READING FOR LIFE:

A multi-method test of the efficacy of a volunteer-administered intervention targeting the reading skills and reading self-concept of young children with reading difficulties

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DEDICATION

To my family, who has supported this long journey, I am able to be everything I am because of your unwavering support and belief in me.

To the children who courageously face school and life with their reading difficulties every single day and keep trying—it is for you that I keep searching for the best way to help you learn to read.
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STATEMENT OF AUTHENTICATION

The work presented in this thesis is, to the best of my knowledge and belief, original except as acknowledged in the text. I hereby declare that I have not submitted this material, either in full or in part, for a degree at this or any other institution.

.................................................................

(Signature)
TABLE OF CONTENTS

ABSTRACT ............................................................................................................................. XIX

CHAPTER 1: Introduction ..................................................................................................... 1

CHAPTER 2: Addressing the Needs of Children with Reading Difficulties: An Overview of Definitional Issues, Significance, International Policy, and Intervention and Research Implications ......................................................... 6

CHAPTER 3: What Research Tells Us About Effective Reading Interventions 23

Chapter Summary .................................................................................................................. 22

TABLE OF CONTENTS

ABSTRACT............................................................................................................................. XIX

CHAPTER 1: Introduction ..................................................................................................... 1

CHAPTER 2: Addressing the Needs of Children with Reading Difficulties: An Overview of Definitional Issues, Significance, International Policy, and Intervention and Research Implications ......................................................... 6

CHAPTER 3: What Research Tells Us About Effective Reading Interventions 23

Chapter Summary .................................................................................................................. 22
National and International Reviews .................................................. 28
  Introduction .................................................................................. 28
  Report on Teaching Reading (Australia) .......................................... 28
  The Rose Report (United Kingdom) .................................................. 30
  Identifying and Teaching Children and Young People with Dyslexia and
  Literacy Difficulties (United Kingdom) ............................................. 31
  Implications for the Present Investigation ....................................... 31

An Overview of Approached to Reading Intervention ....................... 31
  Introduction .................................................................................. 31
  Meaning-Based Instruction (Whole Language) ................................ 32
  Explicit Code-Based Instruction (Phonics) ..................................... 33
  Integrated Approaches .................................................................. 34
  Implications for the Present Investigation ....................................... 35

Reading Skills .................................................................................. 35
  Introduction .................................................................................. 35
  Letter-Sound Correspondence and Rapid Automatised Naming ....... 36
  Phonological Awareness ............................................................... 37
  Sight Word Recognition .................................................................. 40
  Reading Accuracy .......................................................................... 41
  Reading Fluency ............................................................................ 42
  Reading Comprehension ............................................................... 42
  Implications for the Present Investigation ....................................... 43

Essential Learning Considerations .................................................... 44
  Introduction .................................................................................. 44
  Direct Instruction ........................................................................... 44
  Strategy Instruction ........................................................................ 45
  Revision and Practice ................................................................. 46
  Transfer and Generalisation .......................................................... 46
  Home Literacy Environment ........................................................ 47
  Student-Teacher Ratios ............................................................... 48
  Implications for the Present Investigation ....................................... 48

Existing Reading Interventions and Challenges for Research .......... 50
  Introduction .................................................................................. 50
  Reading Recovery ......................................................................... 51
  Teacher-Supported Programs ....................................................... 52
  Volunteer Programs ................................................................. 52
  Challenges in Conducting Experimental Studies ......................... 54
  Implications for the Present Investigation ....................................... 55

The Significance of the Self-Concept Construct for Reading Interventions .. 56
  Introduction .................................................................................. 56
  Multidimensional Structure of the Self-Concept Construct .......... 56
  The Importance of Holding a Positive Self-Concept ..................... 57
  Self-Concept of Children with Reading Difficulties ..................... 58
  The Relations between Self-Concept and Academic Achievement ... 59
  Self-Concept Enhancement Interventions ..................................... 61
  Implications for Present Investigation ......................................... 63

Chapter Summary .......................................................................... 63

Introduction ................................................................................................................. 66
The Origins of Reading for Life ...................................................................................... 67
  Background .................................................................................................................. 67
  Relationship between Unilever Australasia and Learning Links .............................. 67
Pilot Research .................................................................................................................. 68
  Overview .................................................................................................................... 68
  NSW Pilot Study ........................................................................................................ 69
    Aims ......................................................................................................................... 69
    Participants ............................................................................................................. 69
    Measures ................................................................................................................... 70
    Procedures ............................................................................................................... 70
    Results ..................................................................................................................... 72
    Limitations ............................................................................................................. 73
  New Zealand Pilot ..................................................................................................... 74
    Participants ............................................................................................................. 74
    Procedures and results ......................................................................................... 74
  Section Summary .................................................................................................... 74
Unilever Australasia’s Vision .......................................................................................... 75
  Expansion of R4L ....................................................................................................... 75
  Growth of the Program ............................................................................................. 75
  Section Summary .................................................................................................... 77
The Reading for Life Intervention .................................................................................. 77
  Introduction ............................................................................................................... 77
  Goals and Objectives of the Program .................................................................... 77
  Communication with Schools, Companies, and Parents ........................................ 78
  Assessment ............................................................................................................... 79
  Intervention materials ............................................................................................ 80
    Building the relationship (Highlights) ................................................................... 80
    Sight words (Warm-Up) ....................................................................................... 81
    Knowledge of sounds (Stretching) ....................................................................... 82
    Reading (The Main Event) .................................................................................. 84
    Cool down ............................................................................................................. 85
    Celebrating effort ................................................................................................. 86
  Section Summary .................................................................................................... 87
Chapter Summary ......................................................................................................... 87

CHAPTER 5: Aims, Hypotheses, Research Questions, and their Rationale .... 88
Introduction ..................................................................................................................... 88
Study 1: Impact of the Reading for Life Intervention for Primary School Children ................................................................................................................................. 89
  Statement of the Problem ....................................................................................... 89
  Aims ......................................................................................................................... 89
  Statement of the Hypotheses and Research Questions ........................................ 90
    Hypothesis 1.1.1: Reliability of Sutherland Phonological Awareness Test (SPAT-R) .......................................................... 90
    Hypothesis 1.1.2: Reliability of Burt Word Reading Test (Burt) ......................... 90
    Hypothesis 1.1.3: Reliability of Neale Analysis of Reading (Neale-R) - Accuracy ........................................................................ 90
    Hypothesis 1.1.4: Reliability of Neale Analysis of Reading (Neale-R) - Comprehension ........................................................ 90
Rationale for the Hypotheses and Research Questions

Rationale for Hypotheses

Hypothesis 1.2.1: Impact of R4L on reading achievement skill: phonological awareness ................................................................. 90
Hypothesis 1.2.2: Impact of R4L on reading achievement skill: sight word recognition ................................................................. 90
Hypothesis 1.2.3: Impact of R4L on reading achievement skill: reading accuracy .............................................................................. 90
Hypothesis 1.2.4: Impact of R4L on reading achievement skill: reading comprehension ................................................................. 91

Research Question 1.3.1: Impact of gender on effects of R4L on reading achievement skill: phonological awareness ................................................................. 91
Research Question 1.3.2: Impact of gender on effects of R4L on reading achievement skill: sight word recognition ................................................................. 91
Research Question 1.3.3: Impact of gender on effects of R4L on reading achievement skill: reading accuracy ................................................................. 91
Research Question 1.3.4: Impact of gender on effects of R4L on reading achievement skill: phonological awareness ................................................................. 91

Research Question 1.4.1: Impact of type of buddy on effects of R4L on reading achievement skill: phonological awareness ................................................................. 91
Research Question 1.4.2: Impact of type of buddy on effects of R4L on reading achievement skill: sight word recognition ................................................................. 92
Research Question 1.4.3: Impact of type of buddy on effects of R4L on reading achievement skill: reading accuracy ................................................................. 92
Research Question 1.4.4: Impact of type of buddy on effects of R4L on reading achievement skill: reading comprehension ................................................................. 92

Research Question 1.5.1: Long-term effects of R4L on reading achievement skill: phonological awareness ................................................................. 92
Research Question 1.5.2: Long-term effects of R4L on reading achievement skill: sight word recognition ................................................................. 92
Research Question 1.5.3: Long-term effects of R4L on reading achievement skill: reading accuracy ................................................................. 92
Research Question 1.5.4: Long-term effects of R4L on reading achievement skill: reading comprehension ................................................................. 92

Hypothesis 1.6.1: Consistent impact of R4L on reading achievement skill: phonological awareness ................................................................. 93
Hypothesis 1.6.2: Consistent impact of R4L on reading achievement skill: sight word recognition ................................................................. 93
Hypothesis 1.6.3: Consistent impact of R4L on reading achievement skill: reading accuracy ................................................................. 93
Hypothesis 1.6.4: Consistent impact of R4L on reading achievement skill: reading comprehension ................................................................. 93

Research Question 1.7.1: Consistent long-term effects of R4L on reading achievement skill: phonological awareness ................................................................. 93
Research Question 1.7.2: Consistent long-term effects of R4L on reading achievement skill: sight word recognition ................................................................. 93
Research Question 1.7.3: Consistent long-term effects of R4L on reading achievement skill: reading accuracy ................................................................. 94
Research Question 1.7.4: Consistent long-term effects of R4L on reading achievement skill: reading comprehension ................................................................. 94

Rationale for the Hypotheses and Research Questions ................................................................. 94
Rationale for Hypotheses 1.1.1 - 1.1.4: Reliability of instruments ................................................................. 94
Rationale for Hypotheses 1.2.1 - 1.2.4: Impact of R4L on reading achievement skills ................................................................. 95
Rationale for Research Questions 1.3.1 - 1.3.4: Impact of gender on effects of R4L on reading achievement skills ................................................................. 95
Rationale for Research Questions 1.4.1 - 1.4.4: Impact of type of buddy on effects of R4L on reading achievement skills ......................................................... 96
Rationale for Research Questions 1.5.1 - 1.5.4: Long-term effects of R4L on reading achievement skills ................................................................. 97
Rationale for Hypotheses 1.6.1 to 1.6.4: Consistent impact of R4L on reading achievement skills ................................................................. 98
Rationale for Research Questions 1.7.1 to 1.7.4: Consistent long-term effects of R4L on reading achievement skills ................................................................. 98

