

Chapter - IV

ANALYSIS AND INTERPRETATION OF DATA

CHAPTER-4

ANALYSIS AND INTERPRETATION

After discussing the problem solving ability and taking a brief review of researches conducted in this area to support the rationale of the present study, detailed the plan of the study was presented in the third chapter. The hypothesis to be tested, variable involved, sample selected tools employed and the manner in which the relevant data was collected and other methodological details are discussed in that chapter. The details of the statistical techniques employed for analysis of the data, results obtained through this analysis and the designs regarding the rejection or non rejection of hypothesis are presented in this chapter. There are 14 hypotheses in this study.

VERIFICATION OF HYPOTHESES :

All the 14 hypotheses of the study are verified by using appropriate statistical techniques. The results are presented and interpreted in relation to the problem under investigation.

HYPOTHESIS (1):

The first hypothesis of the study states that there is no significant difference between students of government and private schools in respect of their problem solving ability. This hypothesis is verified and results are shown in the following table.

Table-1 : Significance 't' between children belonging to Government and private schools in respect to their problem solving ability.

Category	AM	SD	N	df	t	Sig
Govt.	5.97	2.23	183	298	5.032	p<0.01
Private	4.74	1.69	117			

The value of 't' is found to be significant at 0.01 level of significance and hence the hypothesis is rejected. From this it can be said that there is a significant difference between students of government and private schools in respect of their problem solving ability. This indicates that students who are studying in government schools do differ significantly from their counterparts studying in private schools in their problem solving ability. Further, on examining the means, it is found that students studying in government schools (AM=5.97) are superior to their counterparts studying in private schools (AM=4.74) in respect of their problem solving ability.

HYPOTHESIS (2):

The second hypothesis of the study states that there is no significant difference between students of government and private schools in respect of their achievement in Mathematics. On verification of this hypothesis, the results are presented in table -2.

Table-2: Significance of 't' between students of government and private schools in respect of achievement in Mathematics

Category	AM	SD	N	df	t	Sig
Govt.	13.42	4.54	183	297	3.25	p< 0.01
Private	11.50	5.87	117			

The value of 't' is found to be significant at 0.01 level and hence the hypothesis is rejected. This indicates that there is a significant difference between students of government and private schools in respect of their achievement in Mathematics. Students studying in private schools do differ significantly from their counterparts studying in government schools in their achievement levels in Mathematics. On comparing the means, supremacy of students studying in government schools (AM=13.42) is evident over their private schools counterparts (AM=11.5) in Mathematics achievement.

On the whole the results pertaining to type of school, reveal that students of government schools are found to be better in both problem solving ability and achievement in Mathematics over their counterparts in private schools.

HYPOTHESIS (3) :

The third hypothesis of the study states there is no significant difference between boys and girls in respect to their problem solving ability. This hypothesis is verified and results are shown in the following table.

Table 3 :- Significant 't' between boys and girls in respect to problem solving ability.

Category	AM	SD	N	df	t	Sig.
Boys	5.44	1.90	159	298	315	p > 0.01
Girls	5.52	2.35	141			

The value of 't' is found to be not significant and hence hypothesis is accepted. Form this it can be said that there is no significant difference between boys & girls in respect of their problem solving ability. Both boys and girls have same problem solving ability.

HYPOTHESIS (4):

The fourth hypothesis of the study states that there is no significant difference between boys and girls in respect to their achievement in mathematics. This hypothesis is verified and results are shown in the following table.

Table 4 :- Significance 't' between boys and girls in respect achievement in mathematics.

Category	AM	SD	N	df	t	Sig.
Boys	12.20	5.02	159	297	1.708	p > 0.01
Girls	13.20	5.04	141			

The value of 't' is found to be not significant and hence hypothesis is accepted. Form this it can be said that there is no significant difference between boys & girls in respect of their achievement in mathematics. On the whole the results pertaining to gender reveal that both boys and girls have no difference in problem solving ability and achievement in mathematics.

HYPOTHESIS (5):

The fifth hypothesis of the study states that there is no significant difference between students belonging to different schools in respect of their problem solving ability. This hypothesis is tested and the results are presented in table – 5.

