

CHAPTER-IV

**DATA PRESENTATION,
ANALYSIS AND
INTERPRETATION.**

DATA, PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 INTRODUCTION

In the Present chapter data collected from different schools has been tabulated, analysed and interpreted. The objectives were to find out the significance of difference in levels of achievement of :

- i) Pupils from tribal and non tribal areas,
- ii) Boys and Girls

It was also tried to find out the impact of parental occupation, parental education and family size on pupils' achievement

4.2 METHODOLOGY OF DATA COLLECTION

For collecting the data from the sample area , achievement test was administered on 7 primary schools of Shahdol district and 5 primary schools of Bhopal city. School were selected randomly keeping in view that the school climate of the schools of Bhopal should be nearly same to that of the schools of Shahdol district. Out of the collected sample of 216 pupils, 100 were Boys and 106 were Girls. Area wise 104 students were from tribal areas and 102 students were from non tribal area i.e. Bhopal district.

For collecting data from these primary schools first of all Head Masters and class teachers of these schools were contacted and requested

to grant permission and co-operate in administering the achievement test. Students were selected randomly in such a way that the sample was represented and equally by boys & girls. Necessary instruction were given to the students regarding the achievement test. Sufficient time was given to them for solving the questions. After the test was over answer sheets were collected with the help of class teacher. Marks were awarded separately for each competency. competency-wise raw scores were tabulated in separate groups, viz boys and girls; Pupils of tribal area & non tribal area, pupils with similar parental education, parental occupation and family size.

4.3 STATISTICAL TREATMENT

Raw scores were collected. Data was tabulated gender wise as well as area wise. Mean score was calculated using the formula.

$$\text{Mean} = \frac{1}{N} \sum X$$

X = raw score

Standard deviation was calculated by using the formula

$$\text{S.D.} = \sqrt{\frac{\sum X^2}{N} - M^2}$$

X = Raw score

M = Mean score of achievement

N = Frequency

To determine the significance of difference, in mean score critical ratio was calculated -

$$\text{Critical Ratio} = \frac{(M_1 - M_2)}{(\frac{SD_1^2}{N_1} + \frac{SD_2^2}{N_2})^{1/2}}$$

M₁ = Mean score of first group

M₂ = Mean score of second group

SD₁ = S.D. of first group

SD_2 = S.D. of second group

N_1 = No. of Pupils in first group

N_2 = No. of Pupils in second group

Co-efficient of Variation = $\frac{\text{Standard Deviation}}{\text{Mean Score}} \times 100$

Analysis of Variance was done to access significant difference within the mean scores of different groups

coefficient of variation was calculated to access the homogeneity of scores in the group.

4.4 ANALYSIS OF THE DATA

To study the level of achievement of V grade students of tribal and non-tribal areas in the selected competencies of environmental studies a test was administered on the sample of 206 pupils selected by stratified random sampling method from the sample area of Shahdol district and 5 schools from non tribal area i.e. Bhopal district.

The raw scores obtained for the total sample were tabulated competency wise. The data was analysed in two ways:

- A. Accessing the mastery level of pupils in each competency
- B. Determination of present level of achievement of the pupils

A. ACCESSING THE MASTERY LEVEL

According to minium level of learning it is expected that 80% or more children shall have the mastery over at least 80% of the prescribed learning levels.

To determine the extent of mastery level of the students, percentage of those students from the sample was calculated who had acquired more than 80% mastery level, between (60% to 79%) mastery level, between (40% to 59%) mastery level, less than 40% and who had acquired zero marks. Below given table shows the percentage of marks obtained by the students in each competency and in total.

Table No.4.1

Mastery levels of the students in different competencies

Competency	No. of Students	MASTERY LEVEL				
		More than 80%	60%-79%	59%-40%	Less Than 40%	0.0%
7	N	51	60	50	43	2
	%	24.76	29.13	24.27	20.87	0.97
8	N	95	60	29	17	5
	%	46.11	29.13	14.08	8.25	2.43
9	N	41	46	61	54	4
	%	19.91	22.33	29.61	26.21	1.94
10	N	31	48	53	66	8
	%	15.05	23.30	25.73	32.04	3.88
Total	N	26	67	89	24	00
	%	12.62	32.55	43.20	11.65	00

Analysis of the above table shows that out of the total sample of 206 students, only 26 pupils (12.62%) could attain more than 80% mastery level. Total 93 (26+67) students (45.17%) could attain more than 60% level.

Maximum 43.20% students obtained 40% to 59% of mastery level while 11.65% pupil attained less than 40% level. No student attained zero mastery level in the total achieve.

Competency wise analysis resulted in the fact that only 46.11% pupils in competency 8 could obtain more than 80% level. In this 80% mastery level percentage of students was varying between 15.05% to 46.11% in different competencies.

When mastery level was lowered to 60% then the highest percentage of students who attained between 60% to 79% mastery level was 29.13 % in competencies 7 and 8 .

32.04% students could attain less than 40% mastery level in competency 10. In this mastery level, percentage of student varied from 8.25% to 32.04%.

The most alarming feature of the analysis was that in every competency some of the students attained zero mastery level, High percentage was (3.88%) in competency 10 and the lowest was (0.97%) in competency 7.

B. EXISTING LEVEL OF ACHIEVEMENT OF THE PUPILS:

To study the existing level of achievement the data was analysed, competency-wise raw scores were tabulated. Mean score was calculated. Total score was out of 24 maximum marks. Percentage of mean score was also calculated. For individual competency maximum marks were only 6. For determination of homogeneity of the scores standard deviation and co-eff. of variance was calculated. By calculating mean scores, s.d. and c.v. it becomes

easier to access the difficulty level of each competency.

Table 4.2

Mean, S. D. and C.V. of the achievement scores

N = 206

S.No.		Competency				Total
		7	8	9	10	
1	Mean Score	3.56	4.22	3.26	3.02	14.07
2	Percentage	59.33%	70.33%	54.33%	50.33%	58.63%
3	S.D.	1.07	1.37	1.40	0.56	3.67
4	C.V.	35.67	32.46	42.94	18.54	26.08

Above table reveals that when tribal and non-tribal population was taken together, highest mean achievement of the pupil was in competency 8 (70.33%) where as the lowest score was in competency 10 (50.33%). In competency 7 they scored 59.3% which was nearly equal to the average score (58.63%) of the sample.

In competency 10 standard Deviation was only (0.56) and Co-eff. of variation was 18.54 which was lowest amongst all the categories. This shows that the scores in this competency were nearly homogenous. Most heterogeneity was in competency 9 (cv = 42.94). Its standard deviation also was highest (1.40) amongst all the four competencies.

4.5 GENDERWISE ANALYSIS OF THE RAW SCORES:

In the present study the sample of 206 students consisted of 100 boys and 106 girls. These boys and girls were both from tribal and non tribal areas.

