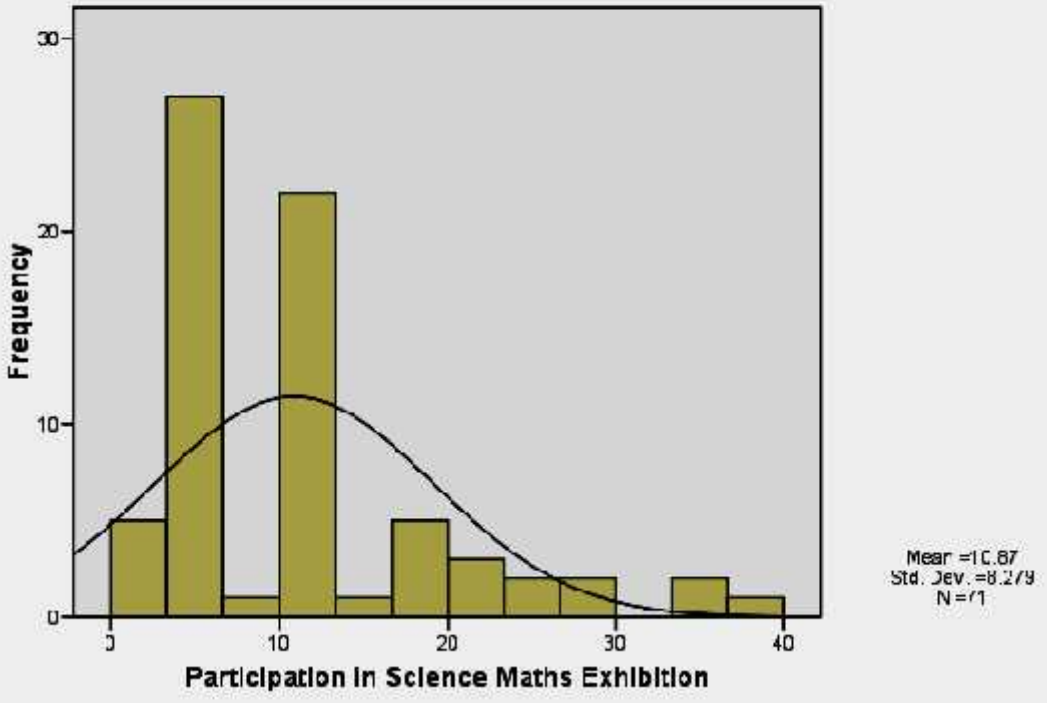
Statistical Technique	Value	Statistical Technique	Value
N	71	Skewness	1.336
Mean	10.87	Kurtosis	1.795
Std. Error of Mean	.983	Minimum	0
Median	10.00	Maximum	38
Mode	5	25^{th} Percentiles	5.00
Std. Deviation	8.279	75^{th} Percentiles	12.00

Interpretation: In descriptive analysis of scores of science mathematics exhibition, the value of median is less than mean, indicating positive skewness. It indicates more score falling on lower values in the groups. The value of kurtosis is positive. Positive kurtosis indicates that the observation cluster more and have longer tails than those in the normal distribution. It indicates leptokurtic curve. The values of standard deviation show wide variation in the scores of science mathematics exhibition. It is reflected in graph 4.24

Graph: 4.23
Histogram with Normal Curve for Scores of Participation in Sports



Graph: 4.24
Histogram with Normal Curve for Scores of Participation in Science Maths Exhibition



25. Percentage of Present Students by Head count

The following table shows the frequency and percentage for Score of % present students by head count.

Table–4.55 Frequency and Percentage of Scores of % Present Students by Head count

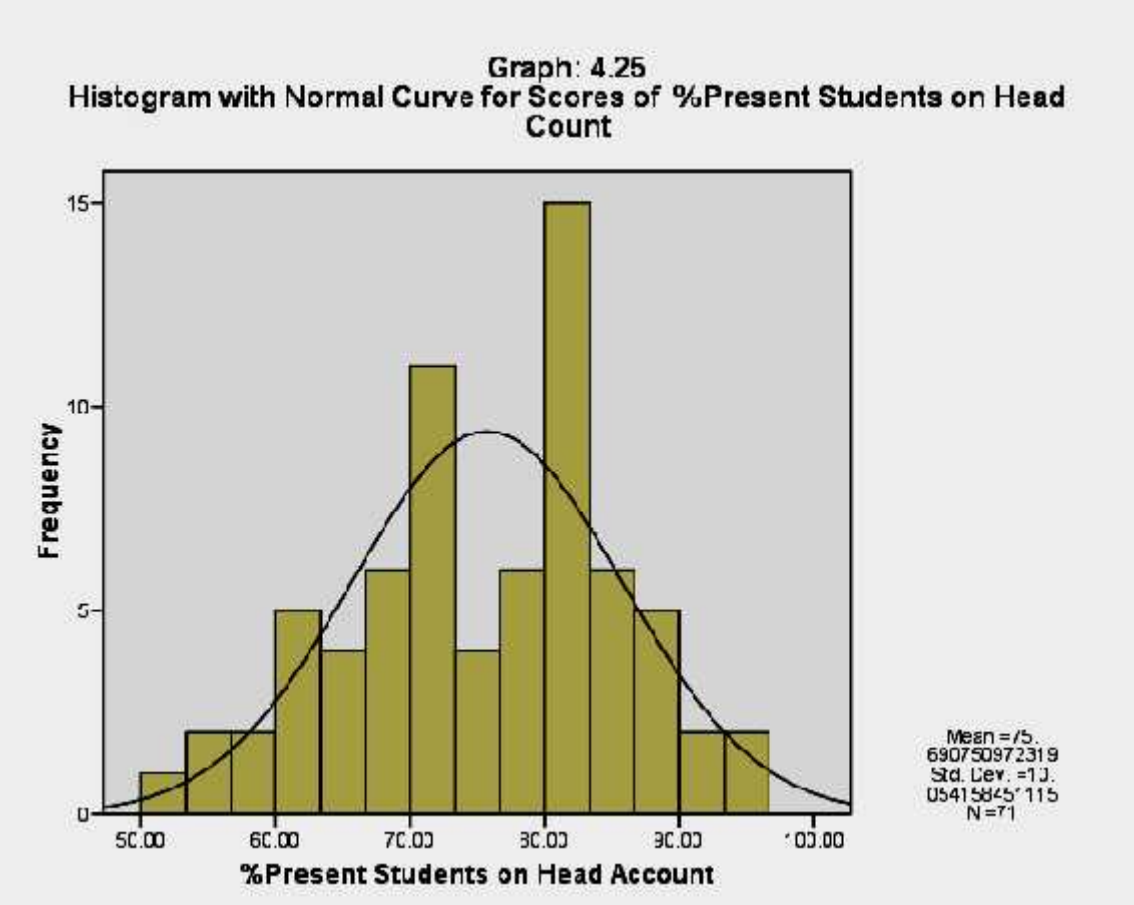
Interval	Frequency	% of Total Sample	Cumulative Percentage	Interval	Frequency	% of Total Sample	Cumulative Percentage
50-54	2	2.82%	2.82%	80-84	16	22.54%	78.87%
55-59	2	2.82%	5.63%	85-89	9	12.68%	91.55%
60-64	7	9.86%	15.49%	90-94	4	5.63%	97.18%
65-69	5	7.04%	22.54%	95-99	2	2.82%	100.00%
70-74	16	22.54%	45.07%	Total	71	100.00%	
75-79	8	11.27%	56.34%				

The following table shows the descriptive statistics for scores of % present students by head count.

