

List of Content

CONTENT	Page. No.
Declaration	i
Certificate	ii
Acknowledgement	iii
Contents	v
List of Tables	x
List of Figures	xiii
List of Abbreviations	xiii
List of Appendices	xiii
CHAPTER:1 INTRODUCTION	1 - 13
1.0 Introduction	1
1.1 Importance of Mathematics	2
1.2 Nature of Mathematics	3
1.3 Objectives of Teaching Mathematics	4
1.4 The place of Mathematics in the School Curriculum	4
1.5 Defects in Teaching of Mathematics	5
1.6 Mathematical Weaknesses	6
1.7 Correlates of Mathematics Achievement	7
1.8 Rational of the Study	8
1.9 Statement of the Problem	10
1.10 Objectives of the Study	10
1.11 Hypotheses	11
1.12 Operationalisation of the Terms	12
1.12.1 Achievement in Mathematics	12
1.12.2 Attitude towards Mathematics	12
1.12.3 Intelligence of Students	12
1.12.4 Socio Economic Status (SES)	12
1.12.5 Mathematical Weaknesses	13

1.13	Delimitation of the Study	13
CHAPTER:2	REVIEW OF RELATED LITERATURE	14 – 63
2.0	Introduction	14
2.1	Studies conducted in India in Mathematics	14
2.1.1	Studies conducted on Diagnosis and Remediation Program in Mathematics	14
2.1.2	Studies conducted on Achievement and learning in Mathematics	22
2.1.3	Studies conducted on Factor Affecting Mathematics Achievement	27
2.1.4	Summary of Indian Studies	35
2.2	Studies conducted Abroad in Mathematics	41
2.2.1	Studies on Different Relationship in Mathematics	41
2.2.2	Studies conducted on Factor Affecting Mathematics Achievement	45
2.2.3	Studies based on Comparison in Mathematics.	52
2.2.4	Summary of Studies conducted abroad	57
2.3	Implications for the Present Study	61
CHAPTER:3	STANDERDISATION OF ATTITUDE SCALE AND CONSTRUCTION OF TEST OF WEAKNESSES IN MATHEMATICS	64 - 88
3.0	Introduction	64
3.1	Standardisation of Attitude Scale to Measure Attitude towards Mathematics	64
3.1.1	Identification of the Components of Attitude Scale to Measure Attitude towards Mathematics	64
3.1.2	Format and Nature of Statements	65
3.1.3	Development and Selection of the Statements	66
3.1.4	Response Mode	70

3.1.5	Tryout of Attitude Scale	71
3.1.6	Scoring Procedure	72
3.1.7	Selection of Statements	72
3.1.8	Final format of Attitude Scale	74
3.1.9	Establishment of the Psychometric Properties of the Attitude Scale	75
3.1.9.1	Reliability	76
3.1.9.2	Validity	77
3.1.9.3	Factor Analysis (Principal Component Analysis)	78
3.1.9.4	Percentile Norms	85
3.2	Construction of the Test of Mathematical Weaknesses	87
3.2.1	Analysis of Content	87
3.2.2	Item selection and Writing	87
3.2.3	Validation to Experts	87
3.2.4	Construction and Tryout	88
3.2.5	Formation of Final Form	88
CHAPTER:4	METHODOLOGY	89 - 99
4.0	Introduction	89
4.1	Population	89
4.2	Sample	89
4.3	Tools	92
4.3.1	Achievement Tests	93
4.3.2	Attitude Scale	93
4.3.3	Intelligence Test	94
4.3.4	Socio Economic Status scale (SES)	94
4.3.5	Test of Mathematical Weaknesses	95
4.4	Data Collection	95
4.4.1	Phase - I	95
4.4.2	Phase - II	95
4.4.3	Phase - III	96

4.4.3.1	Instructions for Mathematical Attitude Scale	96
4.4.3.2	Instructions for SES Scale	97
4.4.3.3	Instructions for Scale of Intelligence	97
4.4.3.4	Instructions for Test of Mathematical Weaknesses	98
4.4.4	Phase – IV	98
4.5	Data Analysis	98

CHAPTER:5 DATA ANALYSIS AND INTERPRETATION 100 - 129

5.0	Introduction	100
5.1	Achievement in Mathematics	100
5.2	Attitude towards Mathematics	102
5.3	Intelligence	103
5.4	Socio Economic Status (SES)	103
5.5	Mathematical Weaknesses	104
5.6	Data Analysis using Analysis of Variance (ANOVA)	105
5.6.1	Attitude towards Mathematics and Achievement in Mathematics	105
5.6.2	Intelligence and Achievement in Mathematics	107
5.6.3	SES and Achievement in Mathematics	109
5.6.4	Mathematical Weaknesses and Achievement in Mathematics	111
5.6.5	Interaction effect between Attitude towards Mathematics and Intelligence on Achievement in Mathematics	113
5.6.6	Interaction effect between Attitude towards Mathematics and SES on Achievement in Mathematics	113
5.6.7	Interaction effect between Attitude towards Mathematics and Mathematical Weaknesses on Achievement in Mathematics	114
5.6.8	Interaction effect between Intelligence and SES on Achievement in Mathematics	115
5.6.9	Interaction effect between Intelligence and Mathematical	116

	weaknesses on achievement in Mathematics	
5.6.10	Interaction effect between Mathematical Weaknesses and SES on Achievement in Mathematics	116
5.6.11	Interaction effect between Attitude towards Mathematics, Intelligence and Mathematical Weaknesses on Achievement in Mathematics	117
5.6.12	Interaction effect between Attitude towards Mathematics, Intelligence and SES on Achievement in Mathematics	118
5.6.13	Interaction effect between Attitude towards Mathematics, Mathematical Weaknesses and SES on Achievement in Mathematics	119
5.6.14	Interaction effect between Intelligence, Mathematical Weaknesses and SES on Achievement in Mathematics	120
5.6.15	Interaction effect between Attitude towards Mathematics, Intelligence, Mathematical Weaknesses and SES on Achievement in Mathematics	120
5.7	Major Findings and Conclusion	121
CHAPTER:6	SUMMARY AND IMPLICATIONS	130 - 155
6.0	Introduction	130
6.1	Objectives of Teaching Mathematics	131
6.2	Place of Mathematics in School Curriculum	131
6.3	Mathematical Weaknesses	132
6.4	Correlates of Mathematics Achievement	133
6.5	Rational of the study	134
6.6	Statement of the Problem	136
6.7	Objectives of the study	136
6.8	Hypotheses	137
6.9	Operationalization of the Terms	138
6.9.1	Achievement in Mathematics	138
6.9.2	Attitude towards Mathematics	138

6.9.3	Intelligence of Students	138
6.9.4	Socio Economic Status (SES)	138
6.9.5	Mathematical Weaknesses	139
6.10	Delimitation of the study	139
6.11	Population	139
6.12	Sample	139
6.13	Tools	139
6.13.1	Achievement Tests	140
6.13.2	Attitude Scale	140
6.13.3	Intelligence Test	141
6.13.4	Socio Economic Status Scale (SES)	141
6.13.5	Test of Mathematical Weaknesses	141
6.14	Data Collection	142
6.14.1	Phase-I	142
6.14.2	Phase-II	142
6.14.3	Phase-III	142
6.15	Data Analysis	143
6.16	Major findings and conclusions	143
6.17	Discussion	151
6.18	Implications of the present study	153
6.19	Suggestions	154
6.19.1	Suggestions for Mathematics teachers	154
6.19.2	Suggestions for Further Study	155
6.20	Conclusion	155

BIBLIOGRAPHY

APPENDICES