The raw scores were tabulated competency-wise.

A. MASTERY LEVELS OVER THE CONTENT

To access the mastery levels of boys and girls, they were tabulated separately in each competency and in total, percentages of boys and girls were calculated who attained more than 80%, between 60% to 79%, between 59% to 40%, less than 40% and zero percent mastery levels. Percentages are given in table 4.3

Analysis of the data revealed that 29% boys and 20.75% girls could obtain 80% mastery level in competency 7. In Competency 8 both boys (53%) and girls (39.62%) did better than in competency 7, but they could not obtain the required level.

In competencies 9 & 10 the mastery level was very low.

When the mastery level was lowered to 60% score was not attained.

In competency 7, 60% boys and 48.11% girls attained more than 60% marks

In competency 8, 84% boys and 66.98% girls attained more than 60% level.

In competency 9 & 10 less than 50% boys and girls could attain 60% or more marks.

In the total performance only 57% boys and 33.96 girls attained the 60% level of mastery.

Table No. 4.3

Percentage of boys and girls who have obtained different mastery levels.

COMPETENCY		more than 80%		60% - 79%		59% - 40%		less than 40%		0.0 %	
		M	F	M	F	M	F	M	F	M	F
7	N	29	22	31	29	25	25	13	30	2	0
	%	29	20.75	31	27.36	25	23.58	13	28.30	2	0
8	N	53	42	31	29	10	19	6	11	0	5
	%	53	39.62	31	27.36	10	17.92	6	10.38	0	4.72
9	N	25	16	23	23	30	31	18	36	4	0
	%	25	15.09	23	21.70	30	29.25	18	33.96	4	0
10	N	19	12	25	23	24	29	27	39	5	3
	%	19	11.32	25	21.70	24	27.36	27	36.79	5	2.83
TOTAL	N	19	7	38	29	34	55	9	15	0	0
	%	19	6.6	38	27.36	34	51.89	9	14.15	0	0

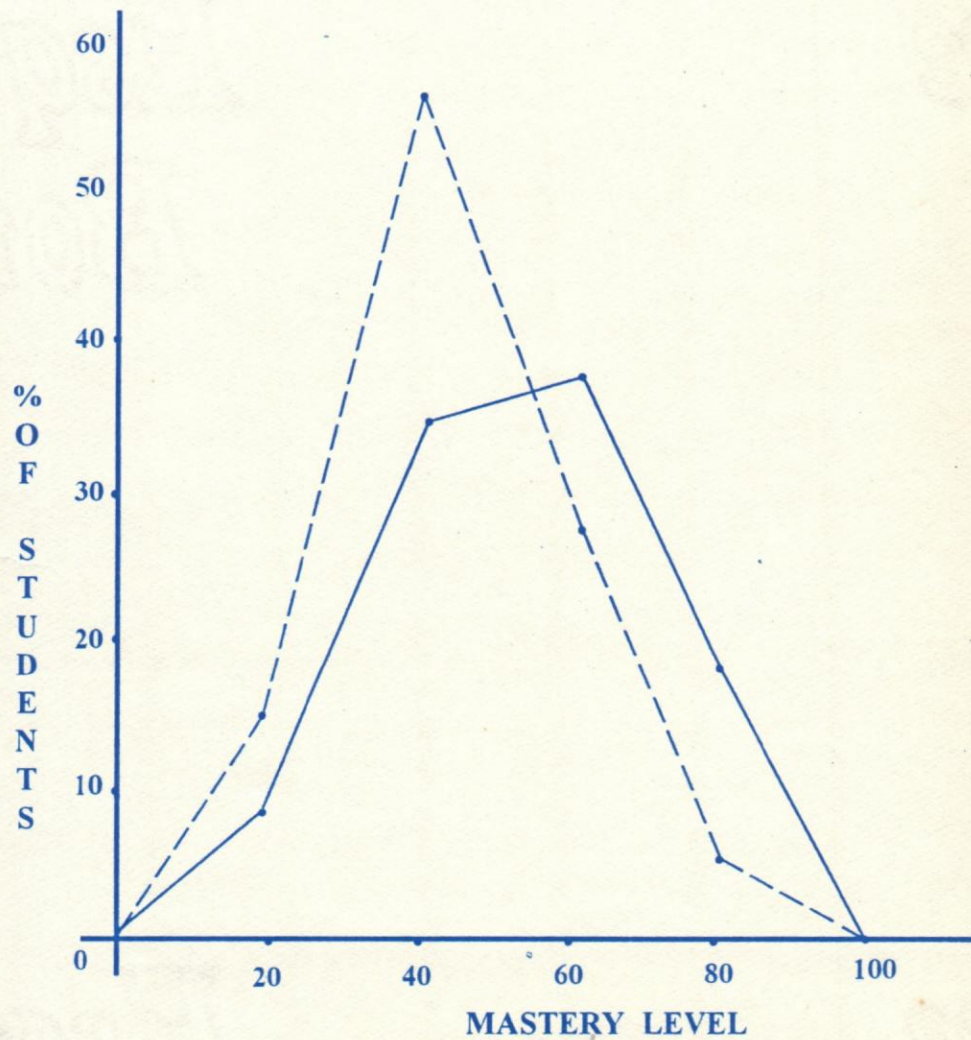
In total, % of boys whose mastery level was zero, was more in competency 7, 8 & 10 that of girls.

In competency 8, 4.72% girls attained zero mastery level.

GRAPH - 2

MASTERY LEVEL OF BOYS AND GIRLS

BOYS —————
GIRLS - - - - -



B. PRESENT LEVELS OF ACHIEVEMENT

The data was analysed. Mean, S.D. and co-eff. of variation for each competency was calculated, separately for boys and girls

A. MALE POPULATION

Analysis of the scores for boys is shown in table 4.4

Table 4.4

Mean, S.D. and C.V. of Male population N = 100

SNO	Competency	7	8	9	10	Total
1	Max.Marks	6	6	6	6	24
2	Mean	3.73	4.53	3.48	3.11	14.85
3	%	62.17%	75.5%	58.0%	51.83%	61.88%
4	S.D.	1.25	1.11	1.48	1.48	3.77
5	C.V.	33.51	24.50%	42.53%	47.59%	25.39

Gender - wise analysis of the data shown that boys scored highest (75.5 %) in competency 8, where as they scored lowest (51.83) in competency 10. The average score was 61.88%. with standard deviation 3.77. lowest S.D. was for competency 8. This competency was more homogenous (C.V. = 24.5). Competency 10 was most heterogenous (C.V. = 57.59) but the co-eff of variation was only 25.39 which was lowest.