Table – 4.56 Descriptive Statistics for scores of %Present Student Head count

Statistical Technique	Value	Statistical Technique	Value
N	71	Skewness	-.312
Mean	75.691	Kurtosis	-.508
Std. Error of Mean	1.193	Minimum	52.642
Median	77.031	Maximum	94.578
Mode	80.000	25^{th} Percentiles	69.355
Std. Deviation	10.054	75^{th} Percentiles	83.117

Interpretation: In descriptive analysis of scores of % present students by head count, the value of median is greater than mean, indicating negative skewness. It indicates more score falling on higher values in the groups. The value of kurtosis is negative. Negative kurtosis indicates that the observation cluster less and have shorter tails than those in the normal distribution. It indicates platykurtic curve. The values of standard deviation show less variation in the scores of % present students by head count. It is reflected in graph 4.25



After discussing quantification and descriptive analysis, Principal component analysis has been carried out for understanding of variable and their correlation.

4.4 Principal Component Analysis:

Principal component analysis is different from many other techniques. It is not designed to test hypothesis to tell whether one group is significantly different to another. It is included in SPSS package as a 'Data Reduction' techniques. It takes large set of variables looks for a way that the data may reduces or summarised using smaller set of components. The term 'Principal component analysis' and 'factor analysis' is similar in many ways and used interchangeably by researchers. Sometimes, they produce similar results, but they differ in their approaches. In the principal components analysis, the original variables are transformed into smaller set of linear combinations, with all of the variance in the variables being used. In factor analysis however, factors are estimated

using mathematical model, where only the shared variance is analysed. (Tabachnick & Fidell, 1996)

4.4.1 Statistical Measures for Factorability of the Data:

The following are the statistical measures for factorability of the data.

KMO and Bartlett's Test:

The Bartlett Test of Sphericity compares the correlation matrix with a matrix of zero correlations (technically called the identity matrix, which consists of all zeros except the 1's along the diagonal). From this test we are looking for a small p value indicating that it is highly unlikely for us to have obtained the observed correlation matrix from a population with zero correlation. However, there are many problems with the test – a small p value indicates that you should not continue but a large p value does not guarantee that all is well (Norman & Streiner p 198). The MSA (Measure of sampling adequacy) does not produce a P value but we are aiming for a value over 0.8 and below 0.5 are considered to be miserable. Norman & Streiner recommend that you consider removing variables with a MSA below 0.7 The Bartlett's test of sphericity should be significant ($p<0.05$) for the factor analysis to be consider appropriate.

Determinant:

If the variables that are just simple derivations of another in the analysis, it should be excluded. A similar problem occurs with variables that are very highly correlated (this is called multicollinearity) and when this occurs the computer takes a turn and can't produce valid factor loading values. This is to inspect a particular summary measure of the correlation matrix called the **determinant** and check to see if it is greater than 0.00001 (Field 2012 p771).

4.4.2 Principal Component Analysis for Physical Facility Variables:

Physical facility comprised of eight variables: Compound wall of the school, School entrance gate, Compound of the school, Building of the school, Std-7 classroom, Water arrangement, Sanitation facility, Classroom-student ratio. The following table describes the values of KMO, Bartlett's Test and Determinant for Physical Facility variables.

Table-4.57 Values of KMO, Bartlett's Test and Determinant for Physical Facility variables

Statistical Measures		Values
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.720
Bartlett's Test of Sphericity	Approx. Chi-Square	146.090
	Df	28
	Sig.	.000
Determinant		0.111

The values of KMO is between 0.5 to 0.8. A value of Bartlett's test of sphericity is significant at 0.05 and a value of determinant is greater than 0.00001. Therefore, all the values suggest that principal component method is useful for the data and analysis must be carried out. The following table shows the correlation matrices among variables under study.

Table-4.58 Pearson Correlations among Physical Facility Variables

Variables	Compound Wall of the School	School Entrance Gate	Compound of the School	Building of the School	Infrastructure Facility in Std-7 Classroom	Water Arrangement	Sanitation Facility	Scores of Classroom-Student Ratio
Compound Wall of the School	1	.502**	.280*	.160	.214	.141	.201	-.026
School Entrance Gate	.502**	1	.364**	.346**	.230	.193	.284*	.008
Compound of the School	.280*	.364**	1	.482**	.501**	.410**	.288*	.382**
Building of the School	.160	.346**	.482**	1	.552**	.410**	.309**	.069
Infrastructure Facility in Std-7 Classroom	.214	.230	.501**	.552**	1	.346**	.245*	.168
Water Arrangement	.141	.193	.410**	.410**	.346**	1	.521**	.234*
Sanitation Facility	.201	.284*	.288*	.309**	.245*	.521**	1	.328**
Scores of Classroom-Student Ratio	-.026	.008	.382**	.069	.168	.234*	.328**	1

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

There are many coefficient of correlation are significant at 0.01 and 0.05 It suggests that data is appropriate for principal component analysis.

Table-4.59 Total Variance Explained for Physical Facility Variables

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.129	39.115	39.115	3.129	39.115	39.115
2	1.306	16.324	55.439	1.306	16.324	55.439
3	.990	12.379	67.818	.990	12.379	67.818
4	.835	10.438	78.255			
5	.549	6.862	85.117			
6	.492	6.148	91.266			
7	.365	4.560	95.825			
8	.334	4.175	100.000			

