

Copyright is owned by the Author of the thesis. Permission is given for a copy to be downloaded by an individual for the purpose of research and private study only. The thesis may not be reproduced elsewhere without the permission of the Author.

**THE EFFECTS OF RIME-BASED
ORTHOGRAPHIC ANALOGY TRAINING ON
THE WORD RECOGNITION SKILLS OF
CHILDREN WITH READING DISABILITY**

A thesis presented in partial fulfilment of the requirements

for the degree of

Doctor of Philosophy

in Education at

Massey University

Palmerston North, New Zealand

by

Keith Thomas Greaney

1998

ABSTRACT

Phonological processing abilities among a group of older disabled readers were investigated in the first of two experimental studies. A second study was undertaken to determine the extent to which a group of disabled older readers could be trained to use rime spelling unit knowledge to make orthographic analogies when decoding unfamiliar words.

The purpose of the first study was to assess (using a reading age match design) specific phonological processing abilities among a group of disabled readers. The disabled readers' performances on the tasks were compared to the performances of a group of younger normally developing readers who were reading at the same level as the disabled readers.

The rime analogy training study was designed to encourage disabled readers to capitalize on their limited but sufficient phonological knowledge to assist them to make greater use of rime spelling units as a basis for making orthographic analogies when decoding unfamiliar words. In the rime analogy training study 57 disabled readers were assigned to either one of two training groups or to a third standard non-intervention (control) group. All of the disabled readers were enrolled on Resource Teacher of Reading (RTR) programmes. Thirty-six of these RTR children received one of two specifically designed 5-minute decoding interventions on a daily basis for 11 weeks. The remaining 21 disabled readers received only their standard RTR lessons. The Neale Analysis of Reading Ability Accuracy Subtest (1981), the Peabody Picture Vocabulary Test (1981), the Burt Word Test (1981) and five tests of phonological processing ability were administered to all 114 children (i.e., 57 disabled readers and 57 younger normal readers) at the beginning of the reading age match study. The 57 disabled readers were also posttested on all the measures (except the PPVT) at the conclusion of the training study. Follow-up tests one year after the completion of the training study were also administered to 52 of the disabled readers and to a randomly selected group of 20 of the younger normally developing readers.

The results from the reading age match study confirmed findings from earlier studies indicating that disabled older readers' poor reading abilities are more likely to be caused by phonological processing deficits rather than by a general developmental delay in their word processing abilities.

The results from the rime analogy training study indicated that disabled readers can be trained to focus on specific rime spelling units and to use this knowledge to assist them to decode a large proportion of unfamiliar words encountered during context reading. Results from the one year follow-up study further indicated that the positive gains made during the training intervention study were maintained. The strategies taught in the training programme were also shown to generalize to uninstructed reading materials.

ACKNOWLEDGEMENTS

There are a number of people who have contributed to the completion of this research project. First, I would like to thank the Resource Teachers of Reading and the Reading Assistance Teachers for their involvement and continuing support throughout the various stages of the project. Second, I wish to thank the children who participated in both the reading age match study and the training intervention.

Third, I would like to thank the principals and the class teachers of the schools that the children attended for allowing me access to the children at unplanned times during the school day. Fourth, my thanks also go to the Central Normal School (Palmerston North) Board of Trustees and the principal for allowing me leave from my employment at various stages to conduct the field work and collect the data.

Finally, my sincere thanks must go to my chief supervisor, Professor Bill Tunmer and to my associate supervisor, Professor James Chapman for their continued professional guidance and support throughout the project.

TABLE OF CONTENTS

	Page
Abstract	(ii)
Acknowledgements	(iv)
Table of Contents	(v)
List of Tables	(x)
List of Figures	(xii)
List of Appendices	(xiii)
CHAPTER 1: INTRODUCTION	1
Rationale for the Studies	3
The studies	3
Overview	4
CHAPTER 2: REVIEW OF THE LITERATURE	5
Introduction	5
Ways to Read Words	5
Paired Associate Reading	6
Sight Word Reading	7
Phonological Recoding	7
Detecting Spelling Patterns and Analogizing	8
Sentence Cue Use and Contextual Guessing	9
Instructional Effects of Differing Cue Emphases	10

The Relative Role of Graphophonic Information to the Decoding Process	11
The Role of “Natural Discovery” of the English Orthographic System	12
Phonological Processing and Children with Severe Reading Disabilities	14
Causes of Phonological Processing Deficits	17
The Importance of Phonological Information to The Development of Word Specific Knowledge	18
Phonological Set for Diversity	19
The Development of Early Rhyme and Onset-rime Awareness	20
Rime Analogy Training Studies and Beginning Readers	24
Phonological Recoding Ability, Sight Word Knowledge and Rime Unit Analogy Use: A Reciprocal Relationship	29
Advantages in Teaching Onset-Rime Unit Awareness	33
Use of Rime Unit Analogies by Disabled Readers	36
Transfer of Training Issues	44
The Role of Metacognitive Learning	44
The Reading-Spelling Link	45
The Appropriateness of Training Tasks to Regular Class Programmes	47
Rime-based Analogy Training for Disabled Readers in Context Reading	48
Summary	53