2. Female Population

106 girls were selected from 12 schools of tribal and non-tribal areas included in the sample, Table 4.3 shows the Mean, S.D. & C.V. of the scores.

Table 4.5

Mean, S.D. and C.V. of Female population

N = 106

S.No.	Competency	7	8	9	10	Total
1	Max.Marks	6	6	6	6	24
2	Mean	3.4	3.93	3.05	2.94	13.33
3	Percentage	56.67%	65.5%	50.83%	49.00%	55.54%
4	S.D.	1.27	1.51	1.3	1.20	3.36
5	C.V.	37.35	38.42	42.62	42.62	25.66

Analysis of the mean score of the girls, obtained from the sample area, indicates that the girls scored highest in comp.8 (65.5%) Where as Boys scored 75.5% in this competency. Girls scored lowest (49.00%) in competency 10, same as in the case of Boys. In the aggregate score boys did better (61-88%) in comparison to girls (55.54%)

Co-eff. of variation for the scores, both for Boys & girls, were nearly same (25.39, 25.66)

A comparison of the Parameters of these two groups are given in the Table 4.6

Table 4.6

Gender wise comparison of the mean achievement.

S. No.	Parameter	Girls	Boys
		N	106
1.	Mean Achievement	13.33	14.85
2.	Percentage Score %	55.54%	61.88%
3.	S.D.	3.42	3.77
4.	C.V.	25.66	25.39

Significance of difference in mean scores has been calculated on the basis of critical ratio.

$$\begin{aligned}
 C.R &= (M_1 - M_2) / \left(\frac{SD_1^2}{N_1} + \frac{SD_2^2}{N_2} \right)^{.5} \\
 &= (14.85 - 13.33) / \left(\frac{3.77 \times 3.77}{100} + \frac{3.42 \times 3.42}{106} \right)^{.5} \\
 &= \frac{1.5}{0.50}
 \end{aligned}$$

$$C.R. = 3.00$$

$$\text{Degree of freedom} = 204$$

Value of C.R. for 204 degree of freedom at 0.01 level of confidence is 2.60 which is less than the above calculated value 3.00. This indicates that there is significant difference in the mean achievement scores of Boys & girls.

Hence the null hypothesis H_0^1 which states that there is no significant difference in the level of achievement on the basis of gender is rejected at 0.01 level of confidence.

To determine significance of difference in the competency-wise mean scores of Male & Female population, gender wise critical ratios were calculated.

Table 4.7

Gender wise Mean Scores, S.D. and C.V.

Comp.	Male N = 100				Female N = 106			
	7	8	9	10	7	8	9	10
$\sum X$	373	453	348	311	360	417	323	312
$\sum X^2$	1547	2176	1430	1185	1396	1877	1165	1070
Mean	3.73	4.53	3.48	3.11	3.40	3.93	3.05	2.94
S.D	1.25	1.11	1.48	1.48	1.27	1.51	1.30	1.20
C.V.	33.51	24.50	42.53	47.59	37.35	38.42	42.62	40.82

Value of competency-wise critical ratios are calculated as below :

COMPETENCY 7

$$\begin{aligned} \text{C.R.} &= (3.73 - 3.40) / \{(1.25)^2/100 + (1.55)^2/106\}^{1/2} \\ &= 1.69 \end{aligned}$$

COMPETENCY 8

$$\begin{aligned} \text{C.R.} &= (4.53 - 3.93) / \{(1.11)^2/100 + (1.82)^2/106\}^{1/2} \\ &= 2.87 \end{aligned}$$



$$= 2.87$$

COMPENTERNCY 9

$$\begin{aligned} \text{C.R} &= (3.48 - 3.05) / \{(1.48)^2/100 + (1.53)^2/106\}^{1/2} \\ &= 2.05 \end{aligned}$$

COMPENTENCY 10

$$\begin{aligned} \text{C.R} &= (3.11 - 2.94) / \{(1.48)^2/100 + (1.43)^2/106\}^{1/2} \\ &= 0.84 \end{aligned}$$

TOTAL ACHIEVEMENT

$$\begin{aligned} \text{C.R} &= (14.85 - 13.33) / \{(3.77)^2/100 + (4.8)^2/106\}^{1/2} \\ &= 2.54 \end{aligned}$$

In the below given table competency - wise critical ratio are summarised and significance of mean difference at 0.01 level of confidence has been determined

Table No. 4.8

Competency - wise critical ratios

S.No	Compe. tency	D.F	C.R	Significance
1.	7	204	1.69	Not Significant
2.	8	204	2.87	Significant
3.	9	204	2.05	Not Significant
4.	10	204	0.84	Not Significant

4.6 AREA WISE ANALYSIS OF THE RAW SCORES

The sample of 206 students was comprised of 104 pupils from tribal area and 102 pupils from non-tribal area.

A comparison of the mastery level of the Pupils from the two area is shown in Table given below

Table No. 4.9

Mastery levels of the pupils from tribal and non tribal area.