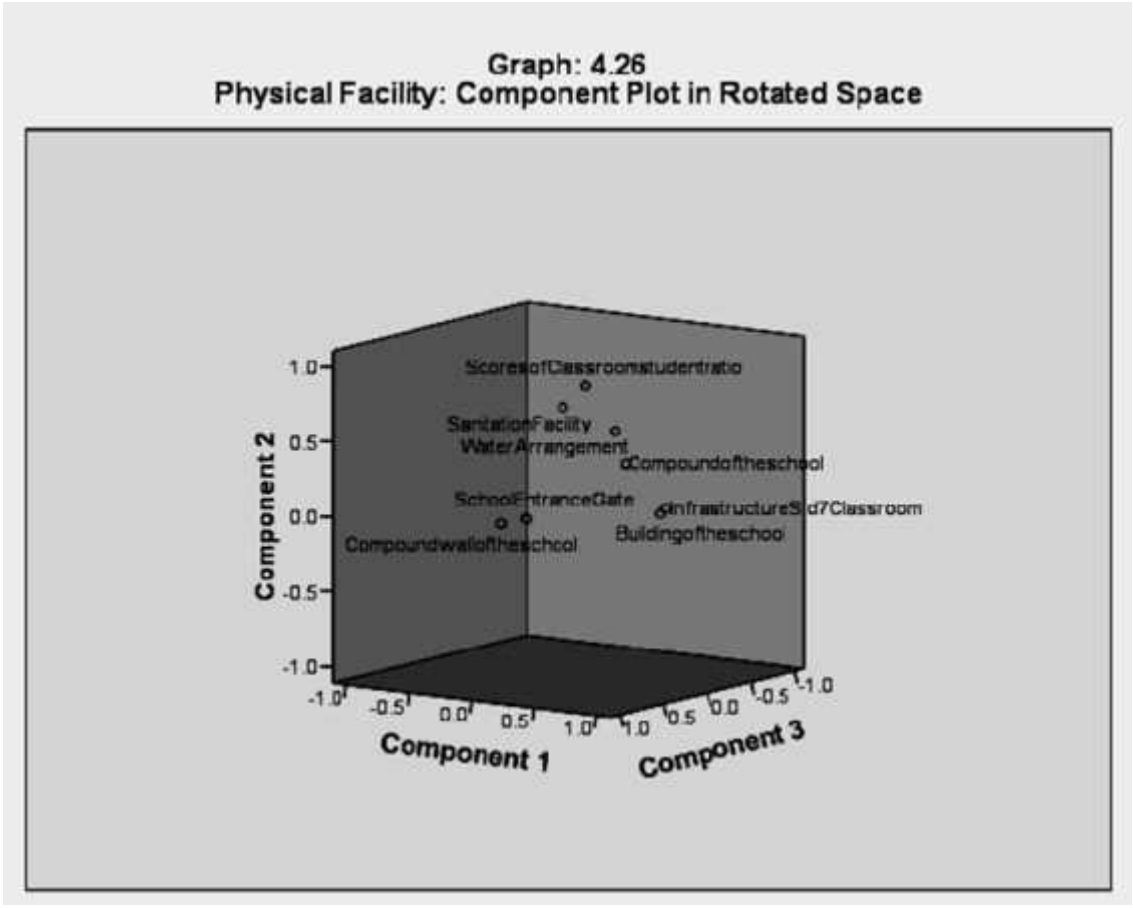
Table-4.60 Rotated Component Matrix (a) for Physical Facility Variables

Variables	Component		
	1	2	3
Compound Wall of the School			.864
School Entrance Gate			.817
Compound of the School	.623	.401	
Building of the School	.846		
Infrastructure Std-7 Classroom	.836		
Water Arrangement	.445	.584	
Sanitation Facility		.739	
Scores of Classroom- Student ratio		.808	

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 5 iterations.

The following graph describes component plot in rotated space for physical facility variables.

Graph: 4.26
Physical Facility: Component Plot in Rotated Space



Interpretation: There are eight variable in physical facility. Initial Eigenvalues suggests that there is possibility of extraction of three components. For the extraction of component, verimax method with Kaiser Normalization has been employed. The principal component analysis suggests that component – 1 is comprised of compound of the school, building of school and infrastructure facility in std-7 classroom. component- 2 is comprised of water arrangement, sanitation facility and student classroom. component-3 is comprised of compound wall of the school and school entrance gate.

4.4.3 Principal Component Analysis for Academic facility Variables:

Academic facility comprises of six variables: Different Boards in School, T.L.M. in Std-7 Classroom, Library in School, Science Laboratory in School, Facility of Open Education in School (online, offline), Computer Education Facility in School. The following table describes the values of KMO, Bartlett's Test and Determinant for academic facility variables.

Table-4.61 Values of KMO, Bartlett's Test and Determinant for Academic Facility variables

Statistical Measures		Values
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.663
Bartlett's Test of Sphericity	Approx. Chi-Square	74.308
	Df	15
	Sig.	.000
Determinant		0.331

The values of KMO is between 0.5 to 0.8. A value of Bartlett's test of sphericity is significant at 0.05 and a value of determinant is greater than 0.00001. Therefore, all the values suggest that principal component method is useful for the data and analysis must be carried out. The following table shows the correlation matrices among variables under study.

Table-4.62 The Coefficient of Correlation among Academic Facility variables

Variables	Different Boards in School	T.L.M. in Std-7 Classroom	Library in School	Science Laboratory in School	Facility of Open Education in School (online, offline)	Computer Education Facility in School
Different Boards in School	1	.187	.251*	.347**	.452**	.346**
T.L.M. in Std-7 Classroom	.187	1	.050	.297*	.038	.265*
Library in School	.251*	.050	1	.375**	.238*	.099
Science Laboratory in School	.347**	.297*	.375**	1	.224	.439**
Facility of Open Education in School (online, offline)	.452**	.038	.238*	.224	1	.442**
Computer Education Facility in School	.346**	.265*	.099	.439**	.442**	1

* Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).

Table-4.63 Total Variance Explained for Academic Facility Variables

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.410	40.174	40.174	2.410	40.174	40.174
2	1.046	17.436	57.610	1.046	17.436	57.610
3	.953	15.890	73.500	.953	15.890	73.500
4	.665	11.081	84.581			
5	.546	9.108	93.689			
6	.379	6.311	100.000			

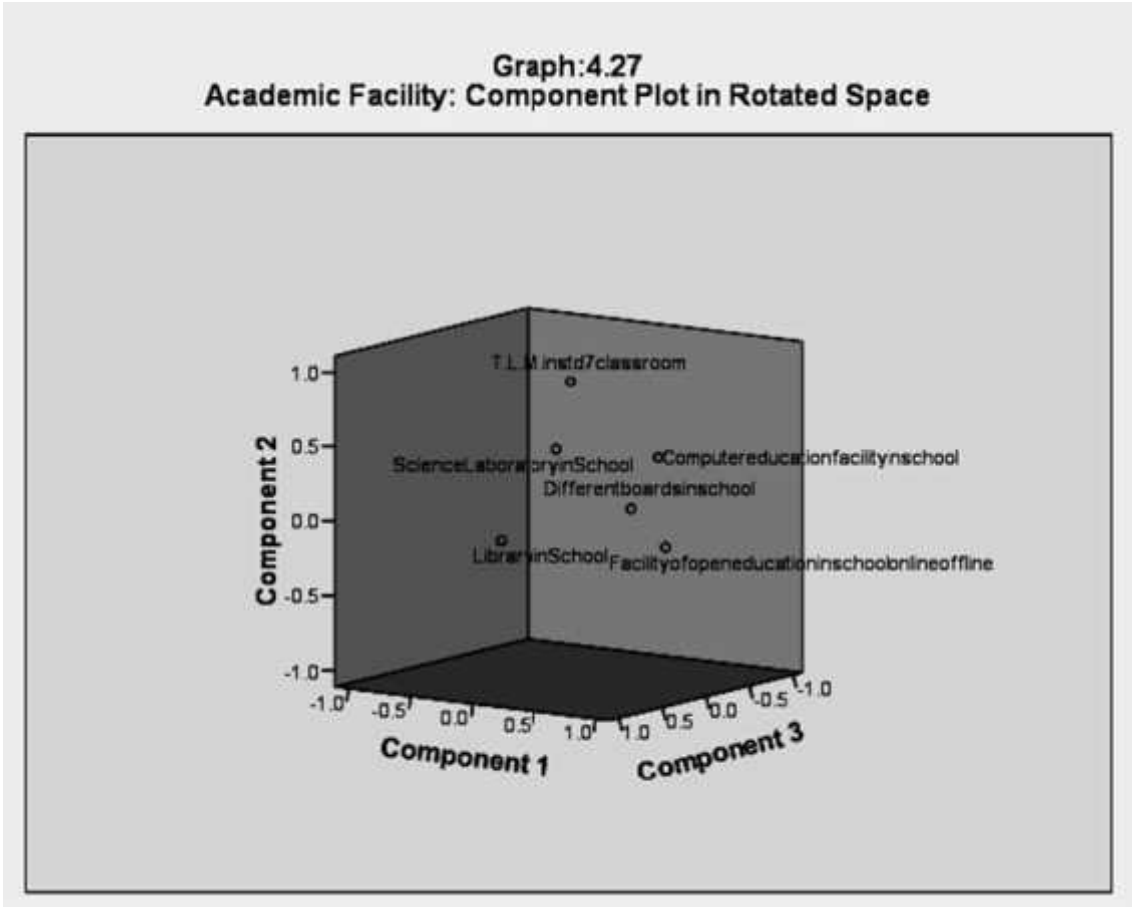
Table-4.64 Rotated Component Matrix(a) for Academic Facility Variables