Table 5:- Significance 'F' between students belonging to different schools in respect of their problem solving ability.

Source of variation	Sum of square	Mean square	df	F	Sig
Between group	318.42	53.07	6	15.12	p< 0.01
Within group	1028.40	3.51	293		
Total	1346.83		299		

The value of 'F' is found to be significant and hence the hypothesis is rejected. This indicates that there is a significant difference between children studying in different sampled schools in respect to their problem solving ability.

HYPOTHESIS (6):

The sixth hypothesis of the study states that there is no significant difference between students studying in different schools in respect of their achievement in Mathematics. On verification of this hypothesis, results are presented in table – 6.

Table 6 :- Significance 'F' between students belonging to different schools in respect of their achievement in Mathematics.

Source of variation	Sum of square	Mean square	df	F	Sig
Between group	2171.96	361.99	6	19.45	p< 0.01
Within group	5431.91	18.60	292		
Total	7603.88		298		

The value of 'F' is found to be significant and hence hypothesis is rejected. This indicates that there is a significant difference in achievement levels of children studying in different sampled schools in Mathematics.

HYPOTHESIS (7):

The seventh hypothesis of the study states that there is no significant difference between different categories of father education of the students in respect of their problem solving ability. This hypothesis is tested and results are presented in table -7.

Table 7:- Significance 'F' between different categories of father education of students in respect of their problem solving ability.

Source of variation	Sum of square	Mean square	df	F	Sig
Between group	84.58	42.29	2	9.45	p<0.01
Within group	1262.25	4.25	297		
Total	1346.83		299		

The value of 'F' is found to be significant and hence hypothesis is rejected. This indicates that there is a significant difference in the problem solving ability of the students with different categories of their father education (post graduation, graduation and others). As 'F' is significant mean difference is carried out to know different categories of father education with respect to problem solving ability of children.

Table – 8: Significance of mean difference between different categories of father education in respect of problem solving ability of children

Category 1	Category 2	Mean difference	Sig
Post Graduate (AM = 5.88)	Graduate (AM = 5.88)	0.003	P > 0.05
Post Graduate (AM = 5.88)	School Education (AM = 4.78)	1.09	P < 0.01
Graduate (AM = 5.88)	School Education (AM = 4.78)	1.10	P < 0.01

Mean difference between post graduate and graduate is not found to be significant whereas mean difference between post graduate and school education; and between graduate and school education is found to be significant. On comparing the arithmetic means, it is found that the problem solving ability of children whose father education is post graduation (AM=5.88) and graduation (AM=5.88) is better as compare to those children whose fathers education is school education. The mean values (AM=5.88) of children whose fathers are post graduates and

graduates equal in respect of their problem solving ability. Father education does influence problem solving ability of children.

HYPOTHESIS (8) :

The eighth hypothesis of the study states that there is no significant difference between different categories of father education of the students in respect of their achievement in Mathematics. This hypothesis is tested and results are presented in table -9.

Table 9:- Significance 'F' between different categories of father education of students in respect of their achievement in Mathematics.

Source of variation	Sum of square	Mean square	df	F	Sig
Between group	571.088	285.54	2	12.01	p<0.01
Within group	7032.79	23.75	296		
Total	7603.88		298		

The value of 'F' is found to be significant and hence hypothesis is rejected. This indicates that there is a significant influence of fathers' education on the achievement of the students in Mathematics. As 'F' is significant, significance of mean difference is carried out to know the differences between different categories of father's education of students in respect of their achievement in Mathematics.

Table – 10: Significance of mean difference between different categories of father education in respect of achievement of children in Mathematics

Category 1	Category 2	Mean difference	Sig
Post Graduate (AM = 13.79)	Graduate (AM = 13.72)	0.67	P > 0.05
Post Graduate (AM = 13.79)	School Education (AM = 10.87)	2.91	P < 0.05
Graduate (AM = 13.72)	School Education (AM = 10.87)	2.84	P < 0.01

Mean difference between children whose fathers are post graduates and graduates is found out to be not significant in respect of their achievement in Mathematics. The mean differences between children whose fathers are post graduates and school education; and between graduates and school education are found out to be significant in respect of achievement in Mathematics. On comparing the arithmetic means it is found that children whose father education is post graduation (AM=13.79) are better than children whose fathers have completed school education (AM=10.87) in respect of their achievement in Mathematics.