Tribal Area N = 104

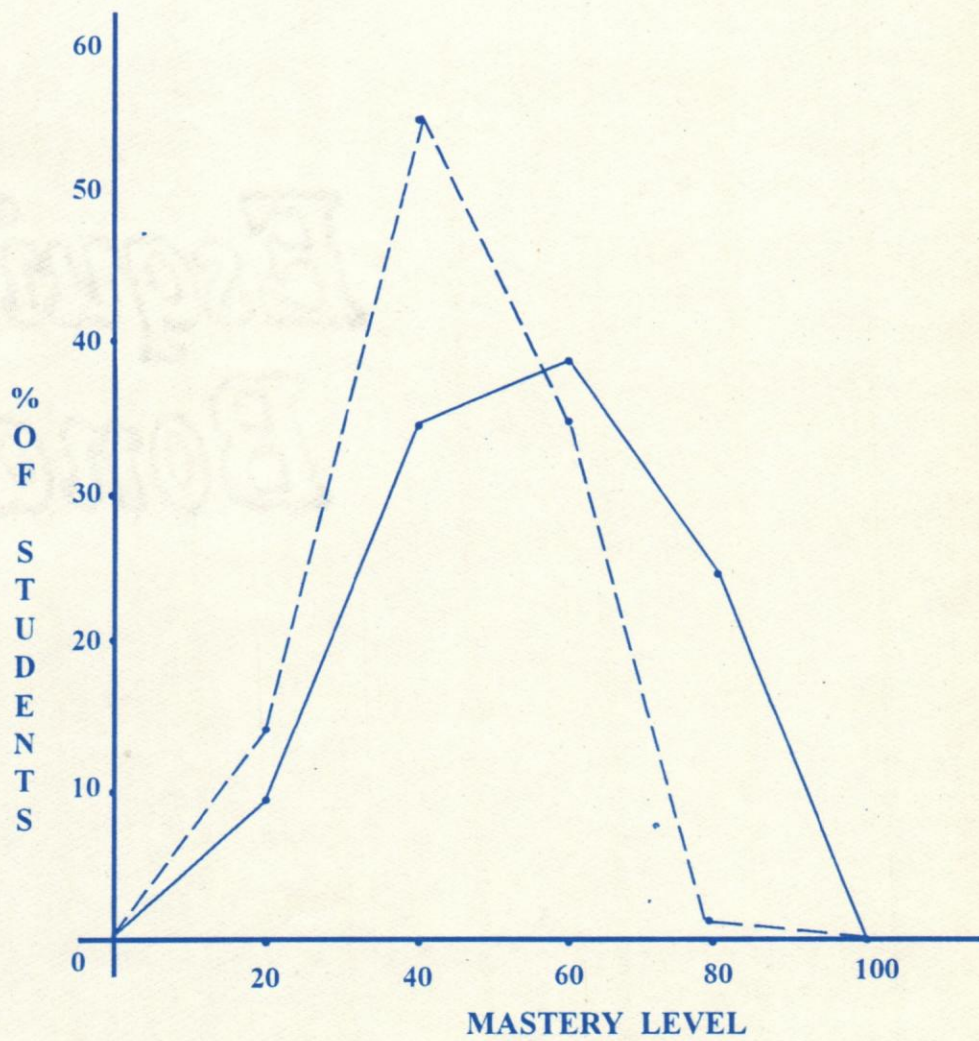
Non-Tribal Area N = 102

Competency		more than 80%		60% - 79%		59% - 40%		less than 40%		0.0 %	
		T	NT	T	NT	T	NT	T	NT	T	NT
7	N	29	22	28	32	20	30	27	16	0	2
	%	27.88	21.57	26.93	31.37	19.23	29.41	25.96	15.69	0	1.96
8	N	62	33	31	29	5	24	3	14	3	2
	%	59.62	32.35	29.81	28.43	4.81	23.53	2.88	13.73	2.88	1.96
9	N	38	3	28	18	14	47	24	30	0	4
	%	36.54	2.94	26.92	17.65	13.46	46.08	23.08	29.41	0	3.92
10	N	28	3	25	23	19	34	31	35	1	7
	%	26.92	2.94	24.04	22.56	18.27	33.33	29.81	34.31	0.96	6.86
Total Sample	N	24	2	38	29	33	56	9	15	0	0
	%	23.08	1.96	36.54	28.43	31.73	54.90	8.65	14.71	0	0

GRAPH - 2

MASTERY LEVEL OF TRIBAL AND NON-TRIBAL
AREA STUDENTS

TRIBAL AREA —————
NON TRIBAL AREA - - - - -



From the above table it is clear that Pupils neither from tribal area nor from non tribal area, 80% Pupils could attain 80% mastery level.

From tribal area 23.08% Pupil could attain this target where as only 1.96% pupil from non tribal area could achieve 80% level.

Highest (59.62%) number of students could attain 80% level in competency 8, who were from tribal area.

Lowest (2.94%) was the number of Pupil from non tribal area who attained 85% level. 59.62% students from tribal area got more than 60% score, but only 30.39% Pupils from non tribal area got more than 60%.

Percentage of students from non-tribal area was more than that of tribal area who attained mastery level between 40% and 59%.

There were 15 students who got zero mastery level in one competency or the other from Non tribal area. From Tribal area only 4 students got zero level in com.8 & 10.

To determine the existing level of achievement of Pupil from the two areas, raw scores were analysed and mean score, S.D. and C.V. calculated.

Area-wise analysis is given below:

A. TRIBAL AREA

From this area seven Primary schools were randomly selected for administration of Test. Mean score, Percentage score, standard deviation and co-efficient of variation was calculated. These are mentioned in the below given Table 4.10.

Table No. 4.10

Mean, Percentage mean, SD and CV. of the Pupils from Tribal area.

S.No.	Competency	7	8	9	10	Total
	Max.Marks	6	6	6	6	24
1	Mean Score	3.63	4.61	3.80	3.40	15.43
2	Percentage	60.50%	76.83%	63.33%	56.67%	64.29%
3	S.D.	1.32	1.22	1.44	1.36	3.71
4	C.V.	36.36	26.46	37.89	40.00	24.04

Above table indicates that tribal Pupils scored highest (76.83%) in competency 8 where as they scored lowest (56.67%) in competency 10. In the competency 8 S D was lowest (1.22) and co-eff of variation was also lowest (26.46)

B NON-TRIBAL AREA

Non-tribal area was represented by Bhopal city From from this Non-tribal area five schols were randomly selected for administring The achievement test, on 102 Pupils.

Raw scores were tabulated. Mean score S.D. and co-eff. of Variation were calculated. These are given in table 4.11

Table No. 4.11

Mean, S.D.and C.V. of the sample from non-tribal area

N = 102

S.No.	Competency	7	8	9	10	Total
	Max.Marks	6	6	6	6	24
1	Mean Score	3.49	3.83	2.71	2.64	12.68
2	Percentage	58.17%	63.83%	45.17%	44.00%	52.83%
3	S.D.	1.21	1.37	1.21	1.20	3.07
4	C.V.	34.67	35.77	44.65	45.45	24.21

The mean score of the Pupils from This area was only 52.83%. Pupils scored 63.83% in competency 8 with S.D. 1.37. In competency 7,9,& 10 standard Deviation was equal. co-eff. of variaton was High in comp.9 and 10 (44.65, 45.45), where as it was low in comp.7 (34.67) and comp.8 (35.77).

To determine the significance in difference of mean scores of the Pupils from Tribal & non tribal areas, critical ratio was calculated.

Table No. 4.12

Mean, N and S.D. of two areas.

S.No		Tribal Area	Non Tribal Area
1.	Mean	15.43	12.68
2.	N	104	102
3.	S.D.	3.71	3.07

$$\text{Critical Ratio} = (M_1 - M_2) / \{SD_1^2/N_1 + SD_2^2/N_2\}^{1/2}$$

$$\begin{aligned} \text{C.R.} &= (15.43 - 12.68) / (3.71 \times 3.71/104 + 3.07 \times 3.07/102)^{1/2} \\ &= 2.75 / 0.47 \end{aligned}$$

$$\text{CR} = 5.80$$

Degree of freedom = 204

The value of critical ratio (5.80) shows that there was significant difference at 0.01 level of confidence in the mean achievement of the Pupils from Tribal and non Tribal Areas.