Variables	Component		
	1	2	3
Different Boards in School	.690		
T.L.M. in Std-7 Classroom		.894	
Library in School			.936
Science Laboratory in School		.540	.557
Learning facility through ICT in school (BISEG and other Means)	.868		
Computer Education Facility in School	.702	.440	

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 4 iterations.

The following graph describes component plot in rotated space for academic facility variables.

Graph:4.27
Academic Facility: Component Plot in Rotated Space



Interpretation: There are six variable in academic facility. Initial Eigenvalues suggests that there is possibility of extraction of three components. For the extraction of component, verimax method with Kaiser Normalization has been employed. The principal component analysis suggests that component – 1 is comprised of different boards in school, facility of open education in school (online, offline), computer education facility in school. component- 2 is comprised of T.L.M. in std-7 classroom. Component- 3 is comprised of library in school, science laboratory in school.

4.4.4 Principal Component Analysis for Human Resources Variables:

Human resources comprises three variables: Total Teacher Indicators, Average Job satisfaction, Scores of Pupil-Teacher Ratio. The following table describes the values of KMO, Bartlett's Test and Determinant for human resources variables.

Table-4.65 Values of KMO, Bartlett's Test and Determinant for Human Resources variables

Statistical Measures		Values
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.560
Bartlett's Test of Sphericity	Approx. Chi-Square	3.114
	Df	3
	Sig.	.374
Determinant		0.955

The values of KMO is between 0.5 to 0.8. But, a value of Bartlett's test of sphericity is not significant at 0.05 and a value of determinant is greater than 0.00001. Therefore, the values of KMO and determinant suggest that principal component method is useful for the data and analysis must be carried out. Bartlett's test of sphericity does not suggest the usefulness of analysis. Taking account of KMO and determinant, principal component analysis was carried out. The following table shows the correlation matrices among variables under study.

Table-4.66 Pearson Correlations among Human Resources Variables

Variables	Total Teacher Indicators	Average Job satisfaction	Scores of Pupil - Teacher Ratio
Total Teacher Indicators	1	.127	.129
Average Job satisfaction	.127	1	.126
Scores of Pupil-Teacher Ratio	.129	.126	1

Table=4.67 Total Variance Explained for Human Recourses Variables

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.255	41.836	41.836	1.255	41.836	41.836
2	.874	29.150	70.986	.874	29.150	70.986
3	.870	29.014	100.000			

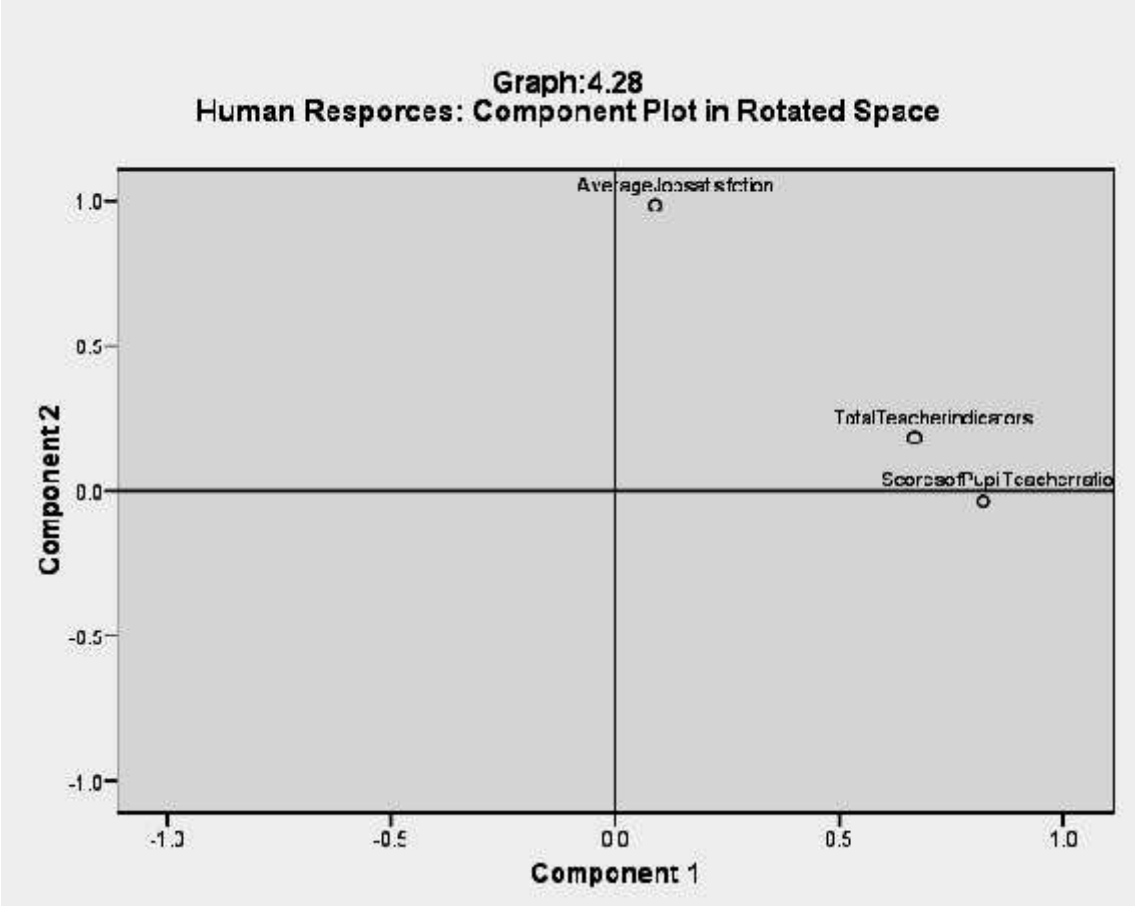
Extraction Method: Principal Component Analysis.