HYPOTHESIS (9):

The ninth hypothesis of the study states that there is no significant difference between different categories of father occupation of the

students in respect of their problem solving ability. This hypothesis is tested and result are presented in table 11.

Table 11:- Significance 'F' between different categories of father occupation of students in respect of their problem solving ability.

Source of variation	Sum of square	Mean square	df	F	Sig
Between group	23.69	7.89	3	1.76	p > 0.01
Within group	1323.14	4.47	296		
Total	1346.83		299		

The value of 't' is found to be not significant and hence hypothesis is accepted. Form this it can be said that there is no significant influence of different categories of father occupation of the students in respect of their problem solving ability.

HYPOTHESIS (10):

The tenth hypothesis of the study states that there is no significant difference between different categories of father occupation of the students in respect of their achievement in mathematics. This hypothesis is tested & result are presented in table 12.

Table 12:- Significant 'F' between different categories of father occupation of student in respect of their achievement in mathematics.

Source of variation	Sum of square	Mean square	df	F	Sig
Between group	349.68	116.56	2	4.740	p < 0.01
Within group	7254.19	24.59	295		
Total	7603.88		298		

The value of "F" is found to be significant and hence hypothesis is rejected. This indicates that there is a significant difference in the achievement in mathematics of the students with different categories of their father's occupation (service, business, others and teachers).

As 'F' is significant mean difference is carried out to know different categories of fathers occupation with respect to achievement in mathematics of the student.

Table 13:- Significant 'F' between different categories of father occupation of student in respect of their achievement in mathematics.

Category 1	Category 2	Mean difference	Sig
Service (AM = 13.42)	Business (AM = 11.15)	2.27	P < 0.05
Service (AM = 13.42)	Others (AM = 11.33)	2.08	P > 0.05
Business (AM = 11.15)	Others (AM = 11.33)	0.184	P > 0.05
Others (AM = 11.33)	Teachers (AM = 14.00)	2.66	P > 0.05
Business (AM = 11.15)	Teachers (AM = 14.00)	2.85	P > 0.05
Service (AM = 13.42)	Teacher (AM = 14.00)	0.58	P > 0.05

Mean difference between children whose fathers are in service and business is found out to be significant in respect of the achievement in mathematics. The mean difference between children whose fathers are in service and others, business and others, others and teachers, business and teachers, service and teachers is not found out to be significant in respect of achievement in mathematics. On comparing the arithmetic mean it is found that children whose father occupation is teacher (A.M. = 14.00) their achievement in mathematics is better than children whose father occupation is business service & others.

HYPOTHESIS (11):

The eleventh hypothesis of the study state that there is no significant difference between different categories of mother education of the students in respect of their problem solving ability. This hypothesis is tested & results are presented in table 14.

Table 14:- Significance 'F' between different categories of mother education of students in respect of their problem solving ability.

Source of variation	Sum of square	Mean square	df	F	Sig
Between group	77.01	38.50	2	9.00	p < 0.01
Within group	1269.81	4.27	297		
Total	1346.83		299		

The value of 'F' is found to be significant and hence hypothesis is rejected. This indicates that there is significant difference in the problem solving ability of the student with different categories of their mother education (Post Graduation, Graduation & others). As 'F' is significant mean difference is carried out to know different categories of mothers' education in respect to problem solving ability of the children.

Table 15:-Significance of mean difference between categories of mother education in respect of problem solving ability of children.

Category 1	Category 2	Mean difference	Significance
Post Graduate (AM = 6.00)	Graduate (AM = 6.04)	0.039	$P > 0.05$
Post Graduate (AM = 6.00)	School Education (AM = 5.01)	0.988	$P < 0.05$
Graduate (AM = 6.04)	School Education (AM = 5.01)	1.02	$P < 0.05$

Mean difference between children whose mothers are post graduate and graduates is found out to be not significant in respect of their problem solving ability. The mean difference between children whose mothers are post graduate and school education and between graduates and school education are found out to be significant in respect of their problem solving ability. On comparing the arithmetic means it is found that children whose mother education is graduation (A.M. = 6.04) are better than children whose mother have completed school education (A.M. = 5.01) in respect of their problem solving ability.