Study 2: Children’s Journey to Read for Life........................................ 98
Statement of the Problem ........................................................................ 98
Aims ......................................................................................................... 99
Statement of the Research Questions for Study 2 ..................................... 99
Research Question 2.1.1: Impact of the intervention on children’s reading achievement ................................................................. 99
Research Question 2.1.2: Impact of possible threats to the control condition ................................................................................. 99
Research Question 2.2.1: Impact of the intervention on children’s reading self-concept ................................................................. 100
Research Question 2.2.2: Impact of the intervention on children’s reading behaviours at home ................................................................. 100
Research Question 2.3.1: Strengths and limitations of the intervention .... 100
Rationale for the Research Questions for Study 2 ........................................ 100
Rationale for Research Question 2.1.1: Impact of the intervention on children’s reading achievement ................................................................. 100
Rationale for Research Question 2.1.2: Impact of possible threats to the control condition ................................................................. 100
Rationale for Research Question 2.2.1: Impact of the intervention on children’s reading self-concept ................................................................. 101
Rationale for Research Question 2.2.2: Impact of the intervention on children’s reading behaviours at home ................................................................. 102
Rationale for Research Question 2.3.1: Strengths and limitations of the intervention ................................................................. 102

Chapter Summary .................................................................................. 103

CHAPTER 6: Methodology ...................................................................... 104
Introduction .......................................................................................... 104
Mixed Methods Research Design .............................................................. 104
Rationale for Mixed Methods Design ....................................................... 104
Purpose and Rationale of the Study ......................................................... 107
Formulation of Mixed Methods Research Questions ................................ 109
Quantitative Methods: Rationale ........................................................... 110
Qualitative Methods: Rationale ............................................................. 111
Strengths of the Mixed Methods Approach ............................................. 111
Mixed Methods Research Design in Present Investigation ................. 112
Overview .............................................................................................. 112
Section Summary .................................................................................. 114
Overarching Methods for Studies 1 and 2 .............................................. 114
Overview .............................................................................................. 114
Sample.................................................................................................................115
Materials ..............................................................................................................116
R4L packs.............................................................................................................116
R4L training DVD .................................................................................................117
Parent support materials .....................................................................................117
R4L test administration DVD .............................................................................117
Measurement instruments ..................................................................................117
Procedures............................................................................................................118
Ethics Approval ....................................................................................................118
School recruitment and participation consent .................................................118
Volunteer recruitment and participation consent .............................................119
Research assistant training ...............................................................................121
Reading buddy training ......................................................................................121
Time 1 testing ........................................................................................................122
Determination of eligibility ................................................................................125
Implementation of R4L: Experimental Group ..................................................127
Implementation of R4L: Control Group .............................................................127
Time 2 testing ........................................................................................................128
Time 3 testing ........................................................................................................128
Time 4 testing ........................................................................................................128
Time 5 testing ........................................................................................................129
Section Summary ................................................................................................130
Study 1: Quantitative Study ..................................................................................130
Participants..........................................................................................................130
Sample summary quantitative study .................................................................130
Materials ................................................................................................................132
Test administration forms ...................................................................................132
Sutherland Phonological Awareness Test–Revised (SPAT-R) ............................132
Burt Word Reading Test (Burt) ............................................................................133
Neale Analysis of Reading-Revised (Neale-R) ...................................................133
School Fidelity Rating ........................................................................................133
Procedures............................................................................................................134
Data analysis .........................................................................................................134
Data screening .....................................................................................................134
Instrument reliability ............................................................................................135
Preliminary analyses ............................................................................................135
Multilevel modelling .............................................................................................138
Data preparation for multilevel modelling ........................................................140
Contrasts and models ...........................................................................................141
Replicability analyses ..........................................................................................143
Section summary ................................................................................................145
Study 2: Qualitative Study ....................................................................................145
Participants..........................................................................................................146
Materials ................................................................................................................146
Procedures............................................................................................................147
Interviews ..............................................................................................................147
Data analysis .........................................................................................................148
Locating the researcher .......................................................................................150
Second coder ........................................................................................................151
Data authentication ..............................................................................................151
Thematic analysis ................................................................................................151
CHAPTER 7: Results Study 1: Impact of the Reading for Life Intervention on Reading Achievement

Overview of Analyses

Models Tested

Model 1: Null model
Model 2: Intervention effects model
Model 3: Gender effects model
Model 4: Buddy effects model
Model 5: Long-term effects model
Model 6: Replicability model

Significant Levels

Interpretation of Main and Interaction Effects

Effect Sizes

Results

Aim 1: Reliability of Instruments

Overview of analyses

Results for Hypothesis 1.1.1: Reliability of Sutherland Phonological Awareness Test—Revised (SPAT-R)
Results for Hypothesis 1.1.2: Reliability of Burt Word Reading Test (Burt
Results for Hypothesis 1.1.3: Reliability of Neale Analysis of Reading-Revised (Neale-R) - Accuracy
Results for Hypothesis 1.1.4: Reliability of Neale Analysis of Reading-Revised (Neale-R) - Comprehension

Summary of Hypotheses 1.1.1—1.1.4

Aim 2-5: Impact of R4L and Moderating Effects of Gender and Buddy

Overview of analyses

Phonological awareness

Results for Hypothesis 1.2.1: Impact of R4L on Phonological Awareness
Model 1: Variance components (null) model
Model 2: R4L intervention model of phonological awareness
Effect Size

Summary

Results for Research Question 1.3.1: Impact of gender on effects of R4L on reading achievement skill: phonological awareness
Summary

Results for Research Question 1.4.1: Impact of type of buddy on effects of R4L on reading achievement skill: phonological awareness
Summary

Results for Research Question 1.5.1: Long-term effects of R4L on reading achievement skill: phonological awareness
Summary

Summary phonological awareness

Sight Words

Results for Hypothesis 1.2.2: Impact of R4L on Sight Words
Model 1: Variance components (null) model
Model 2: R4L intervention model of sight word recognition
Summary
Aim of R4L on Reading Achievement Measures

Results for Research Question 1.3.2: Impact of gender on effects of R4L on reading achievement skill: sight words ......................................................... 175
Results for Research Question 1.4.2: Impact of type of buddy on effects of R4L on reading achievement skill: sight words ......................................................... 175
Summary ........................................................................................................ 175
Results for Research Question 1.5.2: Long-term effects of R4L on reading achievement skill: sight words ......................................................... 175
Summary ........................................................................................................ 175
Summary sight word recognition .................................................................. 176
Reading Accuracy .......................................................................................... 177
Results for Hypothesis 1.2.3: Impact of R4L on reading accuracy .............. 177
Model 1: Variance components (null) model .................................................. 177
Model 2: R4L intervention model of reading accuracy .................................... 179
Summary ........................................................................................................ 179
Results for Research Question 1.3.3: Impact of gender on effects of R4L on reading achievement skill: reading accuracy ......................................................... 179
Results for Research Question 1.4.3: Impact of type of buddy on effects of R4L on reading achievement skill: reading accuracy ......................................................... 179
Summary ........................................................................................................ 180
Results for Research Question 1.5.3: Long-term effects of R4L on reading achievement skill: reading accuracy ......................................................... 180
Summary ........................................................................................................ 180
Summary reading accuracy ........................................................................... 181
Reading Comprehension .............................................................................. 181
Results for Hypothesis 1.2.4: Impact of R4L on reading comprehension ....... 181
Model 1: Variance components (null) model .................................................. 182
Model 2: R4L intervention model of reading comprehension ........................ 182
Summary ........................................................................................................ 184
Results for Research Question 1.3.4: Impact of gender on effects of R4L on reading achievement skill: reading comprehension ......................................................... 184
Results for Research Question 1.4.4: Impact of type of buddy on effects of R4L on reading achievement skill: reading comprehension ......................................................... 184
Summary ........................................................................................................ 184
Results for Research Question 1.5.4: Long-term effects of R4L on reading achievement skill: reading comprehension ......................................................... 184
Summary ........................................................................................................ 185
Summary reading comprehension .................................................................. 185
Aim 6-7: Replicability of Results ................................................................. 186
Results for Hypothesis 1.6.1—1.6.4: Consistent Impact of R4L on Reading Achievement Measures ................................................................. 186
Model 6: Replicability of R4L intervention ..................................................... 188
Results for Hypothesis 1.6.1: Consistent effects of R4L on phonological awareness ................................................................................................. 188
Results for Hypothesis 1.6.2: Consistent effects of R4L on sight words ..... 189
Results for Hypothesis 1.6.3: Consistent effects of R4L on reading accuracy ................................................................................................. 190
Results for Hypothesis 1.6.4: Consistent effects of R4L on reading comprehension ................................................................................................. 191
Summary ........................................................................................................ 192
Results for Research Questions 1.7.1—1.7.4: Consistent Long-term Impact of R4L on Reading Achievement Measures ......................................................... 192
Results for Research Question 1.7.1: Consistent long-term effects of R4L on phonological awareness ................................................................. 194
Results for Research Question 1.7.2: Consistent long-term effects of R4L on sight words .................................................................................. 194
Results for Research Question 1.7.3: Consistent long-term effects of R4L on reading accuracy ............................................................... 195
Results for Research Question 1.7.4: Consistent long-term effects of R4L on reading comprehension .................................................... 195
Summary ................................................................................................. 196

Chapter Summary .................................................................................. 196

CHAPTER 8: Results Study 2: Children’s Journey to Read for Life ........... 198
Introduction............................................................................................ 198
Results Overview .................................................................................. 199

Results Research Question 2.1.1: Impact of R4L on Children’s Reading
Achievement .......................................................................................... 200
Overview ............................................................................................... 200
Improvements in Reading: Decoding Skills............................................ 201
Children ............................................................................................... 202
Parents .................................................................................................. 203
Teachers ................................................................................................ 204
Reading buddies .................................................................................. 205
Summary ............................................................................................... 206

Improvements in Reading: Increased Frequency of Autonomous Reading
Children ............................................................................................... 208
Parents .................................................................................................. 209
Teachers ................................................................................................ 209
Summary ............................................................................................... 210