Table-4.68 Rotated Component Matrix(a) for Human Resources Variables

Variables	Component	
	1	2
Average of Teacher indicators	.668	
Average of Jobsatisfction		.984
Scores Pupil-Teacher Ratio	.820	

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 3 iterations.

The following graph describes component plot in rotated space for human resources variables.



Interpretation: There are three variable in human resources. Initial Eigenvalues suggests that there is possibility of extraction of two components. For the extraction of component, verimax method with Kaiser Normalization has been employed. The principal component analysis suggests that component – 1 is comprised of Total Teacher Indicators and Scores of Pupil-Teacher Ratio.. component- 2 is comprised of Average Job satisfaction. Due to

very less variables and no significant correlation, principal component analysis is not very useful for human resources variable.

4.4.5 Principal Component Analysis for Support System Variables:

Support System comprises four variables. Mid Day Meal Scheme in School, Visit of School, community contribution, School management committee. The following table describes the values of KMO, Bartlett's Test and Determinant for support system variables.

Table-4.69 Values of KMO, Bartlett's Test and Determinant for Support System variables

Statistical Measures		Values
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.656
Bartlett's Test of Sphericity	Approx. Chi-Square	19.692
	Df	6
	Sig.	.003
Determinant		0.748

The values of KMO is between 0.5 to 0.8. A value of Bartlett’s test of sphericity is significant at 0.05 and a value of determinant is greater than 0.00001. Therefore, all the values suggest that principal component method is useful for the data and analysis must be carried out. The following table shows the correlation matrices among variables under study.

Table-4.70 Pearson Correlations among Support System Variables

Variables	Mid Day Meal Scheme in School	Visit of School	Community Contribution	SMC
Mid Day Meal Scheme in School	1	.205	.122	.139
Visit of School	.205	1	.327**	.283*
Community Contribution	.122	.327**	1	.276*
SMC	.139	.283*	.276*	1

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Table-4.71 Total Variance Explained for Support System Variables

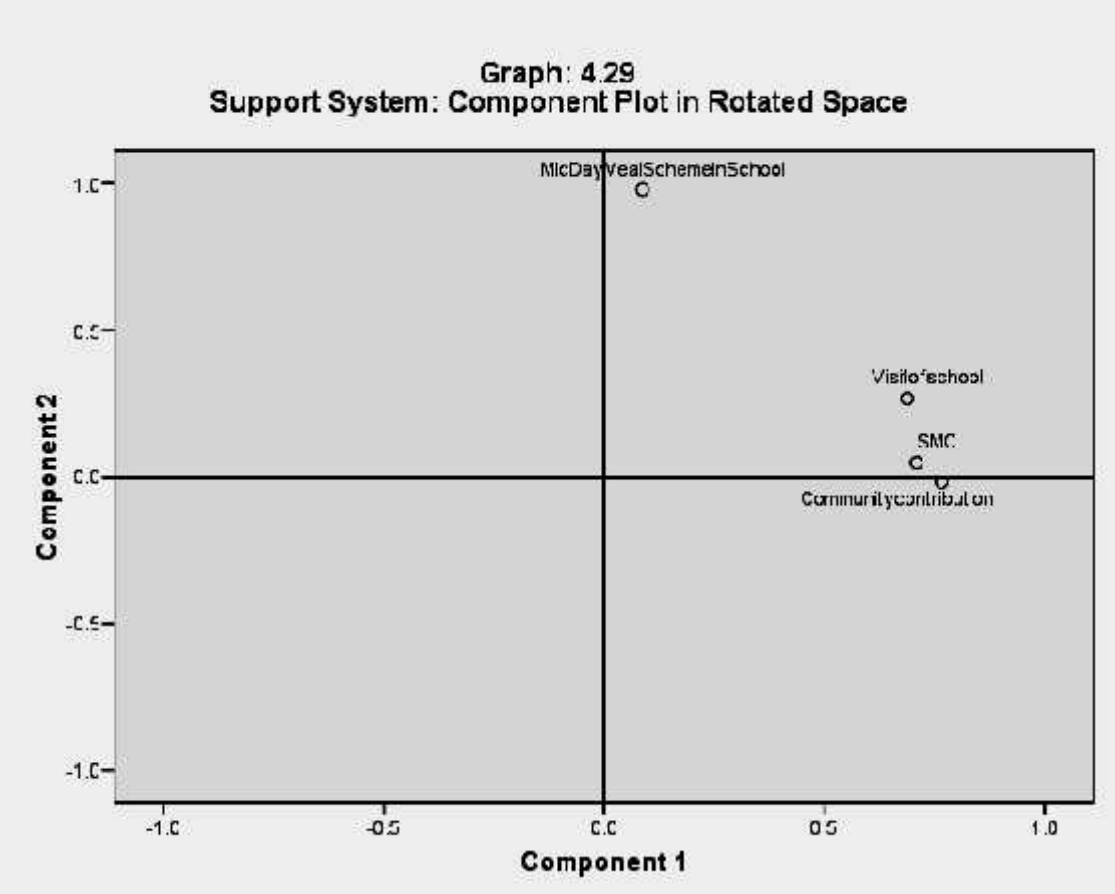
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.696	42.397	42.397	1.696	42.397	42.397
2	.908	22.710	65.107	.908	22.710	65.107
3	.736	18.392	83.500			
4	.660	16.500	100.000			

Table-4.72 Rotated Component Matrix(a) for Support System Variables

Variables	Component	
	1	2
Mid Day Meal Scheme in School		.980
Visit of School	.688	
Community contribution	.766	
SMC	.709	

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 3 iterations.

The following graph describes component plot in rotated space for support system variables.



Interpretation: There are for variable in support facility. Initial Eigenvalues suggests that there is possibility of extraction of two components. For the extraction of component, verimax method with Kaiser Normalization has been employed. The principal component analysis suggests that component – 1 is comprised of visit of school, community contribution, school management committee. Component- 2 is comprised of mid day meal scheme in school.

4.4.6 Principal Component Analysis for Output Variables:

The output variables comprised of four variable: Average achievement of Std-7 Students, participation of sports and participation in Science-Mathematics Exhibition and percentage of present students by head count. The following table describes the values of KMO, Bartlett's Test and Determinant for output variables.

Table-4.73 Values of KMO, Bartlett's Test and Determinant for Output Variables

Statistical Measures		Values
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.504
Bartlett's Test of Sphericity	Approx. Chi-Square	16.172
	Df	6
	Sig.	.013
Determinant		0.788

The values of KMO is between 0.5 to 0.8. A value of Bartlett’s test of sphericity is significant at 0.05 and a value of determinant is greater than 0.00001. Therefore, all the values suggest that principal component method is useful for the data and analysis must be carried out. The following table shows the correlation matrices among variables under study.

