

CONTENTS

| CHAPTER NO | TITLE | PAGE NO |
|---------------|--|------------|
| 1 | INTRODUCTION | 1 |
| 1.1 | Vedic mathematics | 4 |
| 1.2 | Importance of Vedic mathematics | 4 |
| 1.3 | Vedic sutras | 5 |
| 1.4 | Achievement in mathematics | 6 |
| 1.5 | Attitude | 6 |
| 1.5.1 | Nature and characteristics of attitude | 7 |
| 1.5.2 | Attitude toward learning mathematics | 7 |
| 1.5.3 | The role of educational systems in shaping attitude toward mathematics | 8 |
| 1.6 | Learning style | 9 |
| 1.6.1 | Learning style preference | 9 |
| 1.7 | Computational speed | 10 |
| 1.8 | Statement of the problem | 11 |
| 1.9 | Operational definition of key terms | 11 |
| 1.9.1 | Vedic mathematics-based instruction | 12 |
| 1.9.2 | Attitude towards mathematics | 12 |
| 1.9.3 | Primary and upper primary students | 12 |
| 1.9.4 | Achievement in mathematics | 13 |
| 1.9.5 | Learning style | 13 |
| 1.10 | Computational speed | 14 |
| 1.11 | Research gap | 14 |
| 1.12 | Need and significance of the study | 15 |
| 1.13 | Objectives of the study | 16 |
| 1.14 | Hypotheses | 16 |
| 1.15 | Limitation of the study | 17 |
| 1.16 | Delimitation of the study | 18 |
| 1.17 | Organization of the thesis | 18 |

| CHAPTER NO | TITLE | PAGE NO |
|-----------------------|---|--------------------|
| 2 | REVIEW OF RELATED LITERATURE | 20 |
| 2.1 | Theoretical explanation of Vedic mathematics | 22 |
| 2.1.1 | Vedic mathematics: sutras and sub-sutras | 23 |
| 2.1.2 | Application of Vedic Mathematics | 31 |
| 2.2 | Theoretical explanation of attitude towards mathematics | 31 |
| 2.3 | Learning style | 36 |
| 2.3.1 | Theories of learning style | 37 |
| 2.4 | Computational speed | 42 |
| 2.5 | Studies related to Vedic mathematics | 42 |
| 2.6 | Studies related to attitudes towards mathematics | 52 |
| 2.7 | Studies related to achievement in mathematics | 58 |
| 2.8 | Studies related to learning styles | 66 |
| 2.9 | Studies related to computational speed | 78 |
| 3 | METHODOLOGY | 86 |
| 3.1 | Research process | 86 |
| 3.2 | Conceptual framework | 87 |
| 3.3 | Outline of the study | 87 |
| 3.4 | Methodology adopted in the present study | 88 |
| 3.4.1 | Method used in the present study | 88 |
| 3.4.2 | Experimental design | 89 |
| 3.4.3 | Variables | 89 |
| 3.4.4 | Independent and dependent variables | 89 |
| 3.4.5 | Locale of the study | 90 |
| 3.4.6 | Sample | 90 |
| 3.4.7 | Justification for the selection of two different classes as samples | 90 |
| 3.5 | Criteria for selection of content | 92 |
| 3.6 | Tool of the study | 93 |
| 3.6.1 | The previous knowledge test for eighth grade | 94 |
| 3.6.2 | Construction and validation of the instructional package | 95 |

| CHAPTER NO | TITLE | PAGE NO |
|-----------------------|---|--------------------|
| 3.6.3 | Lesson transcripts based on conventional for third-grade and eighth-grade. | 105 |
| 3.6.4 | Lesson transcripts based on Vedic mathematics-based instructions for third-grade and eighth-grade | 109 |
| 3.6.5 | Achievement in mathematics test for eighth grade | 113 |
| 3.6.6 | Achievement in mathematics test for grade three | 114 |
| 3.6.7 | Attitude scale towards learning mathematics for eighth grade | 115 |
| 3.6.8 | Attitude scale towards learning mathematics for third grade | 116 |
| 3.6.9 | An inventory of learning style preference for both third and eighth students | 117 |
| 3.7 | Planning and conduct of study | 118 |
| 3.8 | Data analysis | 120 |
| 4 | RESULTS AND DISCUSSION | 121 |
| 4.1 | Analysis of the data obtained for VIII grade students | 121 |
| 4.1.1 | Preliminary analysis of the scores of the Achievement test in mathematics of the students taught through conventional teaching methods. | 121 |
| 4.1.2 | Preliminary analysis of the scores of the attitude test on mathematics of the students taught through conventional teaching methods | 124 |
| 4.1.3 | Preliminary analysis of the data of the experimental group students (VIII grade) | 126 |
| 4.1.3 a | Preliminary analysis of the Achievement test of the experimental group | 126 |
| 4.1.3 b | Preliminary analysis of the scores of attitude test on mathematics of the experimental group | 128 |
| 4.2 | Correlation Analysis | 130 |
| 4.2.1 | Correlation between the pre-intervention test scores obtained for achievement in mathematics and attitude towards mathematics of VIII graders | 130 |