Improvements in Reading: Sight Word Recognition ............................. 210
Children ............................................................................................... 213
Parents and teachers ............................................................................ 214
Reading buddies .................................................................................. 214
Summary ............................................................................................... 215

Overall Summary .................................................................................. 215

Results Research Question 2.1.2: Impact of Possible Threats to Control
Condition ............................................................................................... 216
Overview ............................................................................................... 216
Children ............................................................................................... 217
Teachers ................................................................................................ 218
Parents .................................................................................................. 220
Summary ............................................................................................... 221

Results Research Question 2.1.2: Impact of R4L on Children’s Reading Self-Concept ................................................................................. 222
Overview ............................................................................................... 222
Relationship with Buddy ....................................................................... 222
Children ............................................................................................... 224
Parents .................................................................................................. 226
Teachers ................................................................................................ 227
Reading buddies .................................................................................. 231
Summary ............................................................................................... 232

Improvements in Reading Self-Concept ................................................ 233
Children ............................................................................................... 235
Results Research Question 2.2.2: Impact of R4L on Home Reading

Behaviours ................................................. 241
Overview ..................................................... 241
Completion of Home Reading ......................... 242
Children ..................................................... 243
Parents ....................................................... 244
Teachers ..................................................... 246
Reading buddies ........................................... 248
Summary .................................................... 249

Results Research Question 2.3.1: Strengths and Limitations of Reading for Life ................................................. 252
R4L Materials and Content .............................. 253
Children ..................................................... 254
Parents ....................................................... 255
Teachers ..................................................... 255
Reading buddies .......................................... 256
Summary .................................................... 257
Individual Attention from Buddies ................... 258
Children ..................................................... 259
Parents ....................................................... 259
Teachers ..................................................... 260
Reading buddies .......................................... 261
Summary .................................................... 262
Section Summary .......................................... 263

Chapter Summary ............................................ 264

CHAPTER 9: Discussion ...................................... 264
Introduction .................................................. 264
Reading Skills ............................................... 264

Introduction ................................................. 264
Phonological Awareness .................................. 265
Instrument reliability ...................................... 265
Effectiveness of R4L ....................................... 265
Long-term effects of R4L .................................. 267
Gender effects of R4L ...................................... 267
Buddy effects of R4L ....................................... 268
Replicability of intervention effects ...................... 269
Control group contamination ............................. 269
Section summary ........................................... 272
Sight Word Recognition .................................... 272
Instrument reliability ...................................... 272
Effectiveness of R4L ....................................... 272
Long-term effects of R4L .................................. 276
Replicability of intervention effects ...................... 276
Section summary ........................................... 277
LIST OF TABLES

Table 6.1. Adult Participant Numbers in Schools .........................................................115
Table 6.2. Adult Participant Numbers As Reading Buddies ..............................................116
Table 6.3. Total Number of Children: Assessed with Gender Breakdown .........................122
Table 6.4. Total Number of Children: Assessed with Grade Breakdown .........................123
Table 6.5. Total Number of Children: Assessed per Grade with Gender Breakdown ..........124
Table 6.6. Demographics after Time 1 Testing ..................................................................127
Table 6.7. Sample for Control Condition ...........................................................................129
Table 6.8. Child Participant Variations Across Time Waves .............................................131
Table 6.9. Adult Participant Numbers ...............................................................................132
Table 6.10. Grand Means and Standard Deviations Control Group .................................141
Table 6.11. Participant Summary: Study 2 .........................................................................146
Table 6.12. Common Trends in First Interviews ................................................................153
Table 7.1. Phonological Awareness Results by Model .....................................................165
Table 7.2. Sight Words Results by Model ...........................................................................173
Table 7.3. Reading Accuracy Results by Model .................................................................178
Table 7.4. Reading Comprehension Results by Model .......................................................183
Table 7.5. Replicability Model ............................................................................................187
Table 7.6. Longitudinal Effects New Experimental Group ................................................193
Table 8.1. Overview of Themes Raised by Interview Participants ......................................200
Table 8.2. Frequencies of Participant Responses Related to Improvements in Reading Achievement ...........................................................................................................201
Table 8.3. Frequencies of Participant Responses Related to Improvements in Reading Self-Concept ...........................................................................................................222
Table 8.4. Frequencies of Participant Responses to Changes in Home Reading Practice ..........................................................................................................................242
Table 8.5. Frequencies of Participant Responses Related to Strengths and Limitations of R4L .....................................................................................................................252
LIST OF FIGURES

Figure 6.1. Stages for planning mixed methods research followed in the present investigation ................................................................. 107
Figure 6.2. Explanatory Sequential Mixed Methods Research Design........ 113
Figure 6.3. Quantitative Study: Phase I............................................................... 134
Figure 6.4. Percentage Point Gains in Phonological Awareness, Reading Accuracy, and Reading Comprehension ............................................. 136
Figure 6.5. Month Gains in Sight Words, Reading Accuracy, and Reading Comprehension ..................................................................... 136
Figure 6.6. Data Transpositions Replicability Analyses............................. 144
Figure 7.1. Mean standardised Phonological Awareness scores for Experimental and Control groups ............................................................... 168
Figure 7.2. Mean standardised Phonological Awareness scores for Gender .... 169
Figure 7.3. Mean standardised Phonological Awareness scores for Experimental group longitudinally ................................................................. 171
Figure 7.4. Mean standardised Sight Words scores for Experimental group longitudinally ........................................................................ 176
Figure 7.5. Mean standardised Reading Accuracy scores for Experimental group longitudinally ........................................................................ 181
Figure 7.6. Mean standardised Reading Comprehension scores for Experimental group longitudinally ................................................................. 185
Figure 7.7. Phonological Awareness Replicability .......................................... 189
Figure 7.8. Sight Word Recognition Replicability .......................................... 190
Figure 7.9. Reading Accuracy Replicability .................................................. 191
Figure 7.10. Reading Comprehension Replicability ........................................ 192
Figure 7.11. Consistent Long-term effects of R4L on sight words ............... 194
Figure 7.12. Consistent Long-term effects of R4L on reading comprehension .... 195
Figure 8.1. Improvements in Decoding Skills Observed by LCS Sample ......... 202
Figure 8.2. Improvements in Decoding Skills Observed by Corporate Sample..... 202
Figure 8.3. Increased Frequency of Autonomous Reading Observed by LCS Sample
Figure 8.4. Increased Frequency of Autonomous Reading Observed by Corporate Sample
Figure 8.5. Increased Sight Word Recognition Observed by LCS Sample
Figure 8.6. Increased Sight Word Recognition Observed by Corporate Sample
Figure 8.7. Control Group Contamination
Figure 8.8. Relationship with Buddy Observed by LCS Sample
Figure 8.9. Relationship with Buddy Observed by Corporate Sample
Figure 8.10. Improved Reading Self-Concept Observed by LCS Sample
Figure 8.11. Improved Reading Self-Concept Observed by Corporate Sample
Figure 8.12. Frequency of Trends Related to Completion of Home Reading Across Whole Sample
Figure 8.13. Completion of Home Reading Observed by LCS Sample
Figure 8.14. Completion of Home Reading Observed by Corporate Sample
Figure 8.15. R4L Materials and Content Observations by LCS Sample
Figure 8.16. R4L Materials and Content Observations by Corporate Sample
Figure 8.17. Individual Attention from Buddies Observed by LCS Sample
Figure 8.18. Individual Attention from Buddies Observed by Corporate Sample
ABSTRACT

Reading difficulties affect up to 30% of Australian primary school children and have dire long-term academic and psychosocial consequences. Reading difficulties not only result in a reduced ability to learn, but have far-reaching implications, including low self-concept, problematic behaviour, poor social relations, and delinquency. These consequences undermine Australia’s social and economic foundations by preventing young Australians from reaching their full potential. The 2009 report of the Organisation for Economic Co-operation and Development (OECD), evaluating reading performance of teenagers from 41 countries, demonstrates that Australia is falling behind other industrialised countries in terms of the ever-increasing gap in reading attainment between our most advantaged and disadvantaged students. There is a need for a broader multidisciplinary approach, including strong psychosocial, social science, and educational research, to address the early onset of reading difficulties for disadvantaged students. Establishing, enhancing, and sustaining reading achievement and reading self-concept are vital ingredients in assisting children to take full advantage of their life potential.

The R4L intervention is a structured reading program, with a strong focus on phonological awareness, suitable for primary school children with reading difficulties. The present investigation aimed to: (1) tackle literacy difficulties which limit life potential in the early years of schooling by consolidating, strengthening and implementing a new, innovative early intervention, Reading for Life (R4L), to combat the early onset of reading difficulties for disadvantaged primary school children (Years 1 to 4); (2) comprehensively test the short- and long-term effects of the intervention on diverse reading outcomes for young children (sight word recognition, phonemic awareness, reading accuracy, comprehension, fluency) utilising a mixed methods approach in the context of an experimental design; and (3) evaluate the impact of the intervention on children, based upon qualitative data from multiple sources (principals, teachers, children, volunteers, and parents). Children, supported by an adult volunteer known as a reading
buddy, completed a range of sight word, phonological awareness, and reading activities over 15 sessions.

A mixed methods research design was adopted, employing two inter-related studies conducted sequentially, to comprehensively answer the central research question: “What are the effects of the R4L intervention on children’s reading skills, behaviours, and reading self-concepts? Study 1, a quantitative study, used an experimental design to compare the reading achievement scores of experimental (N = 140) and control (N = 113) conditions across two time waves. Results suggest there is an advantage from participating in R4L for children with reading difficulties. Children, across different schools, gender, reading buddies, and time, improved in phonological awareness—an important predictor of future reading success. Study 2, a qualitative study, included semi-structured individual and group interviews with 130 children, parents, teachers, and volunteers. Both direct (children and reading buddies) and indirect (parents and teachers) participants of R4L reported observing a child’s improved decoding skills, phonological awareness, confidence, and autonomous reading.