Table-4.74 Pearson Correlations among Output Variables

Variables	Participation in Sports	Participation in Science Maths Exhibition	Average Achievement	%Present Student-Head Account
Participation in Sports	1	.291*	.127	.053
Participation in Science Maths Exhibition	.291*	1	.000	-.081
Average Achievement	.127	.000	1	.341**
%Present Student-Head Account	.053	-.081	.341**	1

* Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).

Table-4.75 Total Variance Explained for Output Variables

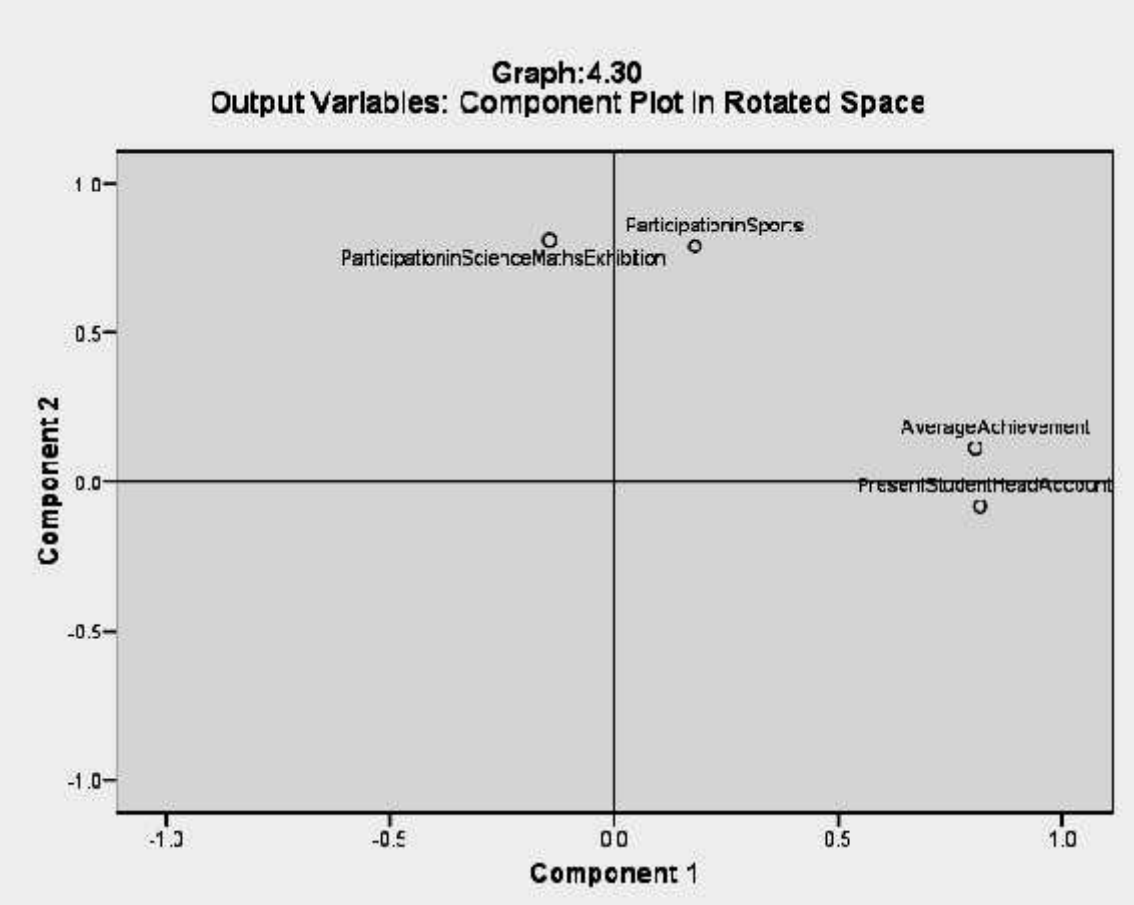
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.392	34.799	34.799	1.392	34.799	34.799
2	1.275	31.877	66.676	1.275	31.877	66.676
3	.683	17.085	83.761			
4	.650	16.239	100.000			

Table-4.76 Rotated Component Matrix(a) for Output Variables

Variables	Component	
	1	2
Average Achievement of Std-7 students	.805	
Participation in Sports		.790
Participation in Science Mathematics Exhibition		.810
Percentage of Present Student by Head Account	.816	

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 3 iterations.

The following graph describes component plot in rotated space for output varibles variables.



Interpretation: There are four variable in output facility. Initial Eigenvalues suggests that there is possibility of extraction of two components. For the extraction of component, verimax method with Kaiser Normalization has been employed. The principal component analysis suggests that component – 1 is comprised of average achievement of Std-7 Students and percentage of present students by head count. Component- 2 is comprised of participation of sports and participation in Science-Mathematics Exhibition.

4.5 Scaling Judgment: Converting into Z-Score and T-score and Assigning Weightage:

There are 21 input variables. Physical facility has eight variables, academic facility has six variables, Human resources has three variables and support system has four variables. There are four output variables. For the aggregating variables, researcher use used standardized score. Using SPSS, researcher has converted the raw score into Z-Score and

T-Score. Using this techniques and consulting with expert from statistic and education, aggregate the variables. The following table describes the weightage of variables.

Physical Facility Variables:

In physical facility variables, there are eight variables, weightage is decided as follows.

Table-4.77 Weightage of Variables for Aggregating Physical facility Variables

Physical Facility variables	Weightage
Compound wall of the school	5%
School entrance gate	5%
Compound of the school	15%
Building of the school	20%
Infrastructure facility in Standard-7 classroom	15%
Water arrangement	15%
Sanitation facility	20%
Student-classroom ratio	5%
Total	100%

Academic Facility Variables

In academic facility variables, there are six variables, weightage is decided as follows.

Table-4.78 Weightage of Variables for Aggregating Academic facility Variables

Academic Facility variables	Weightage
T.L.M. in std-7 classroom	20%
Different display boards in school	15%
Library in School	15%
Science Laboratory in School	20%
Learning Facility through ICT in school (BISEG and other Means)	10%
Computer education facility in school	20%
Total	100%

Human Resources Variables:

In human resources variables, there are three variables, weightage is decided as follows.

Table-4.79 Weightage of Variables for Aggregating Human Resources Variables

Human Resources variables	Weightage
Average of teacher indicators	30%
Average of job satisfaction of teachers	50%
Pupil-teacher ratio	20%
Total	100%

Support System variables:

In support system variables, there are four variables, weightage is decided as follows.

Table-4.80 Weightage of Variables for Aggregating Support System Variables

Support System variables	Weightage
Mid day meal scheme in school	30%
Visit of school by CRCC, BRCC and other officials	20%
Community contribution	20%
School management committee (SMC)	30%
Total	100%

Input variables:

In input variables, there are four dimensions, weightage is decided as follows.

Table-4.81 Weightage of Variables for Aggregating Output Variables

Input variables	Weightage
Physical Facility	20%
Academic Facility	30%
Human resources	30%
Support System	20%
Total	100%

Output variables:

In output variables, there are four variables, weightage is decided as follows.

