## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledgement</td>
<td>i-ii</td>
</tr>
<tr>
<td>Contents</td>
<td>iii-vi</td>
</tr>
<tr>
<td>List of Tables</td>
<td>vii-viii</td>
</tr>
<tr>
<td>List of Figures</td>
<td>ix-x</td>
</tr>
<tr>
<td>List of Abbreviations</td>
<td>xi</td>
</tr>
</tbody>
</table>

### CHAPTER 1 INTRODUCTION

1.1 COMPUTER BASED MULTIMEDIA INSTRUCTIONAL STRATEGY                       1-52
   1.1.1 Elements of Multimedia                                             4-6
   1.1.2 Theoretical Foundations of Multimedia                              7
   1.1.3 Multimedia in Language Acquisition                                7-9
1.2 ACHIEVEMENT                                                          11-12
1.3 RETENTION                                                            12-14
   1.3.1 Factors Influencing Retention                                     13-14
1.4 COMPUTER ANXIETY                                                      14-17
1.5 SELF-CONCEPT                                                         17-20
   1.5.1 Theoretical Models of Self-Concept                                19-20
   1.5.2 Dimensions of the Self-Concept                                    20
1.6 REVIEW OF RELATED LITERATURE                                          21-46
   1.6.1 Studies Related to Computer Based Multimedia Instructional Strategy and Achievement 21-30
   1.6.2 Studies Related to Computer Based Multimedia Instructional Strategy and Retention 30-36
   1.6.3 Studies Related to Computer Anxiety                                36-40
   1.6.4 Studies Related to Self-Concept                                   41-46
1.7 REVIEW OF RESEARCHES                                                 46-47
1.8 NEED AND SIGNIFICANCE OF THE STUDY                                    47-49
1.9 STATEMENT OF THE PROBLEM                                              49
1.10 OPERATIONAL DEFINITION OF THE VARIABLES                              50
1.11 DELIMITATIONS                                                       50-51
1.12 OBJECTIVES                                                          51
1.13 HYPOTHESES                                                          51-52
2.1 A CRITERION REFERENCED TEST IN ENGLISH GRAMMAR 53-61
   2.1.1 Content Specification 55
   2.1.2 Specification of Instructional Objectives 55-57
   2.1.3 Development and Standardization of Criterion Referenced Test 57-61
2.2 AN ACHIEVEMENT TEST IN ENGLISH GRAMMAR 61-69
   2.2.1 First Draft of the Achievement Test 61-66
   2.2.2 Second Draft of the Achievement Test 66-68
   2.2.3 Final Draft of the Achievement Test 68
   2.2.4 Scoring 69
   2.2.5 Reliability 69
   2.2.6 Validity 69
2.3 INSTRUCTIONAL MATERIAL ON COMPUTER BASED MULTIMEDIA INSTRUCTIONAL STRATEGY 69-75
   2.3.1 Planning of Computer Based Multimedia Instructional Material 70-71
   2.3.2 Designing of Computer Based Multimedia Instructional Material 71-75
2.4 INSTRUCTIONAL MATERIAL ON CONVENTIONAL TEACHING STRATEGY 75-76
2.5 COMPUTER ANXIETY SCALE 76-83
   2.5.1 First Draft of Computer Anxiety 78-79
   2.5.2 Second Draft of Computer Anxiety 79-81
   2.5.3 Final Draft of Computer Anxiety 81
   2.5.4 Scoring 81
   2.5.5 Reliability 82
   2.5.6 Validity 82-83
2.6 SELF-CONCEPT QUESTIONNAIRE (SCQ) BY SARASWAT 83-85
   2.6.1 Description of Self-Concept Questionnaire 83-84
   2.6.2 Scoring 84
   2.6.3 Reliability 84-85
   2.6.4 Validity 85
CHAPTER- III METHOD AND PROCEDURE

3.1 SAMPLE
   3.1.1 The School Sample
   3.1.2 The Student Sample

3.2 DESIGN

3.3 CONTROLS IN EXPERIMENTAL DESIGN

3.4 TOOLS USED

3.5 PROCEDURE

3.6 STATISTICAL TECHNIQUES USED

CHAPTER- IV ANALYSIS AND INTERPRETATION OF THE RESULTS

4.1. ANALYSIS OF PRE-TEST SCORES
   4.1.1 Analysis of Descriptive Statistics
   4.1.2 Frequency Polygon of Pre-test Scores of Experimental and Control Group
   4.1.3 Smoothed Ogive of Pre-test Scores of Experimental and Control Group

4.2 ANALYSIS OF GAIN ACHIEVEMENT SCORES
   4.2.1 Analysis of Descriptive Statistics
   4.2.2 Frequency Polygon of Gain Achievement Scores
   4.2.3 Smoothed Ogive of Gain Achievement Scores
   4.2.4 Bar Diagram on Pre and Post-Test Scores of Different Sub-Groups
   4.2.5 Analysis of Total Gain Achievement Scores
   4.2.6 Analysis of Variance on Gain Achievement Scores
   4.2.7 Discussion of the Results

4.3 ANALYSIS OF RETENTION SCORES
   4.3.1 Analysis of Descriptive Statistics
   4.3.2 Frequency Polygon of Retention Scores
   4.3.3 Smoothed Ogive of Retention Scores
   4.3.4 Bar Diagram on Pre and Retention Scores of Different Sub-Groups
   4.3.5 Analysis of Total Retention Scores
   4.3.6 Analysis of Variance on Retention Scores
   4.3.7 Discussion of the Results
CHAPTER V SUMMARY AND CONCLUSION 135-153

5.1 INTRODUCTION 135-139
5.2 NEED AND SIGNIFICANCE OF THE STUDY 139-142
5.3 STATEMENT OF THE PROBLEM 142
5.4 OPERATIONAL DEFINITION OF THE VARIABLES 142-143
5.5 DELIMITATIONS 143
5.6 OBJECTIVES 143-144
5.7 HYPOTHESES 144-145
5.8 SAMPLE 145-146
5.8.1 The School Sample 146
5.8.2 The Student Sample 146
5.9 DESIGN 147
5.10 TOOLS USED 147
5.11 PROCEDURE 147-148
5.12 STATISTICAL TECHNIQUES USED 148-149
5.13 FINDINGS 149-151
5.14 EDUCATIONAL IMPLICATIONS OF THE FINDINGS 151-152
5.15 SUGGESTIONS FOR FURTHER RESEARCH 153

REFERENCES 154-175

APPENDICES: A - O 1-135

Appendix- A: List of Subject Experts/Teachers for Criterion Referenced Test 1
Appendix- B: Criterion Referenced Test in English Grammar 2-16
Appendix- C: First Draft of Achievement Test in English Grammar 17-28
Appendix- D: Second Draft of Achievement Test in English Grammar 29-38
Appendix- E: Final Draft of Achievement Test in English Grammar 39-47
Appendix- F: Reliability of Achievement Test 48
Appendix- G: Instructional Material on Computer Based Multimedia Instructional Strategy in English Grammar 49-109
Appendix- H: Compact Disc of Computer Based Multimedia Instructional Material 110
Appendix- I: Instructional Material on Conventional Teaching Strategy in English Grammar 111-116
Appendix- J: List of Subject Experts/Teachers for Computer Anxiety Scale 117
Appendix- K: First Draft of Computer Anxiety Scale 118-122
Appendix- L: Second Draft of Computer Anxiety Scale 123-126
Appendix- M: Final Draft of Computer Anxiety Scale 127-129
Appendix- N: Reliability of Computer Anxiety Scale 130
Appendix- O: Self Concept Questionnaire by Saraswat (1999) 131-135