Overall, the present investigation demonstrated that the psychosocial reading intervention for children with reading difficulties, R4L, improved children’s phonological awareness, confidence, and autonomous reading. Children disadvantaged by their reading difficulties benefit from working with a reading buddy in the R4L program. Hence, the findings imply that R4L is an intervention that can contribute to breaking the cycle of disadvantage for children with reading difficulties.
CHAPTER 1

INTRODUCTION

“Improving educational outcomes for all young Australians is central to the nation’s social and economic prosperity and will position young people to live fulfilling, productive and responsible lives.” (Ministerial Council on Education, Employment, Training and Youth Affairs [MCEETYA], 2008, p. 7)

The establishment, enhancement, and sustaining of reading achievement are vital ingredients in assisting children to take full advantage of their potential, to realise a range of healthy and fruitful lifetime outcomes. Reading ability is fundamental for an individual’s personal development, psychological wellbeing, education, and participation in the civic, cultural, and economic pursuits of his or her country (Department of Education, Science, and Training [DEST], 2005; Lo Bianco & Freebody, 2001, MCEETYA, 2008; Rose, 2009). Reading, the ability to understand and use language, alongside spelling, speaking, understanding, and writing, is one of the complex tasks of literacy. The literacy demands on our society are constantly increasing as our world environment is in a period of rapid growth and revolution. Sophisticated technological advancements have resulted in economic, cultural, and communication globalisation. The demands on literacy skills have been intensified by the increased popularity of and reliance on technologies such as texting, emails, chat rooms, and social media (Kennedy, Krause, Judd, Churchward, & Gray, 2006; MCEETYA, 2008; Oliver & Goerke, 2007; Prensky, 2005). Diversity, responsiveness, and communication capabilities are the foundations from which a nation will advance its economic capabilities in this new environment. Australia’s ability to compete in this new world market is significantly influenced by the literacy capabilities of its citizens (Department of Education, Employment, Training, and Youth Affairs [DEETYA], 1998; DEST, 2005; OECD, 2003).
Nevertheless, a proportion of Australian citizens do not possess adequate literacy skills to participate in this new world market. The most recent large-scale Australian survey released by the Australian Bureau of Statistics (2008) found that 43.5% of adults in Australian workplaces had poor reading skills, measured by scores of Level 1 or 2 in the Adult Literacy and Life Skills survey across one or more of five areas: prose literacy, document literacy, numeracy, problem-solving, and health literacy (Australian Bureau of Statistics [ABS], 2008). These levels have been deemed the minimum standards for individuals to manage the demands of work and personal lives in modern economies. This failure to provide some individuals with adequate reading skills has dire personal, economic, and social consequences (ABS, 1998; Bender, Rosenkrans, & Crane, 1999; Maugban, 2003). As such, early intervention is vital to assist young children to reach their full potential and succeed in this new global and technological environment.

Reading failure has devastating consequences for children, their families, schools, and society as a whole. Reading failure has been linked to poor academic performance (Allsopp, Minskoff, & Bott, 2005; Challen, King, Knapp, & McNally, 2008; Lerner, 2000; Rimm-Kaufman, Kagan, & Byers, 1999), anxiety and depression (Sideridis, 2007; Maugban, 2003), weak interpersonal relationships (Swanson & Malone, 1992), poor health (Ross & Bird, 1994), high unemployment (ABS, 1998; 2006; Young & Browning, 2005), increased risk of turning to crime (Burrell & Warboys, 2000; Wolford, 2000; Winters, 1997), and increased risk of alcohol and drug dependency (McCrystal, 2008; Bender, Rosenkrans, & Crane, 1999). In the school environment, reading failure is often associated with disruptive behaviour (Durrant, Cunningham, & Voelker, 1990), affecting whole classrooms and teaching staff. Reading failure restricts the opportunities available for individuals to participate in the workforce and contribute to the growth of a nation in a technologically advanced world market. Research has demonstrated that the percentage of primary school children with reading difficulties is as low as 6% or as high as 30% (Elkins, 2002; Ellis, 2005; Louden, Chan, Elkins, Greaves, House, Milton, Nichols, Rivalland, Rohl, & Van Kraayenoord, 2000), dependent upon the definition applied. These children’s futures are compromised by their reading difficulties.
It is the responsibility of educators to identify the most effective ways to facilitate reading development in children and avoid the devastating effects of reading failure. Reading failure is a considerable issue worldwide, and much attention has been given internationally to the causes, incidence, and treatment of these difficulties (DEST, 2005; National Institute of Child and Health Development [NICHD], 2000; Rose, 2006; Rose; 2009). It is acknowledged that reading difficulties exist, are multifaceted, heterogeneous, life-long, and require intensive ongoing support throughout life (ABS, 2006; Ellis, 2005; Hall & Moats, 1999; Rose, 2009). However, further agreements are yet to be reached in this area, due to inconsistent definitions of learning disabilities (Elkins, 2007; Kavale, Spaulding, & Beam, 2009; Stanovich & Sigel, 1994; Vaughn & Fuchs, 2003) and conflicting perspectives about effective pedagogy (de lemos, 2002; Ewing, 2006; Purdie & Ellis, 2005; Snow, Burns, & Griffith, 1998).

Educational research from a range of disciplines provides educators with new ways forward for remediating reading difficulties. For example, much can be gained in pedagogical practices from research in the field of psychology. Currently, psychological research is concerned with identifying the characteristics of individuals who are healthy, productive, and successful. There is overwhelming support to suggest that a positive self-concept can significantly influence the life opportunities for children (Chapman, 1988; Marsh & Craven, 2006; OECD, 2003). There is also a growing body of literature addressing the contributions that self-concept makes to the academic outcomes of children (Byrne, 1984; Chapman, 1998; Marsh & Craven, 2006; Martin, 2003). Research in this area has demonstrated that self-concept and achievement are mutually reinforcing, such that improvements in one lead to improvements in the other, and vice versa (Marsh & Craven, 2006). The results of this body of research imply that researchers and educators should design and implement interventions that simultaneously address specific academic skills, such as reading, and specific domains of children’s self-concept (e.g., reading self-concept) to produce sustainable effects on reading achievement for children. This has enormous potential to maximise the potency of reading interventions and to assist primary school children with reading difficulties to learn to read and feel better about their reading abilities, thus enabling them to participate in life pursuits. As such, self-concept theories, arising from the psychological literature, have the potential to improve the efficacy of educational interventions in reading.
The overarching purpose of the present investigation was to develop and evaluate an innovative psychosocial reading intervention for primary school children with reading difficulties. More specifically, the broad aims of the present investigation were to: (a) design a reading intervention, Reading for Life (R4L), informed by international educational and psychological research; (b) evaluate the effects of R4L on a range of reading outcomes (phonological awareness, sight words, reading accuracy, comprehension, and fluency) measured by standardised assessments; and (c) evaluate the effects of R4L on children’s reading self-concept and reading behaviours, informed by interviews with multiple stakeholders (children, volunteers, parents, teachers, and principals). R4L has been designed and evaluated in the present investigation, as a complement to existing reading support in Australian classrooms for children with reading difficulties.

The present investigation adheres to the expectations of scientific rigour, in the development of a reading intervention incorporating an experimental waitlist design, to evaluate this intervention. It is an expectation that psychological claims and theories should be supported by strong empirical evidence, provided by rigorous scientific research. Psychological research that is esteemed is based upon a foundation of the strongest available theory and research and the implementation of powerful interventions and research designs. These designs should carefully match the intervention goals and outcome measures, incorporate large sample sizes, control groups, psychometrically sound instrumentation, and powerful statistical analyses. Similar scientific rigour is being demanded by many international educators, especially in relation to reading (Cook, 2002; Raudenbush, 2005; 2008; What Works Clearinghouse, 2003), and the present investigation was designed to reflect these expectations in the field.

Although the present investigation is located within a well-established body of research, its contribution to the literature of reading research and educational practices has several distinctive features. This investigation has synthesised educational and psychological research in the design of a unique psychosocial reading intervention, R4L, which simultaneously targets reading skills and reading self-concept. It is not sufficient merely to develop competence in reading; the process of remediating persistent reading
difficulties also relies on a child’s perception of themselves as a learner, their motivation to engage in learning tasks, and their persistence in the face of the challenges faced. R4L incorporates both educational practices to build competency in reading, and psychological strategies to help children recognise their improved competencies and to attribute their successes to internal processes. Secondly, the R4L intervention was empirically validated for use with primary school children with reading difficulties, providing an additional support program for children with reading difficulties. R4L utilised volunteers from the local community and businesses and was distinctive in providing in-depth training, a structured program manual, and organisational processes that would allow for the replication of R4L in schools worldwide: a new reading intervention will be available to educators for use in schools. The present investigation has served to elucidate some of the features of effective intervention programs, with the aim of effecting real and enduring change in the reading abilities of vulnerable children.

The present investigation also has policy implications for education departments. State and Territory Ministers in Australia have agreed that Australian schools are responsible for improving the outcomes for disadvantaged students (MCEETYA, 2008), and R4L can assist in the achievement of this goal. The present investigation will enable researchers to develop R4L further, to help to break the cycle of failure for children with reading difficulties, thereby unlocking the full potential of disadvantaged and marginalised children in Australian society and providing these children with the opportunity to participate fully in society, to their own benefit and that of the nation.
CHAPTER 2

ADDRESSING THE NEEDS OF CHILDREN WITH READING DIFFICULTIES: AN OVERVIEW OF DEFINITIONAL ISSUES, SIGNIFICANCE, INTERNATIONAL POLICY, AND INTERVENTION AND RESEARCH IMPLICATIONS

“In the 21st century, Australia’s capacity to provide a high quality of life for all will depend on the ability to compete in the global economy on knowledge, understanding, skills and values to take advantage of opportunity and to face the challenges of this era with confidence.” (MCEETYA, 2008, p. 4)

Introduction

The ability to read is the foundation upon which all other learning occurs. Consequently, reading proficiency is essential for individuals to contribute to and participate in society (Department of Education, Science, and Training [DEST], 2005; MCEETYA, 2008; Rose, 2009). Rapidly changing technological advances in society are impacting heavily on the demands placed on individuals in society and in workplaces to read (Hagood, 2000; Luke, 2000; Unsworth, 2002). Reading written texts, either in printed or digital form, provides individuals with the opportunity to achieve success in life, find employment, and become self-sufficient. As the skill of reading holds such significance for every individual, it is the ultimate responsibility of society to ensure that all children can read at a minimum functional level. Education departments and primary schools assume much of this responsibility, with classroom teachers charged with teaching reading (MCEETYA, 2008).
Inherent with this responsibility is an obligation for researchers and educators to ensure that the most effectual strategies and programs are utilised to maximise the outcomes for children and ensure that all children learn to read. The past 40 years have seen a proliferation of international research detailing the processes of reading, successful teaching strategies, and factors contributing to and detracting from success (de Lemos, 2002; Ellis, 2005; Farstrup & Samuels, 2002; Rose, 2009). There is strong empirical evidence supporting a range of pedagogical strategies that are effective in developing reading skills. This body of research has been instrumental in the development of the Reading for Life (R4L) intervention (see Chapter 4) utilised in the present investigation and has informed the instrumentation, research design, and methodology employed to test the efficacy of this intervention (see Chapters 5 and 6).