Table-4.82 Weightage of Variables for Aggregating Output Variables

Output variables	Weightage
Average achievement of Std-7 Students	30%
participation in sports	20%
participation in Science-Maths Exhibition	20%
Percentage of present students by head count	30%
Total	100%

4.6 Coefficient of Correlation between Different Input Variables Scores and Aggregate Output Variable:

The following table describes the Coefficient of Correlation between different input variables and aggregate output variable with their significant at 0.05 and 0.01 level.

Table-4.83 Coefficient of Correlation between Different Input variables and Aggregate Output Variable

Sr. No.	Name of Variables	Types of Variables	Coefficient of Correlation	Level of significance
1	Compound wall of the school	Physical facility	0.104	NS
2	School entrance gate	Physical facility	0.207	NS
3	Compound of the school	Physical facility	0.218	NS
4	Building of the school	Physical facility	0.014	NS
5	Infrastructure facility in Standard-7 classroom	Physical facility	-0.830	NS
6	Water arrangement	Physical facility	0.260	0.05
7	Sanitation facility	Physical facility	0.167	NS
8	Scores of Student-classroom ratio	Physical facility	0.252	0.05
9	T.L.M. in std-7 classroom	Academic facility	0.076	NS
10	Different display boards in school	Academic facility	0.179	NS
11	Library in School	Academic facility	0.024	NS

Sr. No.	Name of Variables	Types of Variables	Coefficient of Correlation	Level of significance
12	Science Laboratory in School	Academic facility	0.316	0.01
13	Learning Facility through ICT in school (BISEG and other Means)	Academic facility	0.080	NS
14	Computer education facility in school	Academic facility	0.341	0.01
15	Average of teacher indicators	Human resources	0.042	NS
16	Average of job satisfaction of teachers	Human resources	0.265	0.05
17	Scores of Pupil-teacher ratio	Human resources	0.220	NS
18	Mid day meal scheme in school	Support system	0.082	NS
19	Visit of school by CRCC, BRCC and other officials	Support system	0.302	0.05
20	Community contribution	Support system	0.369	0.01
21	School Management Committee	Support system	0.069	NS

Interpretation:

From above table, it is found that Science Laboratory in School, Computer education facility in school, Community contribution are significantly correlated with aggregate output variables at 0.01 level.

From above table, it is found that Water arrangement, Scores of student-classroom ratio, Average of job satisfaction of teachers, Visit of school by CRCC, BRCC and other officials are significantly correlated with aggregate output variables at 0.05 level.

From above table, it is found that Compound wall of the school, School entrance gate, compound of the school, Building of the school, Infrastructure facility in Standard-7 classroom, sanitation facility, T.L.M. in std-7 classroom, Different display boards in school, library facility, Learning Facility through ICT in school (BISEG and other Means), Average of teacher indicators, Scores of Pupil-teacher ratio, mid-day meal in school, School Management Committee are not significantly correlated with aggregate output variables.

4.7 Coefficient of Correlation between Input Variables and Aggregate Output Variable.

In the present study, raw score is converted in Z-Score and T-Score. The appropriate waightage is given to each variables. The aggregate values are derived. The coefficient of correlation is calculated using SPSS. On the basis of coefficient of correlation, the hypothesis are tested.

4.7.1 Testing Hypothesis:

The following table shows the coefficient of correlation between input variables and output variable.

Table-4.84 Coefficient of Correlation: Input Variables and Aggregate Output Variables

Variables	Physical Facility	Academic Facility	Human Resources	Support System	Output
Physical Facility	1	.650(**)	-.017	.283(*)	.184
Academic Facility	.650(**)	1	-.042	.397(**)	.293(*)
Human Resources	-.017	-.042	1	.169	.279(*)
Support System	.283(*)	.397(**)	.169	1	.278(*)
Output	.184	.293(*)	.279(*)	.278(*)	1

**Correlation is significant at the 0.05 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

The hypothesises are as follows.

Ho 1: There will be no significant correlation between physical facility and academic facility.

The table 4.84 shows that the coefficient of correlation between physical facility and academic facility is 0.650; the value indicates that it is significant at 0.01 level. Hence, null hypothesis is rejected. It is further interpreted that there is significant correlation between physical facility and academic facility.

Ho 2: There will be no significant correlation between physical facility and human resources facility.

The table 4.84 shows that the coefficient of correlation between physical facility and human resources is -0.17; the value indicates that it is not significant. Hence, null hypothesis is accepted. It is further interpreted that there is no significant correlation between physical facility and human resources.

Ho 3: There will be no significant correlation between physical facility and support system.

The table 4.84 shows that the coefficient of correlation between physical facility and support system is 0.283; the value indicates that it is significant at 0.05 level. Hence, null hypothesis is rejected. It is further interpreted that there is significant correlation between physical facility and support system.

Ho 4: There will be no significant correlation between academic facility and human resources.

The table 4.84 shows that the coefficient of correlation between academic facility and human resource is -0.042; the value indicates that it is no significant. Hence, null hypothesis is accepted. It is further interpreted that there is no significant correlation between academic facility and human resources.

Ho 5: There will be no significant correlation between academic facility and support system.

The table 4.84 shows that the coefficient of correlation between academic facility and support system is 0.397; the value indicates that it is significant at 0.01 level. Hence, null hypothesis is rejected. It is further interpreted that there is significant correlation between academic facility and support system.

Ho 6: There will be no significant correlation between human resources and support system.

The table 4.84 shows that the coefficient of correlation between human resource and support system is 0.169; the value indicates that it is no significant. Hence, null hypothesis is accepted. It is further interpreted that there is no significant correlation between human resources and support system.

Ho 7: There will be no significant correlation between physical facility and output variables.

The table 4.84 shows that the coefficient of correlation between physical facility and output variables is 0.187; the value indicates that it is not significant. Hence, null hypothesis is accepted. It is further interpreted that there is no significant correlation between physical facility and output variables.

Ho 8: There will be no significant correlation between academic facility and output variable.

The table 4.84 shows that the coefficient of correlation between academic facility and output variables is 0.293; the value indicates that it is significant at 0.05 level. Hence, null hypothesis is rejected. It is further interpreted that there is significant correlation between academic facility and output variables.

Ho 9: There will be no significant correlation between human resources and output variable.

The table 4.84 shows that the coefficient of correlation between human resource and output variables is 0.279; the value indicates that it is significant at 0.05 level. Hence, null hypothesis is rejected. It is further interpreted that there is significant correlation between human resources and output variables.

Ho 10: There will be no significant correlation between support system and output variable.

The table 4.84 shows that the coefficient of correlation between support system and output variables is 0.278; the value indicates that it is significant at 0.05 level. Hence, null hypothesis is rejected. It is further interpreted that there is significant correlation between support system and output variables.

4.8 Coefficient of Correlation between Aggregate input Variables and Aggregate Output Variable.

The following table shows the coefficient of correlation between aggregate input variables and output variable.

Table-4.85 Coefficient of Correlation: Aggregate Input Variables and Aggregate Output Variables

Variables	Output Variables	Level of significant
Input Variables	0.409	0.01

Ho 11: There will be no significant correlation between aggregate input variables and aggregate output variable.