| CHAPTER NO | TITLE | PAGE NO |
|-----------------------|--|--------------------|
| 4.2.2 | Correlation between the post-intervention scores of mathematics achievement and attitude towards mathematics of VIII graders. | 131 |
| 4.3 | Inferential Analysis | 132 |
| 4.3.1 | The significance of the differences in the mean pre-intervention scores of achievement and attitude towards learning mathematics between the students taught through the conventional teaching method and through the Vedic method. | 132 |
| 4.3.2 | Significance of difference in the mean pre-intervention scores and mean post-intervention scores of students instructed through conventional methods | 134 |
| 4.4 | Significance of difference in the mean post-intervention scores and delayed post-intervention scores of students taught through the conventional method | 135 |
| 4.5 | Significance of difference in the mean pre-intervention and mean post-intervention scores of students taught through Vedic mathematics. | 137 |
| 4.6 | Significance of difference in the mean post-intervention and delayed post-intervention scores of students taught through Vedic mathematics. | 139 |
| 4.7 | Significance of difference in the mean post-intervention scores of mathematics achievement and attitude towards mathematics of students taught through conventional teaching method and Vedic mathematics. | 141 |
| 4.8 | Significance of difference in the mean post-intervention scores of achievement in mathematics and attitude towards learning mathematics of students taught through conventional teaching method and Vedic mathematics for sample classified based on their gender. | 143 |
| 4.9 | Significance of difference in the mean post-intervention scores of achievement in mathematics and attitude towards mathematics of students taught through conventional teaching method and Vedic mathematics for sample classified based on their type of school. | 145 |

| CHAPTER NO | TITLE | PAGE NO |
|-----------------------|---|--------------------|
| 4.10 | Significance of difference in the mean score of Achievement based on the learning style of the students. | 148 |
| 4.11 | Preliminary analysis of the scores of the Achievement Test on Mathematics for III grade students taught through conventional teaching methods | 149 |
| 4.11.1 | Preliminary analysis of the scores of the Attitude Test on Mathematics of the students taught through conventional teaching methods. | 151 |
| 4.12 | Preliminary analysis of the data of the students taught through Vedic mathematics-based instruction (III grade). | 153 |
| 4.12.1 | Preliminary analysis of the scores of the Mathematics Achievement Test of the experimental group | 153 |
| 4.12.2 | Preliminary analysis of Attitude test on mathematics scores of the students taught through Vedic mathematics-based instruction | 156 |
| 4.13 | Correlation between achievement in mathematics and attitude towards learning Mathematics | 158 |
| 4.13.1 | Correlation between pretest scores of achievement in mathematics and attitude towards learning mathematics of III graders | 158 |
| 4.13.2 | Correlation between the post-intervention scores of achievement in mathematics and attitude towards learning mathematics of III grade students | 159 |
| 4.14 | Significant difference in the mean pre-intervention scores of achievement and attitude towards learning mathematics of students taught through conventional teaching method and Vedic mathematics method for III grade. | 161 |
| 4.15 | Significant difference in the scores of mean pre-intervention and post-intervention of the control group of III grade | 163 |
| 4.16 | Significance of difference in the mean post-intervention and mean delayed post-intervention scores of students taught through the conventional teaching method | 164 |

| CHAPTER NO | TITLE | PAGE NO |
|-----------------------|---|--------------------|
| 4.17 | Significance of difference in the mean pre-intervention and mean post-intervention scores of the students taught through Vedic mathematics | 166 |
| 4.18 | Significance of difference in the mean post-intervention and mean delayed post-intervention of the students taught through Vedic mathematics | 167 |
| 4.19 | Significance of difference in the mean post-intervention scores of achievement in mathematics and attitude towards learning mathematics of students taught through conventional teaching method and Vedic mathematics | 169 |
| 4.20 | Significance of difference in the mean post-intervention scores of achievement in mathematics and attitude towards learning mathematics of students taught through conventional teaching method and Vedic mathematics based on gender | 170 |
| 4.21 | Significance of difference in the mean post-intervention scores of mathematics achievement and attitude towards learning mathematics of girls taught through conventional teaching method and Vedic mathematics and boys of students taught through conventional teaching method and Vedic mathematics. | 171 |
| 4.22 | Significance of difference in the mean post-intervention scores of achievement in mathematics and attitude towards learning mathematics of students taught through conventional teaching method and Vedic mathematics for sample classified based on the type of school. | 173 |
| 4.23 | The significance of the difference in the mean score of Achievement in Mathematics for the different learning style groups | 175 |
| 4.24 | Computational speed | 177 |
| 4.24.1 | Significance of difference in the mean post scores of computation speed of the students taught through conventional teaching methods and Vedic mathematics for the VIII and III Graders. | 177 |

| CHAPTER NO | TITLE | PAGE NO |
|-----------------------|---|--------------------|
| 4.25 | Qualitative analysis | 179 |
| 4.25.1 | Evaluating teacher perspectives on the effectiveness of Vedic mathematics: a semi-structured interview approach | 179 |
| 4.25.2 | Evaluating students' perspectives on the effectiveness of Vedic mathematics: a semi-structured interview approach | 182 |
| 5 | SUMMARY AND CONCLUSION | 185 |
| 5.1 | Major objectives of the study | 185 |
| 5.2 | Findings of the study | 186 |
| 5.3 | Educational implication | 198 |
| 5.4 | Recommendations of the study | 199 |
| 5.5 | Suggestions for further research | 200 |
| 5.6 | Conclusion | 200 |
| | REFERENCES | 201 |
| | APPENDICES | |