The purpose of this chapter is to provide an overview of key research pertaining to the processes of reading and the implications of reading failure for children with reading difficulties. Firstly, the research pertaining to the definition of reading difficulty and its implications for the provision of support to children is discussed. Secondly, an overview of research that demonstrates the consequences of reading difficulties is presented. Finally, some recent initiatives in international policy development related to the teaching of reading and support for children with reading difficulties are presented. Overall, the purpose of this chapter is to establish the need for potentially potent reading interventions for children with reading difficulties to be underpinned by tangible research evidence, to prevent the devastating consequences of reading difficulty throughout life.

**Issues of Definition**

**Introduction**
The area of reading difficulties is plagued by a debate of definition and terminology both within Australia and internationally, and yet it is known that there is a population of children in schools who do not learn to read. Agreement in the field is on the basis that reading difficulties occur, that the process of learning is complex, and that this population of children encounters bleak social, emotional, and economic outcomes as it moves into adulthood. The present investigation does not attempt to resolve these complex issues surrounding definition: instead, it is underpinned by the assumption that
children with reading difficulties, regardless of the label they have been provided with or the method of identification, require assistance. These children are identifiable in classrooms because of their inability to read and keep up with the rest of the class. The following section summarises the key definitions and methods of identification relating to the population of children with reading difficulties, the focus of the present investigation.

**Defining Difficulties Associated with Learning**

Learning difficulties, learning disabilities, at-risk, special needs, reading disabilities, reading difficulties, students at educational risk, dyslexia, and dyscalculia are among some of the key terms found in educational literature to describe the group of children who experience difficulty learning in schools (Elkins, 2000; Ellis, 2005; Louden et al., 2000; Rose, 2009). The topic of defining learning disorders has created much controversy since its inception in the 1960s, when Samuel Kirk referred to a learning disorder as a “retardation, disorder, or delayed development in one or more of the processes of speech, language, reading, writing, arithmetic, or other school subjects” (Kirk, 1962, p. 263). Researchers, educators, and advocacy groups have devoted considerable attention to debating and providing alternative definitions for learning disorders over the past 40 years (Kavale, Spaulding, & Beam, 2009), all of which contain tenets of this early definition. These definitions have been closely associated with the identification process employed in schools, informed by government policies and funding agreements at various points in history. This lack of a unified definition is an obstacle in the field, as it is often difficult to identify which population is represented in research studies, policies, or interventions. However, it is questionable that the field, and in particular the children who experience these difficulties, has gained much from these semantic differentials (Kavale, Spaulding, & Beam, 2009). A commonly agreed definition would provide a more cohesive understanding within the research, educational, political, and wider communities. However, in the meantime, these children experiencing difficulty reading, continue to need assistance. Below is a summary of some of the key definitions proposed in relation to reading difficulties.

**Deficit-model.** The Diagnostic Statistical Manual 4th Edition (DSM IV TR; American Psychiatric Association [APA], 2000) provides a definition of a reading disorder that is positioned from a deficit-diagnosis perspective, and is used widely by
educational psychologists in Australia and elsewhere. The APA defines a reading disorder as “reading achievement (i.e., reading accuracy, speed or comprehension as measured by individually administered standardised tests) that falls substantially below that expected given the individual’s chronological age, measured intelligence, and age-appropriate education” (APA, 2000, p. 51). In addition to the definition of reading disorder, the DSM-IV also contains a definition of a global learning disorder, followed by specific definitions for spelling, writing, and mathematics. The definition of learning disorder is widely used by psychologists, pediatricians, and school counsellors in Australia in cases where a label is provided to children experiencing difficulty in learning (Elkins, 2002; McNamara, Scissons, & Dahleu, 2005), without specificity to individual skills such as reading.

The deficit-diagnosis perspective is being questioned internationally on the basis that there are few differences in reading skills between children with and without an IQ discrepancy (Stanovich & Sigel, 1994; Ysseldyke, Algozzine, Shinn, & McGue, 1982) and that a diagnosis cannot be made until the child has completed a few years of school as they fall behind their normally-developing peers. This wait to fail system reduces the impact of many early intervention programs, which have been demonstrated to have the greatest impact on learning (Hall & Moats, 1999; Lloyd, Forness, & Kavale, 1998; Lyon, 2001; Vaughn, Denton, & Fletcher, 2010). The term “learning disorder” is also being replaced in the international literature with more specific terms related to the skills affected. This is discussed later in this section.

**Learning difficulties and disabilities.** Other definitions have attempted to make distinctions between the terms “learning difficulties” and “learning disabilities”. Learning difficulty is the term used to refer to children whose academic challenges can be traced to a biological or environmental cause, such as poor eyesight or changing schools, and who respond to remediation efforts (National Health and Medical Research Council [NHMRC], 1990). In contrast, learning disability is the term used to describe children where the cause of such academic challenges cannot be traced to any biological or environmental cause and who remain resistant to remediation efforts (Bauer, Keefe, & Shea, 2001; Gresham, 2002; NHMRC, 1990). Both of these terms are generic umbrella terms for global learning challenges and do not acknowledge specific strengths and weaknesses across the spectrum of learning areas such as reading, spelling,
writing, or mathematics. Children are initially labelled with a learning difficulty, and after academic support has been provided, this label may be changed to learning disability, which is more persistent and pervasive. The Australian NHMRC (1990) has produced documentation distinguishing between these terms, by considering the causes of the difficulties faced by these children. Unfortunately, this document has been rescinded and this information is no longer available to educators and researchers. Australian State and Territory education systems generally do not distinguish between the terms, and use the non-specific term “learning difficulty”, with the exception of Queensland, where a distinction is made in the provision of support services.

The term learning disability has been more commonly used internationally. In this definition it is acknowledged that these children are a “heterogeneous group” (Hammill, Leigh, McNutt, & Larsen, 1988, p. 689) who experience difficulties in learning and in applying the skills of “listening, speaking, reading, writing, reasoning, or mathematical abilities” (Hammill, Leigh, McNutt, & Larsen, 1988, p. 689). These difficulties are the result of central nervous dysfunction and may exist alongside biological and environmental disadvantage, but are not caused by those influences. This definition does not refer to a child’s responsiveness to intervention, but it does refer to the co-morbid difficulties these children face.

**Response to intervention.** Many researchers suggest that the discrepancy model be eliminated and replaced with a system assisting all children identified as at-risk from the beginning of school (Elkins, 2002; 2007; Siegel, 2003; Vaughn & Fuchs, 2003). This would give precedence to early intervention programs, and provide the greatest opportunity for all children to succeed. It is possible for teachers, without a test of intelligence, to identify children who are falling behind their peers and there are also children who do not respond to interventions, who must be referred for assistance without the time and financial burdens of further assessment (Elkins, 2007). Internationally, this is being referred to as “Response to Intervention” (Fuchs & Fuchs, 2006; Vaughn, Linan-Thompson, & Hickman, 2003; Wanzek & Vaughn, 2008). Response to Intervention (RTI) is an alternative both to identification of children with reading difficulties and to an intervention model. RTI encompasses a three-tiered intervention model to teach all children in schools and to provide differential support to children who require this. During the first tier all children receive high quality,
evidence-based, explicit teaching. Children who require more support participate in the second tier of intervention, often referred to as supplemental instruction. The final tier is for those children experiencing significant and persistent difficulties; this is more intensive support, only for those children most in need. RTI is being implemented in many districts across the USA (Fuchs & Fuchs, 2006; Vaughn et al., 2003; Wanzek & Vaughn, 2008).

Although there is no formal recognition of RTI within the Australian education system, this model is loosely observed in practice. In the first tier, all children participate in classroom reading instruction, informed by the relevant syllabuses in each state. Schools then offer support for children who are experiencing difficulty in reading, after this classroom instruction. This second tier can include programs such as Reading Recovery (Clay, 1985, 1987, 1993) or MULTILIT (Wheldall, 2009). The third tier, for those children experiencing the most persistent difficulties in reading, is limited to and largely influenced by school funding, staffing levels, and limited availability of evidence-based interventions (Elkins, 2007). Australian schools currently await the implementation of a National Curriculum and the determination of how reading pedagogy will be addressed.

**Dyslexia.** The trend, internationally, in defining a learning disorder is moving towards more specific definitions addressing the area in which a child is experiencing difficulty. In the area of reading disabilities, the term “dyslexia” is more commonly used internationally and is concerned with abilities in reading words and texts accurately and fluently (Rose, 2009). Discrete cut-off points, on either reading achievement or intelligence tests to identify dyslexia, are not supported by research (Ferrer, Shaywitz, Holahan, Marchione, & Shaywitz, 2010; Gresham & Vellutino, 2010; Snowling, 2008). Rather, dyslexia is viewed as a range of skills in reading, a continuum across degrees of severity (Rose, 2009; Snowling, 2008).

