

# TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION . . . . .	1
Purpose . . . . .	2
Specific Problems . . . . .	3
II. BACKGROUND FOR THE STUDY . . . . .	5
Learning Theories . . . . .	6
Piaget . . . . .	7
Dienes . . . . .	8
Bruner . . . . .	10
Related Research . . . . .	11
Summary . . . . .	19
III. THE METHOD OF THE STUDY . . . . .	21
The Preliminary Study . . . . .	21
Subjects . . . . .	22
Treatment . . . . .	22
Results . . . . .	23
Conclusions . . . . .	25
Main Study . . . . .	25
Selection of the Sample . . . . .	25
Description of the Sample . . . . .	26
Description of the Teachers . . . . .	31
Pre-training of the Teachers . . . . .	33
Methods and Materials Used . . . . .	33
Measurement Instruments . . . . .	36
Measurement Instruments-Curriculum Embedded Concepts . . . . .	36
Measurement Instruments-Concept Conservation . . . . .	36
Conservation of Mass . . . . .	37
Conservation of Weight . . . . .	37
Conservation of Volume . . . . .	38
Conservation of Length . . . . .	38
Scoring . . . . .	39
Role of the Experimenter . . . . .	40
Summary . . . . .	40

Chapter	Page
IV. RESULTS OF THE EXPERIMENT. . . . .	42
Concepts . . . . .	43
Conservation of Concepts . . . . .	44
Summary. . . . .	50
V. CONCLUSIONS AND RECOMMENDATIONS. . . . .	51
Conclusions. . . . .	52
Recommendations. . . . .	57
BIBLIOGRAPHY . . . . .	58
APPENDIX . . . . .	63
Appendix A: Mean Gains of Students of the Preliminary Study. . . . .	64
Appendix B: Concepts and Materials. . . . .	66
Appendix C: Mean Grade Equivalent in Concepts At the Start and At the Finish . . . . .	68