HYPOTHESIS (12):

The twelveth hypothesis of the study states that there is no significant difference between different categories of mother education of the students in respect of their achievement in mathematics. This hypothesis is tested and results are presented in table 16.

Table 16:- Significance 'F' between different categories of mother education of the students in respect of their achievement in mathematics.

Source of variation	Sum of square	Mean square	df	F	Sig
Between group	385.57	192.78	2	7.906	p < 0.01
Within group	7218.30	24.38	296		
Total	7603.88		298		

The value of 'F' is found to be significant and hence hypothesis is rejected. This indicates that there is a significant influence of mother education on the achievement of the students in mathematics. As 'F' is significant, significance of mean difference is carried out to know the difference between different categories of mother's education of students in respect of their achievement in mathematics.

Table 17:- Significance of mean difference between different categories of mother education in respect of achievement of children in mathematics.

Category 1	Category 2	Mean difference	Sig
Post Graduate (AM = 13.74)	Graduate (AM = 13.96)	0.218	P > 0.05
Post Graduate (AM = 13.74)	School Education (AM = 11.63)	2.11	P < 0.05
Graduate (AM = 13.96)	School Education (AM = 11.63)	1.02	P < 0.05

Mean difference between children whose mother are post graduate and graduates is found out to be not significant in respect of their achievement in mathematics. The mean difference between whose mothers are post graduate and school education and between graduates and school education are found out to be significant in respect of achievement in mathematics. On comparing arithmetic means it is found that children whose mothers education is graduation (A.M.=13.96) is better than children whose mothers have completed school education (A.M. = 11.63) in respect of their achievement of mathematics.

HYPOTHESIS (13):

The thirteen hypothesis of the study states that there is no significant difference between different categories of mother's occupation of the students in respect of their problem solving ability. This hypothesis is tested and results are presented in table 18.

Table 18 :- Significance 'F' between different categories of mother occupation of student in respect of their problem solving ability.

Source of variation	Sum of square	Mean square	df	F	Sig
Between group	25.07	12.53	2	2.81	p > 0.01
Within group	1321.76	4.45	297		
Total	1346.83		299		

The value of 'F' is not found to be significant and hence hypothesis is accepted. This indicates that there is no significant influence of mothers occupation on the problem solving ability of the students.

HYPOTHESIS (14):

The fourteen hypothesis of the study states that there is no significant difference between different categories of mothers occupation of the students in respect of their achievement in mathematics. This hypothesis is tested and results are presented in table 19.

Table 19 :- Significance 'F' between different categories of mother's occupation of students in respect of their achievement in mathematics.

Source of variation	Sum of square	Mean square	df	F	Sig
Between group	161.74	80.87	2	3.21	p < 0.01
Within group	7442.13	25.14	296		
Total	7603.88		296		

The value of 'F' is found to be significant and hence hypothesis is rejected. This indicates that there is a significant influence of mothers occupation on the achievement of the students in mathematics. As 'F' is significant mean difference is carried out to know difference between different categories of mother's occupation of student in respect of their achievement in mathematics.

Table 20:-Significance of mean difference between different categories of mother's occupation in respect of achievement of children in mathematics.

Category 1	Category 2	Mean difference	Sig
House wife (A.M. = 12.47)	Job (A.M. = 12.09)	0.381	P > 0.05
House wife (A.M. = 12.47)	Teachers (A.M. =14.81)	2.33	P < 0.05
Job (A.M. = 12.09)	Teachers (A.M. =14.81)	2.71	P < 0.05

Mean difference between children mothers are Housewife and in Jobs is found out to be not significant in respect of their achievement in Mathematics. The mean difference between children whose mother's are housewife and teacher and between job and teachers are found out to be significant in respect of achievement in Mathematics. On comparing the arithmetic mean it is found that children whose mother occupation is teacher (A.M. = 14.81) are better than children whose mother are Housewife (A.M. 12.47) and in Job (A.M. = 12.09) in respect of their achievement in mathematics.