There is no formal acknowledgement of the term dyslexia within Australia, and hence there is limited support for these children. In 2009 the Dyslexia Working Party was formed by representatives from national disability organizations, to prepare a submission to the Australian government to lobby the acknowledgement of dyslexia as a specific learning disability under the Disability Discrimination Act 1992 (Bond,
Coltheart, Connell, Furth, Hardy Nayton, Shaw, & Weeks, 2010). This report resulted in 19 recommendations for consideration, including: definition and recognition of dyslexia as a disability, improved training and availability of evidence-based programs for teachers, financial aid for dyslexia assessments, provision of appropriate support and accommodations, greater community awareness, improved adult literacy courses and consideration in workplaces, and increased research funding. The Dyslexia Working Party’s proposed definition of dyslexia was also consistent with international definitions:

Dyslexia is a language-based learning disability of neurological origin. It primarily affects the skills involved in accurate and fluent word reading and spelling. It is frequently associated with difficulties in phonological processing. It occurs across the range of intellectual abilities, with no distinct cut-off points. It is viewed as a lifelong disability that often does not respond as expected to best-practice evidence-based classroom methods for teaching reading (Bond et al., 2010, p. 8).

To date, there have been no further developments in the case for identifying dyslexia as a disability in Australia, and the term remains relegated to disability organisations and researchers.

**Implications for the Present Investigation**

The accomplishment of learning to read is not a universal or assured outcome of schooling for all children. The labelling and identification process for children with reading difficulties has been and continues to be, fraught with political, academic, and pedagogical debates. This section has summarised the key aspects of these debates. In consideration of the present investigation occurring within Australia, where the term specific learning difficulty is favoured over more unambiguous terms such as dyslexia, the term reading difficulty will be used throughout the thesis. This term clearly identifies the specific area of difficulty for the children in the present investigation.

**The Effects and Nature of Reading Difficulties**

**Introduction**

The effects of reading failure are devastating for children, for society, and for the international community. Reading difficulties are not limited to the school
environment: they cast a dark shadow over the lives of children generally, affecting their intrapersonal, interpersonal, and vocational lives. This section describes the prevalence of reading difficulties, the contributing factors, and the prognoses for a child with reading difficulties.

**Prevalence**

The rates of prevalence of reading difficulties are dependent upon the definition being employed and the consequences of this label (Snowling, 2008). In the United States, children who are labelled with a learning disability are entitled to additional funding. Interestingly, since the No Child left Behind Act (2001) was established in the US, diagnosis of learning disability has increased substantially. In Australia there is no specific funding available to children with a diagnosis of a specific learning difficulty and estimates of prevalence are largely influenced by the individual contexts of reports. Reports of reading difficulties in Australia range from 6 to 30% (Ellis, 2005; Louden et al., 2000), with the most consistent reports falling between 10 to 16% (Elkins, 2002). This represents a considerable group of children who are not learning to read or who are reading at an insufficient level.

The 2010 National Assessment Program—Literacy and Numeracy (NAPLAN) is a nationwide assessment program conducted throughout all Australian schools for children in Years 3, 5, 7, and 9 in the areas of literacy and numeracy. The most recent NAPLAN results report between 1.7 to 28.1% of Australian children performing below the national minimum standard in reading assessments (average of 4.0% for Year Three): that is, children who score in the lowest band, Band 1, of reading assessments. This is a large range of scores, which varies according to year level and across different states of Australia. For example, in 2010 6.9% of children in Year 5 were below national minimum standards (Band 1 range 3.1—33.7%), 3.6% in Year 7 (Band 1 range 1.5—25.9%), and 7.7% in Year 9 (Band 1 range 4.7—30%). These figures have been generally stable over the past three years, in which the NAPLAN has operated in Australian schools (Australian Curriculum, Assessment, and Reporting Authority [ACARA], 2010b) and indicate that a significant proportion of children in Australia are performing at the lowest standard of reading and continue to do so throughout their schooling years.
The Council of Australian Governments (COAG) (2009) report found that almost half of the population of Australians above the age of 18 years does not have adequate literacy and numeracy skills to navigate the increasingly complex requirements of work and life in the current information age. This report identified that 43.5% of working age Australians are below the minimum COAG standards for literacy (COAG, 2009). The Australian Bureau of Statistics has found similar results for 15–19 year olds, with 52% below minimum standards for literacy (ABS, 2006). The poor reading literacy skills of Australian teenagers have been further demonstrated in results from the Program for International Student Assessment (PISA) (Organisation for Economic Co-operation and Development [OECD], 2009), where 14.3% of 15 year-olds in Australia were performing at the lowest levels (1, 1a, and 1b) of reading proficiency. Although overall reading scores for Australian teenagers are significantly above the OECD average, this average has steadily declined since the first measurement in 2000, and continues to entail a large proportion of teenagers failing to meet minimum standards of proficiency.

Overall, these are startling statistics, of dire concern. They also have enormous implications for the Australian economy, in terms of productivity and growth, for the Australian government, in relation to welfare payments, and most importantly, for the individuals themselves, whose life outcomes and potential are compromised by their literacy skills.

**Gender**

There is a widely held presumption that boys are more likely to experience a learning disability in reading than girls. However, research results remain inconclusive. In research samples there is a wide discrepancy in the proportion of girls to boys identified with reading difficulties, ranging from equivalent ratios of 1:1 to disproportional teacher-identified samples of up to 6:1, with six boys being identified for every girl (Chan, Ho, Tsang, Lee, & Chung, 2007; Liederman, Kantrowitz, & Flannery, 2005; Olson, 2002). There are also gender differences in the incidence of referrals for assessment of reading difficulties (Flynn & Rahbar, 1994; Shaywitz, 2003), with more boys consistently being identified than girls. This is often attributed to the stereotypical beliefs that boys are more likely to exhibit inattentive or disruptive behaviours in the classroom during reading lessons (Beaman, Wheldall, & Kemp, 2006; Flynn & Rahbar,
1994; Shaywitz & Shaywitz, 1988; Shaywitz, Shaywitz, Fletcher, & Escobar, 1990; Wheldall & Limbrick, 2010). As such, researchers recommend that children have opportunities to select reading materials of individual interest, to sustain their motivation in reading (Brozo, 2002; Coles & Hall, 2001; Cresswell, Rowe, & Withers, 2002; Probst, 2003; Sullivan, 2004).

Nor does agreement exist in regard to the actual gender differences in the incidence of reading difficulties. Some researchers have found, and reported, minimal to no significant differences between girls and boys in relation to the actual prevalence of reading difficulties (Flynn & Rahbar, 1994; Hyde, 2005; Nass, 1993; Shaywitz, 2003; Siegal & Smythe, 2005). For example, Shaywitz and Shaywitz (1988) found referrals for assessment of reading difficulties were four times more likely for boys than girls. However, the true incidence of reading difficulties was similar (8.7% boys vs. 6.9% girls). In contrast, other researchers have detected a greater incidence of reading difficulties in boys, even in research-identified samples of children with reading difficulties (Hawke, Olson, Willbutt, Wadsworth, & DeFries, 2009; Hawke, Wadsworth, Olson, & DeFries, 2007; Liederman, Kantrowitz, & Flannery, 2005; Ruttner et al., 2004). These gender differences apply both to the incidence of reading difficulties and to variance in the degrees of reading difficulty (Hawke et al., 2007; 2009).

**Contributing Factors to Reading Difficulties**

A range of internal and external factors may contribute to a child experiencing difficulties reading, or place them at risk of experiencing difficulties reading. Internal factors are associated with genetic or biological determinants and barriers to learning. External factors refer to environmental influences surrounding the child, such as home or school. All of these factors should be considered, to provide children with the assistance they require in learning to read. These combined factors contribute to the direction and strength of the achievement trajectories children follow throughout childhood, through to adolescence (Entwisle, Alexander, & Olson, 2005).

**Internal factors.** There is strong evidence to suggest that reading difficulties are affected by genetic factors within the child’s family (Scarborough, 1988; Stevenson, Graham, Fredman, & McLoughlin, 1987). Reading difficulties are often prevalent in families (Shaywitz, 2003) and this is a significant at-risk factor for children.
Twin studies, comparing identical and non-identical twins, show that for identical twins, it is are more likely that both will experience reading difficulties (85%) than for non-identical twins (50%), suggesting that genetic factors contribute to the likelihood of reading difficulties (Plomin et al., 2005). Other factors within the child that may contribute to a reading difficulty include: sensory (vision, hearing); neurological (processing, memory, cognition, perception); attention and executive functions (management of resources—time, fatigue, stress); language; motor skills; physical health; and emotional wellbeing. Neurodevelopment studies are emerging in the literature, identifying disparate activity in hemispheric regions (Price and McCrory, 2005; Shaywitz et al., 2004) and chromosomal markers (Fisher and DeFries, 2002; Grigorenko, 2005). These all are factors intrinsic to the child, some of which can be corrected or compensated for.

**External factors.** Reading difficulties in children are affected by factors within the home and school. English as a second language and socio-economic disadvantage are significant at-risk factors for children’s learning (D’Angiulli, Siegel, & Maggi, 2004). Ineffectual teaching, unsuitable curriculum, poor attendance, late identification of or failure to identify difficulties, are also significant factors that can contribute to a child’s reading difficulties (Lyon, 1996). Poor attendance can often be the result of health or family circumstances. The other factors—ineffectual teaching, unsuitable curriculum, and late identification—relate to the school environment, and are factors schools can address to eliminate at-risk factors for reading difficulties. Of concern for children with reading difficulties is the detrimental effect of breaks in learning. Studies conducted examining the effect of long summer breaks on American students have identified that those students disadvantaged by home environments and existing diagnoses, fall further behind their peers after school breaks (Allington & McGill-Franzen, 2003).

**Prognosis**

**Academic implications.** The Matthew Effect, of the poor getting poorer, has been noted by Stanovich (1986) in the area of learning difficulties. Stanovich (1986) has described the grim prognosis for children with learning difficulties who are behind their peers in the early school years. The National Institute of Child Health and Human Development reports that it takes four times as much assistance to improve a child’s
reading skills if help is delayed until Year 4 than if it is begun in the first year of school (Hall & Moats, 1999). As the years of schooling continue, the difference between children with learning difficulties and their peers becomes greater, as the peers continue to develop further skills and to find success in academic learning. Despite improvements made by children with learning difficulties there is a risk they will always be behind their peers as their peers continue to progress, often at a faster pace, than those with learning difficulties (Stanovich, 1986). The Matthew Effect has significant implications for children with learning difficulties. Assistance needs to be provided as early and as intensively as possible in the early years of schooling to help reduce the widening gap between children with learning difficulties and their peers. Research has also demonstrated that early intervention is capable of preventing reading difficulties in children (Lloyd, Forness, & Kavale, 1998; Snow, Burns, & Griffith, 1988). For example, Byrne and Fielding-Barnsley (1995) conducted a phonological awareness training program for a group of Kindergarten children and followed their progress over a six-year period. They found that this group of children outperformed their peers on tests of nonsense word and word reading tasks, demonstrating that an early intervention program for children impacts upon the course of their development of reading in later years.