The table 4.85 shows that the coefficient of correlation between aggregate input variables and aggregate output variable is 0.409; the value indicates that it is significant at 0.01 level. Hence, null hypothesis is rejected. It is further interpreted that there is significant correlation between support system and output variables.

4.9 Efficiency Analysis by Stochastic Frontier Production Model

For the efficiency analysis, Stochastic Frontier Production Model is used. Cobb-Douglas specifications is adopted, inefficiency distribution assumed is half-normal distribution.

Usually production function is written as:

$\ln Y = \beta_0 + \ln X_1 \beta_1 + \ldots. + \ln X_m \beta_m + \varepsilon$

where Y is output, X is vector of inputs and β_s are unknown parameters to be estimated; ε is a composed unknown error term, it include not only usual elements (noise) but also inefficiency.

Efficiency analysis is done by using computer programme FRONTIER 4.1 (Version 4.1c) by Team Coelli, Centre for Efficiency and Productivity Analysis, University of England, Australia.

The following table shows the Efficiency Scores of Elementary School by Stochastic Frontier Production Model.

Table-4.86 Efficiency Scores of Elementary School by Stochastic Frontier Production Model

School	Efficiency Scores	School	Efficiency Scores	School	Efficiency Scores	School	Efficiency Scores
1	0.950	19	0.880	37	0.943	55	0.647
2	0.774	20	0.992	38	0.991	56	0.852
3	0.948	21	0.710	39	0.931	57	0.902
4	0.919	22	0.652	40	0.866	58	0.976
5	0.940	23	0.998	41	0.985	59	0.591
6	0.677	24	0.985	42	0.709	60	0.746
7	0.898	25	0.986	43	0.960	61	0.893
8	0.963	26	0.873	44	0.930	62	0.855
9	0.815	27	0.832	45	0.820	63	0.762
10	0.910	28	0.931	46	0.879	64	0.969
11	0.725	29	0.983	47	0.839	65	0.985
12	0.872	30	0.859	48	0.956	66	0.842
13	0.766	31	0.770	49	0.984	67	0.982
14	0.808	32	0.862	50	0.503	68	0.904
15	0.581	33	0.623	51	0.678	69	0.883
16	0.991	34	0.911	52	0.915	70	0.711
17	0.678	35	0.700	53	0.783	71	0.817
18	0.679	36	0.750	54	0.888		

The following table shows the frequency and percentage for efficiency scores.

Table–4.87 Frequency and Percentage for Efficiency Scores

Interval	Frequency	Percentage	Cumulative Percentage	Interval	Frequency	Percentage	Cumulative Percentage
.50-.54	1	1.41%	1.41%	.80-.84	7	9.86%	40.85%
.55-.59	2	2.82%	4.23%	.85-.89	13	18.31%	59.15%
.60-.64	2	2.82%	7.04%	.90-.94	11	15.49%	74.65%
.65-.69	5	7.04%	14.08%	.95-.99	18	25.35%	100.00%
.70-.74	6	8.45%	22.54%	Total	71	100.00%	
.75-.79	6	8.45%	30.99%				

The following table shows the descriptive statistics for efficiency scores

Table–4.88 Descriptive Statistics for Efficiency Scores

Statistical Technique	Value	Statistical Technique	Value
N	71	Skewness	-0.745
Mean	0.846	Kurtosis	-0.245
Std. Error of Mean	0.014	Minimum	0.503
Median	0.873	Maximum	0.998
Mode	0.985	25^{th} Percentiles	0.762
Std. Deviation	0.121	75^{th} Percentiles	0.948

Interpretation: In descriptive analysis for efficiency scores, the value of median is greater than mean, indicating negative skewness. It indicates more score falling on higher values in the groups. The value of kurtosis is negative. Negative kurtosis indicates that the observation cluster less and have shorter tails than those in the normal distribution. (SPSS 15.0, 2006). It indicates platykurtic curve.

The Computer Programme FRONTIER 4.1 (Version 4.1c) by Team Coelli provides Maximum Likelihood Estimates. The following table shows Final Maximum Likelihood Estimates.

Table–4.89 Final Maximum Likelihood Estimates

β	Input Variables	Coefficient	t-ratio	Level of Significance
β_0	Intercept	20.334	9.983	0.01
β_1	Compound wall of the school	-0.821	-0.323	NS
β_2	School entrance gate	10.685	3.203	0.01
β_3	Compound of the school	9.469	2.612	0.01
β_4	Building of the school	-1.982	-1.112	NS
β_5	Infrastructure facility in Standard-7 classroom	-35.145	-14.380	0.01
β_6	Water arrangement	2.809	2.168	0.05

β	Input Variables	Coefficient	t-ratio	Level of Significance
β_7	Sanitation facility	-1.864	-1.409	NS
β_8	Scores of Student-classroom ratio	-0.693	-0.628	NS
β_9	T.L.M. in std-7 classroom	-4.915	-7.024	0.01
β_{10}	Different display boards in school	0.648	0.532	NS
β_{11}	Library in school	1.300	0.876	NS
β_{12}	Science Laboratory in school	5.837	3.101	0.01
β_{13}	Learning facility through ICT in school (BISEG and other Means)	0.469	0.414	NS
β_{14}	Computer education facility in school	1.894	0.967	NS
β_{15}	Average of teacher indicators	14.791	8.290	0.01
β_{16}	Average job satisfaction of teachers	12.563	4.106	0.01
β_{17}	Scores of Pupil-teacher ratio	1.420	1.574	NS
β_{18}	Mid day meal scheme in school	-18.771	-5.447	0.01
β_{19}	Visit of school by CRCC, BRCC and other officials	4.337	5.068	0.01
β_{20}	Community contribution	6.563	7.419	0.01
β_{21}	School management committee (SMC)	3.741	2.165	0.05

The Computer Programme FRONTIER 4.1 (Version 4.1c) by Team Coelli provides intercept term (β_0) is significant at 0.01 level. The above table shows that coefficient of β_2, β_3, β_6, β_{12}, β_{15}, β_{16}, β_{19}, β_{20}, and β_{21} have positive sign and significant t- ratio. It indicates that these input variables positively inclined with efficiency scores. These are school entrance gate; compound of the school; water arrangement; science Laboratory in school; average of teacher indictors; average job satisfaction of teachers; visit of school by CRCC, BRCC and other officials; community contribution and School management committee (SMC). These variables are contributing significantly in efficiency scores.

The coefficient of β_5, β_9, and β_{18} have negative sign and significant t-ratio. It indicates that these input variables negatively inclined with efficiency scores. These are

infrastructure facility in Standard-7 classroom; T.L.M. in std-7 classroom; and mid-day meal scheme in school. These variables having higher scores are contributing negatively to efficiency scores. The students come from poor family background take more benefit of mid-day meal. Mid-day meal scores are negatively inclined with efficiency scores. Facility of std-7 is also negatively inclined with efficiency scores. It also found in the research work of Nall Gounden (2003) on Madya Pradesh DPEP Date that teaching aid index was negatively inclined with efficiency scores. In present study, building of the school, sanitation facility is also negatively inclined with efficiency scores, but they are not significant.

In this chapter, the data were analysed, the major finding and discussion is done in the next chapter.