Hence th hypothesis No. Ho² " There is no significant difference in the level of achievement of the Pupils Tribal and non-tribal areas" is rejected.

competency-wise significance of difference in the mean of the Pupil from Tribal and non-Tribal areas

COMPETENCY 7

$$\begin{aligned} \text{CR} &= (3.63 - 3.49) / \{(1.32 \times 1.32)/104 + (1.21 \times 1.21)/102\}^{1/2} \\ &= 0.79 \end{aligned}$$

COMPETENCY 8

$$\begin{aligned} \text{CR} &= (4.61 - 3.83) / \{(1.22 \times 1.22)/104 + (1.37 \times 1.37)/102\}^{1/2} \\ &= 4.33 \end{aligned}$$

COMPETENCY 9

$$\begin{aligned} \text{CR} &= (3.8 - 2.71) / \{(1.44 \times 1.44)/104 + (1.21 \times 1.21)/102\}^{1/2} \\ &= 5.89 \end{aligned}$$

COMPETENCY 10

$$\begin{aligned} CR &= (3.40-3.40)/\{(1.36 \times 1.36)/104 + (1.20 \times 1.20)/102\}^{1/2} \\ &= 4.26 \end{aligned}$$

competency-wise value of C.R. are given in the Table. Significance of difference at 0.01 level of confidence in the mean achievement of The Pupils from tribal and non-tribal area are also given in the Table 4.13

Table No. 4.13

C.R. d.f. and Significance of difference in Means

Competency	C.R.	d.f.	Significance
7	0.79	204	Not Significant
8	4.33	204	significant
9	5.89	204	significant
10	4.26	204	significant

This shows that in competencies no. 8,9 and 10, There was significant difference in The mean achievement of tribal & Non-tribal Pupils.

4.7 PARENTAL OCCUPATION-WISE ANALYSIS OF THE PUPIL'S ACHIEVEMENT

To access the effect of parental occupation on pupil's academic achievement, data was sorted on the basis of parental occupation. Parental occupations were divided into three categories: 1.Service, 2.Bussiness, and 3.Other occupations

out of the total sample of 206 pupils, 103 (50.01%) students' parents were in service, where as only 49 (23.79%) students' Parents were doing their bussiness, 54 (26.21%) parents were in other occupations

Competency wise mean achievement, S.D. & C.V. are shown in the following Tables, for each occupation separately.

A. OCCUPATION-SERVICE

Raw scores of the pupils, whose perents were in this category, were analysed . Mean, S.D. & C.V. are given in table 4-11.

Table No.4.14

Mean Score, S.D. and C.V. of the Pupils whose Parents were in service.

S.No.		Competency				Total
		7	8	9	10	
1	Mean Score	3.65	4.22	3.22	3.13	14.22
2	Percentage	60.84%	70.39%	53.72%	52.10%	59.26%
3	S.D.	1.25	1.40	1.26	1.29	3.32
4	C.V.	34.25	33.18	39.13	41.21	23.35

Highest score in this category was in comp8 (4.22) where as the lowest was in comp 10 (3.13). SD. was highest for comp 8 (1.40) and lowest for comp7 (1.25)

B. OCCUPATION- BUSSINESS

Mean score, S.D. & C.V. of the pupils whose parents were in Bussiness is given in table 4.15

Table No. 4.15

Mean , S.D. & C.V. of the Pupils with Bussiness as parental occupation

N = 49

S.No.		Competency				Total
		7	8	9	10	
1	Mean Score	3.57	4.431	3.55	3.20	14.76
2	Percentage	59.50%	73.83%	59.17%	53.33%	61.50%
3	S.D.	1.07	1.07	1.36	1.18	2.90
4	C.V.	29.97	24.15	38.31	36.88	19.65

Highest mean score of the pupils from this category was 73.83% in competency8. Mean score was more than 60%. S.D. was approximately equal for all the competencies but it was 2.90 for the total achievement. C.V. was also lowest (19.65) for the total score of the pupils of this category

C. OTHER OCCUPATIONS

Score of the pupils whose parent's occupation was other than bussiness or service were pooled up in this category. They are analised & tabulated in table 4.16

Table No. 4.16

Mean, S.D. & C.V. of the pupils with other parental occupations

$$N = 54$$

S.No.		Competency				Total
		7	8	9	10	
1	Mean Score	3.37	4.04	3.06	2.67	13.15
2	Percentage	56.17%	67.33%	51.00%	44.50%	54.79%
3	S.D.	1.46	1.53	1.66	1.50	4.64
4	C.V.	43.32	37.87	54.25	56.18	35.29

In this category pupils scored highest (67.33%) in competency8 and lowest (44.5%) in competency 10. Their average score was 54.79%.

For comparative analysis of the three groups. mean S.D. and N are given in Table 4.17

Table No. 4.17

Mean & S.D. of the scores of pupils whose parents were in different occupations.

Category	Tribal Area			Non Tribal Area			Total		
	MEAN	S.D.	N	MEAN	S.D.	N	MEAN	S.D.	N
Service	14.85	3.79	46	13.72	2.77	57	14.22	3.32	103
Bussiness	15.61	3.03	33	13.00	1.41	16	14.76	2.90	49
Other Occ.	16.28	3.99	25	10.45	3.16	29	13.15	4.64	54

Above table reveals that mean scores of the pupil, from tribal area belonging to all the three categories, were higher than those of the pupil from non-tribal area. In the case of S.D., values were higher for tribal areas than that of non tribal areas.

For the combined sample of pupils from tribal & non-tribal areas, mean achivement for bussiness category was highest 14.76 (61.46%). For 'other occupation' category it was 13.15 (54.79%).

For calculating the area-wise significance of difference in the mean scores of the pupils with three categories of occupations, C.R. values were computed.They are given below.

(A) OCCUPATION : SERVICE

$$\begin{aligned} \text{C.R.} &= (14.85-13.72)/\{(3.79 \times 3.79)/46 + (2.77 \times 2.77)/57\}^{1/2} \\ &= 1.69 \end{aligned}$$

(B) OCCUPATION : BUSSINESS

$$\begin{aligned} \text{C.R.} &= (15.61-13.00)/\{(3.03 \times 3.03)/33 + (1.41 \times 1.41)/16\}^{1/2} \\ &= 4.11 \end{aligned}$$

(C) OCCUPATION : OTHER OCCUPATIONS

$$\begin{aligned} \text{C.R.} &= (16.28-10.45)/\{(3.99 \times 3.99)/25 + (3.16 \times 3.16)/29\}^{1/2} \\ &= 5.89 \end{aligned}$$

Table No. 4.18

Significance of difference in the mean scores of tribal and non tribal area pupils at 0.01 level of confidence.

S.No	Occupation	d.f.	C.R.	Signification
1.	Service	101	1.69	Not Signification
2.	Bussiness	47	4.11	Signification
3.	Other Occupation	52	5.89	Signification

Above table reveals that there is no significant difference at 0.01 level of confidence between the mean scores of the pupils from tribal and non-tribal areas, whose parents were in service.