There is strong research evidence in support of the Matthew Effect, where children who are failing in the first year of school are generally still having learning problems in later years (ACARA, 2010b; COAG, 2009; Judge & Bell, 2011; OECD, 2009). For example, Judge and Bell (2011) found that although children with learning difficulties improved on reading performance throughout their primary school years, this rate of growth was significantly slower than for children with no reading difficulties. In addition, in a study undertaken involving 500 children tracing their academic achievement measured by standardised tests, Thomson (1990) reported that children with no learning impairments developed by an average of 12 months over a 12-month period (a ratio of 12:12, or 1.0). In contrast, children with reading difficulties, not receiving additional help, improved by only 5 months during the 12-month period (a ratio of 5:12, or 0.40). Furthermore, LaBuda and DeFries (1989) followed a group of children with reading difficulties over a 5-year period and found that the delay in reading achievement increased from 15 months to up to 48 months during this time. Such, children who experience reading difficulties in the early years of schooling are
likely to continue to experience those difficulties, and in fact, to experience further difficulties as they progress through school (Hill, Comber, Louden, Rivalland, & Reid, 1998; Rohl & Milton, 2002) and into adulthood (Blakemore and Frith, 2005; Felton, Naylor, & Wood, 1990; Bruck, 1992). Furthermore, children with reading difficulties do not participate in voluntary reading (Cox & Guthrie, 2001) and hence are further disadvantaged than their peers in respect of access to literature and general knowledge.

_Interpersonal implications._ The effects of the long-term failure associated with reading difficulties are pervasive, impacting on the social-emotional development of the child (Baker & Donelly, 2001; Maugban, 2003; Dyson, 2003). As children experience repeated failure in the area of reading, they begin to internalise these experiences and to display poorer self-confidence, motivation, and behaviour than their peers. Children with persistent learning difficulties often develop learned helplessness, whereby their experiences of failure in academic areas lead to a child feeling incapable of performing many tasks (Linnenbrink & Pintrich, 2003; Rimm-Kaufman, Kagan, & Byers, 1999; Scott, 2004). In addition, young boys with reading difficulties are three times more likely to report high levels of depression than their peers (Maugban, 2003). Children with reading difficulties are also more at risk of experiencing significant emotional distress, manifesting in inappropriate behaviour in learning situations (Branden, 1994; Durrant, Cunningham, & Voelker, 1990; Dyson, 2003; Grolnick & Ryan, 1990; Mercer, 1997). They can also possess poor social skills, impeding their ability to form strong bonds with other children (Baker & Donelly, 2001; Doren, Bullis, & Benz, 1996; Woods & Wolke, 2004), and are also more likely to be victims of bullying (McDougall, 2001; Scott, 2004). These interpersonal implications affect the quality of life experienced by children during their lives as a result of their difficulties in learning to read. Reading interventions are essential, to help prevent these dire consequences for children.

_Societal implications._ A child with a reading difficulty faces a challenge to find employment as an adult (ABS, 1998; Marks and Ainley, 1997). Lack of employment or employment choices contributes to demands on the welfare system, and a perpetuation of the sense of failure that these children have experienced throughout their lives. Unemployment is associated with a range of health and crime consequences (Burdett, Lagos, & Wright, 2003). There is also an overrepresentation of offenders with learning
disabilities in Australian correctional facilities (Hayes, 2002). The reading difficulties children experience in their schooling years affect their chances for success and happiness as adults and have implications for the Australian economy, both in terms of welfare expenditure and capacity to compete in the world market. As such, providing assistance to children with reading difficulties is in the best interest of children’s and of national wellbeing.

**Implications for the Present Investigation**

Children with reading difficulties are disadvantaged by their reading inability or challenges. This disadvantage spans across gender and countries. Children can experience reading difficulties as a direct result of inefficiencies in schooling, or due to hereditary factors. Irrespective of the cause, the resultant disadvantage, of not being able to read effectively, contributes to further disadvantages in emotional health and wellbeing, success in schooling, and employment prospects. These are children who require support to improve their life chances. The R4L intervention utilised in the present investigation was designed to help these children avoid bleak social and economic outcomes in life.

**Policies on Reading**

**Introduction**

There are ranging degrees of acceptance of reading difficulties and of financial aid to support children worldwide. Governments around the world, including Australia, prioritise reading as both a desired outcome of schooling and a national priority. This next section describes some of the relevant policies, each of which has been developed in response to the international meta-analyses and studies of reading described in Chapter 3.

**No Child Left Behind Act (United States).** The United States Government enacted the No Child Left Behind Act in 2001, in response to the recommendations of the National Reading Panel (NICHD), 2000). In this act, research-based pedagogical practices are a prerequisite for additional funding for children experiencing reading difficulties. Children are entitled to support for their reading difficulties, and schools can apply for funding to cater for these children, providing programs and interventions
which have been scientifically validated. Reading First is an example of such an intervention. Disadvantaged children are assessed in their first year of schooling and are provided with systematic and direct instruction in phonological awareness, vocabulary, reading fluency, and reading comprehension. Hence, the findings of the National Reading Panel (NICHD, 2000) have had a significant impact on the introduction of evidence-based reading interventions in the US.

**Primary National Strategy (United Kingdom).** In the United Kingdom, the Primary National Strategy (DfES, 2006) was developed to incorporate the advice from the Rose Report (Rose, 2006). The Primary National Strategy (2006) mandates all primary schools in the United Kingdom to abandon teaching methods that reflect a whole language perspective (see Chapter 3). Schools are to adopt a structured whole-school teaching program, employing direct instruction to teach phonological awareness, reading decoding, and reading comprehension. As such, the Rose Report (Rose, 2006) has been influential in this change in the United Kingdom, to raise the literacy standards of its children.

**Australian National Goals for Schooling.** Within Australia there are no policies detailing a pedagogy of reading. Each State/territory educational department outlines the expectations of reading within curriculum documents. There are, however, Commonwealth policies on the goals of schooling, and these have led to the development of an Australian National Curriculum, to be implemented across all of Australia in the coming years. Currently, the National Goals for Schooling is the only national document signifying the importance of reading within schooling.

In 1999 Commonwealth, State, and Territory Education Ministers committed to The Adelaide Declaration on National Goals for Schooling in the Twenty-First Century (MCEETYA, 1999). MCEETYA mandated that all children attending school in Australia should be “able to read, write, spell and communicate at an appropriate level” (MCEETYA, 1999, p. 3) and that “the learning outcomes of educationally disadvantaged students improve and, over time, match those of other students” (MCEETYA, 1999, p. 3). Benchmarks articulating nationally approved minimum standards for Years 3, 5, and 7 were established for Australian school children. State and Territory Ministers committed to implementing assessment programs to enable
reporting at a national level. The assessment of reading skills for all children was an agreed commitment from governments at all levels in Australia.

MCEETYA (1999) also placed emphasis on the social-emotional aspects of a child’s development, noting that it is expected that children will “have qualities of self-confidence, optimism, high self-esteem, and a commitment to personal excellence as a basis for their potential life roles as family, community and workforce members” (MCEETYA, 1999, p. 2). Hence, this established a clear recognition in Australian educational policy that a child’s emotional welfare is important and influential in the academic careers of children and ultimately for their life potential.

This meeting of Commonwealth, State, and Territory Education Ministers has continued in Australia and the most recent document, The Melbourne Declaration on National Goals for Schooling in the Twenty-First Century (MCEETYA, 2008) underlies the establishment of a National Curriculum. The focus of these revised goals has less emphasis on reading and is more general, declaring that the role of schools is in “supporting all young Australians to become successful learners, confident and creative individuals, and active and informed citizens” (MCEETYA, 2008, p. 8). The accompanying documents developed by the Australian Curriculum, Assessment, and Reporting Authority (ACARA, 2010a) to achieve these national goals, refer to the fundamental skill of reading within a cumbersome definition of literacy, without any specific reference to the fundamental skill of reading.

**Implications for Present Investigation**

Children with learning difficulties have been described as “a moving target” (Louden et al., 2000, p. 23), with interchangeable definitions and assistance available within education systems, countries, and nations. There are international policies prioritising literacy competency and describing how reading instruction should take place in classrooms, to varying degrees of prescription. Australian policies are not prescriptive in relation to reading instruction and support for children with reading difficulties. It is concerning that, given the alarming reports of low adult literacy standards (ABS, 2006; COAG, 2009; PISA, 2009), the skill of reading has not been given more precedence within these national documents. Despite the lack of formal acknowledgement and provision of support, children with reading difficulties require assistance. International
policies provide a path for educators to strive towards and indicate early identification, adequate financial resources for the provision of support, and the mandatory implementation of evidence-based reading instruction as underpinning support for children with reading difficulties.