Aims of the Present Study	53
The Research Questions	55
CHAPTER 3: RESOURCE TEACHERS OF READING	56
Introduction	56
Reading Recovery	56
Reading Recovery Programme Entry Criteria	57
Reading Recovery Lesson Format	57
Reading Recovery Students	58
Resource Teachers of Reading (RTRs)	59
National Distribution of RTRs	59
Training of RTRs	60
RTR Students	62
RTR Pupil Selection Criteria	62
RTR Management Committee	65
RTR Programme Format	65
Reading Assistance Teachers (RATs)	67
Summary	67
CHAPTER 4: EXPERIMENT ONE: THE READING AGE MATCH	69
Introduction	69
Method	70
Sample	70
Selection of the Target Group	71

Design	71
Tests	72
Burt Word Reading Test	73
Neale Analysis of Reading Ability	73
Peabody Picture Vocabulary Test (PPVT)	73
Sound Matching Task	73
Phoneme Segmentation Task	74
Pseudoword Reading Task	75
Reading Words with Common Rime Units Task	76
Rime Spelling Unit Identification Task	77
Procedures	78
Results and Discussion	80
Why Disabled Readers do not Use Rime Unit Analogies	91
Summary	92
 CHAPTER 5: EXPERIMENT TWO: THE RIME ANALOGY TRAINING STUDY	 94
Introduction	94
Method	96
Sample and Design	96
Training Materials and Procedures	99
Rime Analogy Training	99
The Twelve Training Cycles	100
The Four Response Scenarios in the Rime Analogy Training Procedure	102

Item-specific Training	104
Results	108
Follow-up Results	121
General Discussion	126
Rime Analogy Training and Metacognitive Learning	127
Teacher Modeling	126
Encouragement of Student Self-monitoring	129
The Development of a Sense of Task Purpose	120
Why the Rime Analogy Training was Successful	130
Summary	134
CHAPTER 6: CONCLUSIONS	135
Key Findings	135
Summary	138
Research Design Issues	139
Suggestions for Future Research	141
Implications for Educational Practice	142
REFERENCES	144
APPENDICES	162

LIST OF TABLES

		Page
Table 1	National Distribution of Resource Teachers of Reading in New Zealand in 1994	60
Table 2	Beginning Reading Cohort Subdivided According to Instructional Input	61
Table 3	Reading Recovery Information on Children Admitted to Resource Teacher of Reading Programmes in 1994	63
Table 4	Reading Levels and Ages of Discharged Pupils at Admittance to Resource Teacher of Reading Programmes in 1994	64
Table 5	Summary of a Typical Resource Teacher of Reading Lesson Format	66
Table 6	Mean Reading Ages and Chronological Ages of the Disabled Readers and the Reading Age Controls	72
Table 7	Summary Plan of Research Showing Time-frame for Tests, Testpoints and the Analogy Training Intervention	79
Table 8	Tests of Differences Between Means of Disabled Readers and Reading Age Controls on all Measures	81
Table 9	Words With Common Rime Units Contiguous Presentation	84

Table 10	Words With Common Rime Units Mean Percentage of Total Responses Made for Each Response Scenario	85
Table 11	Words With Common Rime Units Contiguous Presentation Mean Scores for Each Unit and Each Group	86
Table 12	The 56 Words With Three Sounds From the Words With Common Rime Units Task	87
Table 13	Mean Percentage of Total Error Response Scenarios for the 56 Words With Three Sounds	88
Table 14	One-way ANOVA of Teaching Experiences of the Reading Specialists for All Comparison Groups	98
Table 15	One-way ANOVA Three Comparison Groups for All Pretreatment Measures	108
Table 16	Tests of Differences Between Means of Modified Intervention Groups on Amount of Training Received	109
Table 17	Pretest and Posttest Means and Standard Deviations of Three Comparison Groups on all Measures	113
Table 18	One-way ANOVA of Four Comparison Groups for all Follow-up Measures	122
Table 19	Mean Percentage of Error Response Patterns for the 56 Words With Three Sounds As Function of Group and Time of Testing	125

LIST OF FIGURES

		Page
Figure 1	Ways That Words Can be Segmented Phonologically	21
Figure 2	Age of Discharged Children at Time of Admission to and Discharge From Resource Teacher of Reading Programmes	62
Figure 3	Mean Number of Target Words Correctly Identified at Different Points in the Training Cycle Averaging Across Training Cycles Completed	111
Figure 4	Mean Raw Scores on the Burt Word Test as Function of Intervention Group and Time of Testing	114
Figure 5	Mean Number of Correct Responses on the Neale Reading Accuracy Subtest as Function of Intervention Group and Time of Testing	115
Figure 6	Mean Number of Total Points on the Pseudoword Reading Test as a Function of Intervention Group and Time of Testing	117
Figure 7	Identification of Words With Common Rime Units Showing Total Words Correct as Function of Group and Time of Testing	118
Figure 8	Mean Number of Correct Responses on the Rime Unit Identification Task as a Function of Group and Time of Testing	120

LIST OF APPENDICES

		Page
Appendix A	Sound Matching Task	163
Appendix B	Phoneme Segmentation Task	174
Appendix C	Pseudoword Naming Task	176
Appendix D	Words With Common Rime Units Task	180
Appendix E	Rime Spelling Units Identification Task	185
Appendix F	Training Materials for Rime Analogy and Item-specific Training Groups	187
Appendix G	Rime Analogy Training Worksheet 1	188
Appendix H	Item-specific Training Worksheet 1	189