In the case of bussiness and other occupation category, there is significant difference in mean scores at 0.01 level of confidence.

EFFECT OF PARENTAL OCCUPATION ON
ACHIEVEMENT.

For computing the overall effect of parental occupation on the achievement of pupils under study, the sample was divided in three categories viz. service, Business, other occupation. For accessing the significance in difference in the mean scores of the three groups of students, 'F' value was calculated by applying analysis of variance.

occupation-wise values of N, $\sum X$, $(\sum X)^2$ and $\sum X^2$ are given in table 4.19

Table No. 4.19

Parental occupation wise analysis of variance

S.No.	Occupation	N	$\sum X$	$\sum(X)^2$	$\sum X^2$
1.	Service	103	1465	2146225	21971
2.	Business	49	723	522729	11081
3.	Other Occupation	54	710	504100	10496
4.	Total	206	2898		

Analysis of Variance

$$\begin{aligned} \text{Correction} &= (2898)^2/206 \\ &= 40768.95 \end{aligned}$$

Sum of the squares

$$= 21971 + 11081 + 10496 - C$$

$$= 2779.05$$

Sum of the sq, between groups

$$= 2146225/103 + 522729/49 + 504100/54 - C$$

$$= 71.32$$

Sum of the sq, within groups

$$= 2779.05 - 71.32$$

$$= 2707.73$$

Table No. 4.20

' F ' values for different parental occupations

Source of Variation	d.f.	Sum of Squire	Mean Squire
Between groups	2	71.32	35.66
Within groups	203	2707.73	13.34
	205	2779.05	

$$F = 35.66/13.34$$

$$= 2.67$$

$$\text{d.f. between groups} = (3-1)$$

$$= 2$$

$$\text{d.f. within groups} = (206-3)$$

$$= 203$$

F value at 0.05 level of confidence = 3.04

F value at 0.01 level of confidence = 4.71

Calculated F value for the present study is .267 which is less than the required value of F at 0.05 or 0.01 level of confidence.

There is no significant difference in the mean scores of the pupils in these groups.

Hence the hypothesis :

“ Parental occupation does not effect the level of achievement of the pupils”

is accepted.

4.8 PARENTAL EDUCATION- WISE ANALYSIS OF THE PUPIL'S ACHIEVEMENT

In the total sample of 206 students following was the distribution as per parental education.

Table No. 4.21

Parental Education-wise distribution of sample



S.No.		Tribal Area	Non-Tribal Area	Total
1.	up to primary	38	22	60
		18.45%	10.68%	29.13%
2.	up to Hr.Sc.	46	56	102
		22.33%	27.18%	49.51%
3.	More than Hr.Sc	20	24	44
		9.71%	11.65%	21.36%
4.	Total	104	102	206
		50.49%	49.51%	100%

Out of the total sample of 206 students 50.49% students were selected from tribal area of Kotma block and 49.51% students were from non tribal area i.e. Bhopal.

Highest 49.51% Students parental education was upto Higher. Secondary level, 29.13% students parental education was upto upto primary level. This category included the illiterate parents also. only 21.36% parents' educational level was more than higher

Secondary i.e. their education was more than higher secondary.

Total sample was divided into three groups :

Group A : Parental education up to primary school.

Group B : Parental education up to higher secondary.

Group C : Parental education more than hr.secondary.

For each category competency wise achievement was

calculated and analysed. Findings are given in table 4.22, 4.23 and 4.24

(A) PARENTAL EDUCATION : UPTO PRIMARY SCHOOL.

Table No. 4.22

Mean achievement, S.D. and C.V. of the pupils whose parents were educated upto primary

N = 60

S.No.	Parameter	Achievement Score				Total
		Competency 7	Competency 8	Competency 9	Competency 10	
1	Mean Score	3.33	4.15	3.02	2.78	13.28
2	Percentage	55.567%	69.17%	50.28%	46.33%	55.34%
3	S.D.	1.27	1.42	1.51	1.42	4.22
4	C.V.	38.14	34.22	50.00	51.08	31.78

Mean academic achievement of the pupils in this category was 55.34%. Students scored highest (69.17%) in competency 8,

where as they scored lowest (46.33%) in competency10. Maximum coefficient of variation was for competency 10 (51.08) and the lowest was in total score (31. 78)

B. PARENTAL EDUCATION : UPTO HIGHER SECONDARY
SCHOOL GROUP B

Table No. 4.23

Mean, S.D. and C.V. of the pupils of group B

N = 102

S.No.		Competency				Total
		7	8	9	10	
1	Mean Score	3.47	4.06	3.28	2.89	13.72
2	Percentage	57.84%	67.67%	54.67%	48.20%	57.15%
3	S.D.	1.31	1.41	1.33	1.24	3.35
4	C.V.	37.75	34.73	40.55	42.91	24.42

The above table reveals that the mean score of the pupils in this category was 13.72 (57.15%). The highest score was (67.67%) with S.D. 1.41 . In the case of competency10 the score is lowest (48.20%) and C.V. is highest (42.91)

(C) PARENTAL EDUCATION : MORE THAN HR. SEC. LEVEL.
GROUP C

In this category the parents were highly educated. The mean score, S.D. and C.V. of their wards are given in the table 4.24

Table No. 4.24

Mean, S.D. and C.V.of the pupils of group C

N = 44

S.No.		Competency				Total
		7	8	9	10	
1	Mean Score	4.07	4.70	3.52	3.66	15.95
2	Percentage	67.80%	78.41%	58.71%	60.98%	66.48%
3	S.D.	1.03	1.08	1.39	1.26	2.86
4	C.V.	25.91	22.98	39.49	34.43	17.93

The mean score of the pupils of this category was 66.48% with S.D. 2.86. Co-eff of variation was also lowest (17.93). Highest score was in competency 8 (78.41%) and lowest score was in competency 9 (58.71).The high light of this category was that pupils scored more than 60% in total as well as nearly in all the competencies.

A comparative analysis of the scores of all the three groups is given in Table 4.25. They are analysed area-wise i.e. for tribal area and non-tribal area pupils.

Table No. 4.25

Area - wise to mean scores S.D.& N of all the three categories

Education Category	Tribal Area			Non Tribal Area			Total		
	N	MEAN	S.D.	N	MEAN	S.D.	N	MEAN	S.D.
up to Primary	38	14.79	3.81	22	10.68	3.54	60	13.28	4.22
up to Hr.Sc	46	15.09	3.77	56	12.59	2.41	102	13.72	3.35
More than Hr.Sc	20	17.45	2.22	24	14.71	2.72	44	15.95	2.86

The high light of this study is that the pupils from tribal areas scored better than the pupils from non-tribal area. This was true for all the three categories of students.

Highest score was 17.45 (72.71%) of the pupils from tribal areas whose parents were educated, more than higher secondary school level.

Lowest achievement was 10.68 (44.50%) of the pupils from non-tribal areas whose parents were educated upto primary level or were illiterate.

Both in tribal and non tribal areas the parental education had effected the achievement of the pupils.

Individually in all the three categories the significance of

difference in the mean scores of the pupils from tribal and non-tribal areas has been calculated

CRITICAL RATIO.

(A) Parental Education : Upto Primary level

Critical Ratio

$$\begin{aligned} \text{C.R.} &= (14.79-10.68)/\{(3.81)^2/98 + (3.54)^2/22\}^{1/2} \\ &= 4.21 \end{aligned}$$

(B) Parental Education : Upto Higher Secondary level

Critical Ratio

$$\begin{aligned} \text{C.R.} &= (15.09-12.59)/\{(3.77)^2/46 + (2.41)^2/56\}^{1/2} \\ &= 2.48 \end{aligned}$$

(C) Parental Education : More than Higher Secondary level.

Critical Ratio

$$\begin{aligned} \text{C.R.} &= (17.45-14.71)/\{(2.22)^2/20 + (2.72)^2/24\}^{1/2} \\ &= 3.68 \end{aligned}$$

DETERMINATION OF SIGNIFICANCE OF DIFFERENCE

Significance of difference in the mean scores of tribal and non-tribal pupils was determined at 0.01 level of confidence. Values of C.R. and d.f. are given in table 4.26

Table No. 4.26

CR & d.f. of the pupils from tribal & non tribal areas in three categories and significance of difference in the mean score .

S.No.	Parental Education	d.f.	C.R.	Significance
1.	Up to Primary	58	4.21	Significant
2.	Up to Hr.Sc	100	2.48	Not Significant
3.	More than Hr.Sec.	42	3.68	Significant

Value of critical ratio for the mean score of the pupils for different categories shows that there is significant difference at 0.01 level of confidence between the mean scores of the pupils from tribal & non tribal areas whose parental education was upto primary level.

In the case of the pupils whose parental education was upto higher secondary level there was no significant difference in the mean scores at 0.01 level of confidence but there was significant difference in the mean scores at 0.02 level of confidence.

There was significant difference in the mean scores at 0.01 level of confidence the pupils whose parental education was more than higher secondary level.

EFFECT OF PARENTAL EDUCATION ON ACHIEVEMENT

For calculation the overall effect of parental education on the achievement of the pupils, 'F' value was calculated for the three groups i.e. education upto primary, education upto higher secondary level and education more than hr. sec. level. by The technique "Analysis of Variance".

Parental education - wise value of N , $\sum X$, $\sum X^2$ and $(\sum X^2)$ are given in table 4.27.

Table No. 4.27

Parental education, N , $\sum X$, $(\sum X)^2$ and $(\sum X^2)$ of the three groups.

S.No	Parental Education	N	$\sum X$	$\sum X^2$	S.D.
1.	up to Primary	60	797	11657	4.23
2.	up to Hr.Sc	102	1399	20331	3.35
3.	More than Hr.Sc	44	702	11560	2.86
4.	Total	206	2898	43548	

Correction

$$C = (2898)^2/206$$

$$= 40768.95$$

Sum of the Squares

$$= 11657 + 20331 + 11560 - 40768.95$$

$$= 2779.05$$

Sum of the Squares between the groups

$$= (797)^2/60 + (1399)^2/102 + (702)^2/44$$

$$= 206.21$$

SStot- SSbg

$$= 2779.05 - 206.21$$

$$= 2572.84$$

Table No. 4.28

Analysis of Variance of three groups

Source of Variation	d.f.	Sum of Squares	Variance
Between Groups	2	206.21	103.1
With in Groups	203	2572.84	12.67
Total	205	2779.05	

$$F = 103.1/12.63$$

$$= 8.16$$

$$\text{d.f. Between Groups} = (3-1) = 2$$

$$\begin{aligned} \text{d.f. within Groups} &= (206-3) \\ &= 203 \end{aligned}$$

$$\text{Value of } F \text{ at } .05 \text{ level of confidence} = 3.04$$

$$\text{Value of } F \text{ at } .01 \text{ level of confidence} = 4.71$$

Calculated value (8.16) is greater than the required value of F at .01 level of confidence (4.71) Therefore there is significant difference in the mean scores of the pupils of three different groups. Hence the hypothesis

“ Parental education does not effect the level of achievement of the Pupils”

is rejected.

4.9 FAMILY SIZE-WISE ANALYSIS OF THE PUPILS ACHIEVEMENT

For the present study the sample of 206 students has been distributed in four groups according to family size.

Group A- Family consists of 4 Members

Group B- Upto 6 Members in the family

Group C- Upto 8 Members in the family

Group D - More than 8 Members in the family

Below given table shows the group-wise distribution of the sample.

Table No. 4.29

Family size-wise distribution of the sample.

S.No.	Group	N	Tribal Area	Non Tribal Area	Total
1.	A	N	9	10	19
		%	4.37%	4.85%	9.22%
2.	B	N	48	44	92
		%	23.30%	21.36%	44.66%
3.	C	N	23	36	59
		%	11.17%	17.48%	28.65%
4.	D	N	24	12	36
		%	11.65%	5.82%	17.47%
5.	Total	N	104	102	206
		%	50.49%	49.51%	100%

In the tribal area, parents having the family size of 4 member were only 4.37% .

In group B, where family size was of 6 members, there were 23.30% parents.

Highest percentage (44.66%) of parents was from B group in the total sample also. Parents, whose family consists upto 8 members, were 28.65% Small family was in minority. Only 9.22% parents in the total sample had 4 members in their families.

For each group competency wise achievement was calculated and analysed. Findings are shown in the following tables.

GROUP A: FAMILY SIZE- 4 MEMBERS

Table No. 4.30

competency wise mean score, S D & C.V of group A

N = 19

S.No.		Competency				Total
		7	8	9	10	
1	Mean Score	3.47	4.16	2.95	2.74	13.37
2	Percentage	57.89%	69.30%	49.12%	45.61%	55.70%
3	S.D.	0.94	1.27	1.57	1.21	3.66
4	C.V.	27.09	30.53	53.22	44.16	27.37

Mean score for this group was 55.70% with S.D.3.66

Competency wise highest score was (69.30%) in competency8 and the lowest was (45.61%) in comp.10 Most homogenous score was in comp.7 with SD. (0.94) and C.V. (27.09)

GROUP B: FAMILY SIZE- UPTO 6 MEMBERS.

Table No. 4.31

Mean Scores, S.D. & C.V. for Group B.

S.No.		Competency				Total
		7	8	9	10	
1	Mean Score	3.76	4.42	3.40	3.11	14.70
2	Percentage	62.68%	73.73%	56.70%	51.81%	61.23%
3	S.D.	1.24	1.16	1.34	1.31	3.22
4	C.V.	32.98	26.24	39.41	42.12	21.90

In this group mean score was 61.23% and S.D. was 3.22. Pupils scored highest (73.73%) in competency8. S.D. for this group was only 1.16. Lowest mean score (51.81%) was for competency10. S.D. for this group was 1.31 and C.V. was highest (42.12)

GROUP C: FAMILY SIZE- UPTO 8 MEMBERS

Table No. 4.32

competency wise mean score, S.D. & C.V. for group C

S.No.		Competency				Total
		7	8	9	10	
1	Mean Score	3.41	3.85	2.98	2.90	13.14
2	Percentage	56.78%	64.12%	49.71%	48.31%	54.73%
3	S.D.	1.32	1.55	1.40	1.39	3.98
4	C.V.	38.71	40.26	46.98	47.93	30.29

For this group the mean score was 54.73% with S.D. 3.98
 Competency wise highest mean score (64.12%) was for competency8
 and lowest mean score (48.31%) was in competency10. Most
 homogenous score was in competency7 (S.D. 1.32)

GROUP D: FAMILY SIZE- MORE THAN 8 MEMBERS

Table No. 4.33

Mean scores, S.D. & C.V. for group D

N = 36

S.No.		Competency				Total
		7	8	9	10	
1	Mean Score	3.33	4.36	3.50	3.17	14.36
2	Percentage	55.56%	72.69%	58.33%	52.78%	59.84%
3	S.D.	1.37	1.47	1.42	1.36	3.85
4	C.V.	41.14	33.72	40.57	42.90	26.81

Pupils who were representing this group scored average 59.84% marks. S.D. for this group was 3.85. Highest score was 72.69% in competency8 and lowest score was 52.78% in competency10. Co-efficient of variation was also highest (42.90) for this competency. Better homogeneity was for competency8 where Pupils scored highest.

For accessing the impact of area on the achievement, mean score and S.D. of the students from tribal area and non-tribal areas were compared. Analysis is given in Table no.4.34

Table No. 4.34

Area wise mean score, S.D. and N for different groups

Category	Tribal Area			Non Tribal Area			Total		
	N	MEAN	S.D.	N	MEAN	S.D.	N	MEAN	S.D.
Group A	9	14.56	3.18	10	12.30	3.72	19	13.37	3.66
Group B	48	15.81	3.46	44	13.48	2.45	92	14.70	3.22
Group C	23	15.00	4.17	36	11.94	3.37	59	13.14	3.98
Group D	24	15.42	3.75	12	12.25	3.06	36	14.36	3.85

Comparing the performance of the pupils from two areas revealed that pupils from tribal areas did better than those from non-tribal areas.

Highest mean score (15.81) was of the pupils from group B of tribal areas and the lowest mean score (11.94) was of the pupils of group C from non-tribal area. Highest value of S.D. (4.17) was for group C of tribal area and lowest value of S.D. (2.45) was for group B of non tribal area.

To determine the significance of difference in the mean scores of the pupils from tribal and non-tribal areas for each group, critical ratio was calculated.

Group A

Critical Ratio

$$\begin{aligned} \text{C.R.} &= (14.56-12.30)/\{(3.18)^2/9 + (3.72)^2/10\}^{1/2} \\ &= 1.43 \end{aligned}$$

Group B

$$\begin{aligned} \text{C.R.} &= (15.81-13.48)/\{(3.46)^2/48 + (2.45)^2/44\}^{1/2} \\ &= 3.76 \end{aligned}$$

Group C

$$\begin{aligned} \text{C.R.} &= (15.00-11.94)/\{(4.17)^2/23 + (3.37)^2/36\}^{1/2} \\ &= 2.94 \end{aligned}$$

Group D

$$\begin{aligned} \text{C.R.} &= (15.42-12.25)/\{(3.75)^2/24 + (3.06)^2/12\}^{1/2} \\ &= 2.71 \end{aligned}$$

Analysis of the mean scores of the pupils from tribal and non-tribal area is given in table 4.35

Table No. 4.35

Area wise analysis of the mean scores of the pupils

S.No.	Group	d.f.	C.R.	Significance at 0.01 level of confidence
1.	A	17	1.43	Not Significant
2.	C	90	3.76	Significant
3.	B	57	2.94	Significant
4.	D	34	2.71	Not Significant

Value of critical ratio for the mean score of the pupils from group B, group C and group D showed that there was no significant difference in the mean scores of the pupils of two areas at 0.01 level of confidence.

For the pupils of group D there was no significant difference at 0.01 level of confidence but the difference was significant at 0.02 level of confidence.

For the pupils of group B and C the mean difference was significant at 0.01 level of confidence.

EFFECT OF FAMILY SIZE ON PUPIL'S ACHIEVEMENT

For determining the effect of family size on the achievement Analysis of Variance was applied, and F value was calculated.

Family size, N, sum of raw scores, square of the sum of raw scores are shown in Table. 4.36

Table No. 4.36

N, ΣX , $(\Sigma X)^2$ and (ΣX^2) for the four groups

S.No	Group	N	ΣX	ΣX^2	S.D.
1.	Group A	19	254	3650	3.66
2.	Group B	92	1352	20824	3.22
3.	Group C	59	775	11117	3.98
4.	Group D	36	517	7957	3.85

$$\text{correction} = (2898)^2 / 206$$

$$= 40768.95$$

sum of the squares

$$= 3650 + 208.24 + 11117 + 7957 - C$$

$$= 2779.05$$

sum of the squares between the groups

$$= 3395.58 + 19868.52 + 10180.08 + 7424.69 - 40768.95$$

$$= 99.92$$

SS_{tot} - SS_{bg}

$$= 2779.05 - 99.92$$

$$= 2679.17$$



Table No. 4.37

Analysis of variance for the mean scores of the pupils with different family sizes

Source of Variation	d.f.	Sum of Squares	Variance
Between Groups	3	99.92	33.31
With in Groups	202	2679.17	13.26
Total	205	2779.09	

$$F = 33.31 / 13.26$$

$$= 2.51$$

$$\text{d.f. between groups} = (4-1)$$

$$= 3$$

$$\text{d.f. within groups} = (206-4)$$

$$= 202$$

$$\text{Value of } F \text{ at } 0.05 \text{ level of confidence} = 2.65$$

$$\text{Value of } F \text{ at } 0.01 \text{ level of confidence} = 3.88$$

Since the calculated value of F (2.51) is less than the required value of F at 0.01 level of confidence (3.88) and at 0.05 level of confidence (2.65) Hence the Hypothesis H_0^5

'Family size has no effect on pupils achievement'

is accepted.