Chapter Summary

Reading is an important skill that has implications for the future happiness and success of children. The acquisition of reading is a responsibility assumed by schools. There are many children who, for a variety of reasons, fail to learn how to read. This chapter has sought to establish the need for reading interventions informed by research to be made available for children with reading difficulties to improve their chance of life success and happiness. An overview of definitional issues has been presented, with the term reading difficulty being selected for use throughout the remainder of this thesis. Secondly, the consequences of reading difficulties have been described in terms of the educational, emotional, social, and economic implications for children with a reading difficulty. Finally, some international policies related to the teaching of reading and support for children with reading difficulties have been described, demonstrating the need for more precise definition and greater provisions for children with reading difficulties in Australian policy. It is imperative for children with reading difficulties to have access to potent interventions to improve their skills in reading. The research focussed on the crucial elements of effective reading interventions is reviewed in the following chapter.
CHAPTER 3

WHAT RESEARCH TELLS US ABOUT EFFECTIVE READING INTERVENTIONS

Introduction

“Which instructional reading approach or method, or combination of approaches or methods, provided in which setting or combination of settings, under which student-teacher ratio conditions and teacher-student interactions, provided for what period of time and by which type of teacher, have the greatest impact on well-defined elements of reading behaviour and reading-related behaviours, for which children, for how long, and for what reasons?” (Lyon, 1993, p. 3)

The above quote encapsulates the conundrum facing educators and researchers in making informed decisions about reading instruction. Children with reading difficulties exist in large numbers across the world and require access to potent interventions to improve their skills in reading to avoid the increased risks of unemployment and poorer mental health in their future. The purpose of this chapter is to provide an overview of the research identifying the characteristics of the most effective reading interventions for children with reading difficulties. Firstly, the results of international meta-analyses and reviews of reading instruction are presented. Secondly, an overview of research focussing on the individual sub-skills of reading and learning is furnished. Thirdly, a review is undertaken of some existing reading interventions available to children in Australia. Finally, recognising the valuable contribution of psychological research to the development of powerful interventions for children with reading difficulties, research related to self-concept enhancement interventions is presented. Overall, this chapter presents the foundations of the research that underpinned the development of the R4L intervention utilised in the present investigation.
Results from Meta-Analyses

Introduction
The past 40 years have produced a wealth of educational and psychological research concerning reading acquisition and instruction from international sources (e.g., DEST, 2005; NICHD, 2000; Rose, 2006; 2009). This information is invaluable for stakeholders—children, teachers, parents, and schools—and has informed the development of the intervention employed in the present investigation, Reading for Life (R4L). More recently, a number of meta-analyses have been undertaken to synthesise this literature and identify the most salient strategies for teaching interventions. In the following section an overview is provided of key meta-analyses of relevance to the present investigation.

The Purpose of Meta-analysis
Meta-analysis is a powerful statistical tool utilised to consolidate the findings from multiple primary research studies in a particular area. Meta-analyses have been incorporated into the repertoire of researchers since the 1970s (Glass, 1976; Hartley, 1977). In a meta-analysis, researchers analyse the results from a range of primary studies and calculate an effect size for each study (Hansford & Hattie, 1982; Purdie & Ellis, 2005). Researchers are then able to evaluate the effect of variables in numerous studies and to investigate the sources of variability in these separate studies (Purdie & Ellis, 2005) by considering the significance of the effect sizes. Using guidelines supplied by Cohen (1988), effect sizes are considered large at .80, moderate at .50, and small at .20. Researchers in special education, where large effect sizes are rare, because of the population being studied and the challenges they face in remediation, consider less stringent criteria for effect sizes. Effect sizes of between .33 and .67 are considerable in special education (Lloyd, Forness, & Kavale, 1998). Meta-analysis is an effective way of considering the impact of a particular strategy from a wider perspective, as any biases in individual intervention studies can be detected and factored into conclusions about the strategy being investigated. The following sections discuss the findings of a number of key meta-analyses relevant to the present investigation.
National Reading Panel (2000) Meta-Analyses

The National Reading Panel was established in 1997 by the United States Congress to assess key research findings pertaining to teaching children to read. This study is the largest meta-analysis of reading instruction studies conducted to date. The National Reading Panel was comprised of fourteen volunteer members, representing the key stakeholders in reading education—researchers, teachers, administrators, and parents—and was chaired by the Director of the National Institute of Child Health and Human Development (NICHD). The National Reading Panel was charged with building upon the foundational work of the National Research Council Committee in their report, Preventing Reading Difficulties in Young Children (Snow, Burns, & Griffith, 1998), to identify the most effective reading interventions for school aged children. Following regional hearings across the United States, the Panel identified five areas for intensive study and created subgroups of its members to investigate these areas: (a) alphabetsics (phonemic awareness instruction and phonics instruction); (b) fluency; (c) comprehension (vocabulary instruction, comprehension instruction, teacher preparation, and comprehension strategies instruction); (d) teacher education and reading instruction; and (e) computer technology and reading instruction. The Panel was concerned with two key research questions for each of the identified areas for study: Does instruction in this area improve reading? If so, how is this instruction best provided?

The National Reading Panel established strict criteria for each subgroup to adhere to when selecting studies to be included in the meta-analysis. A minimum of two databases were consulted to identify studies that measured reading as a specific outcome, appeared in a refereed journal, included samples of pre-school to high school children, and incorporated a control group in an experimental or quasi-experimental design. The identified studies were then coded to ensure that they were suitable for inclusion in the meta-analysis, ensuring that the study provided sufficient details of the participant characteristics, intervention, and research methods.

The Panel found that phonological awareness instruction improved reading outcomes for children, with an effect size of .86 on phonemic awareness, .53 on reading, and .59 on spelling outcomes ($n = 52$). The strongest phonological awareness instruction method identified from the meta-analysis was synthetic phonics instruction ($d = .45$), where children are explicitly taught to translate letters into phonemes and
blend those phonemes to produce words. Synthetic phonics was more effective than analysis programs \((d = .34)\) or other programs where the specific instruction approach was not articulated \((d = .27)\). Children in the first three years of school, from lower socio-economic backgrounds and identified as at-risk, responded best to phonological awareness instruction (NICHD, 2000).

The Panel also found that repeated guided oral reading produced the most substantial gains in reading for children, with an overall weighted effect size of .41. Guided oral reading is a practice whereby children read a new passage whilst being timed by an adult, and a record of errors is taken. This same passage is read several times over a period of days, before a new timed reading and error count takes place. It was found that guided oral reading affected all facets of reading, reading accuracy \((d = .55)\), reading fluency \((d = .44)\), and reading comprehension \((d = .35)\).

Teaching comprehension strategies to children also was effective (NICHD, 2000). The Panel found that teachers had the most significant impact on reading comprehension and that teachers required intensive preparation to teach reading comprehension. As such, recommendations were made by the Panel to ensure that only highly skilled teachers teach children the strategies of understanding texts they have read. They have consequently recommended additional teacher training of metacognitive comprehension strategies.

There were many areas in which the National Reading Panel was unable to identify a sufficient sample of methodologically sound studies or a common trend in the findings. The Panel did not present conclusive findings for the impact of silent reading, the identification of the most effective vocabulary instruction methods, the effectiveness of computers on reading, or the impact of teacher training on the reading outcomes of children (NICHD, 2000).

The No Child Left Behind Act (2001) was ratified in the United States after the publication of this report. The findings of the National Reading Panel (NICHD, 2000) provide educators working with children with reading difficulties, new ways forward for testing potentially potent interventions in several areas, such as phonological awareness.
and reading accuracy. These research-derived advances have been incorporated into the intervention for the present investigation.

Since the release of its findings, there have been many criticisms levelled at the National Reading Panel. These criticisms have concerned the composition of the Panel and consequent biases for certain programs, the predetermination of topics to be considered for review before the Panel was formed, and assumptions of causality from the body of research literature (Carter & Wheldall, 2008; Coles, 2000; 2003). Although the findings of the National Reading Panel have been contested, other, more recent meta-analyses have provided similar findings (e.g., Hattie, 2009) that offer additional external validity to the findings.

**Hattie’s (2009) Meta-Analyses**

John Hattie conducted 815 meta-analyses of international studies related to achievement conducted since the beginning of 1977 and published these in in his *Visible Learning* text (Hattie, 2009). These meta-analyses were concerned with the respective contributions to children’s achievement, of factors related to children, home, school, curriculum, teachers, and pedagogy. The strongest finding from these meta-analyses is the powerful contributions to achievement made by knowledgeable and caring teachers. Teachers who actively teach their students, utilising activities such as direct instruction, mastery learning and feedback, are more effective \( (d = .60) \) than those who facilitate learning experiences for their students using whole language reading practices and problem-solving \( (d = .17) \). In relation to reading skills, Hattie (2009) found strong support for interventions utilising repeated reading \( (d = .67) \) and phonics instruction \( (d = .60) \) on reading outcomes. Strong support was also found for vocabulary \( (d = .67) \) and comprehension programs \( (d = .58) \) on reading comprehension outcomes. Whole language approaches to reading instruction were not found to be effective \( (d = .06) \), and only moderate support was found for approaches that involved increasing exposure to books or reading for children \( (d = .36) \). The conclusion drawn from Hattie (2009) is that children’s achievement can be strongly influenced by explicit teaching.
Implications for the Present Investigation

Recent meta-analyses in the area of reading instruction provide strong support for direct and explicit instruction of phonological awareness and repeated reading to improve children’s reading accuracy outcomes (Hattie, 2009; NICHD, 2000). Additionally, these meta-analyses have identified strategies to successfully improve children’s reading comprehension; however, they are qualified in the National Report on Reading (NICHD, 2000; also see Hattie, 2009) as being dependent upon the skills and knowledge of teachers. In consideration of the R4L intervention utilised in the present investigation being administered by volunteers, as opposed to experienced teachers, and the short time frame of the intervention (see Chapter 4), these meta-analyses have identified the most effective inclusions for the R4L intervention: phonological awareness and repeated reading.

National and International Reviews

Introduction

Following the National Reading Panel meta-analysis (NICHD, 2000), researchers in the United Kingdom and Australia conducted reviews of the reading pedagogy within their respective countries (DEST, 2005; Rose, 2006, 2009). These reviews also considered aspects related to the preparation of teachers to adequately teach reading, alongside the kinds of reading instruction undertaken in schools. This section provides a summary of these national and international reviews on reading, identifying inclusions necessary for the R4L intervention.

Report on Teaching Reading (Australia)

The National Inquiry into the Teaching of Literacy was established in Australia in 2005. A committee was charged to inquire into three broad areas: (a) reading instruction in Australian schools; (b) assessment of reading proficiency in Australian schools, with a particular emphasis on the identification of children with learning difficulties; and (c) teacher education pertaining to reading instruction. The committee requested submissions from interested parties in the community (n = 453), consulted with a reference group, visited a cross-section of Australian schools (n = 12), and conducted an investigation into the teacher education courses offered at Australian universities.
The Report on Teaching Reading presented the findings of the committee and provided recommendations for teaching reading in Australia (DEST, 2005). Twenty recommendations were presented in the final report, representing broad themes in education: (a) evidence-based approaches to the teaching of reading; (b) the role of parents; (c) school leadership and management; (d) standards for teaching; (e) assessment; (f) the preparation of teachers; and (g) ongoing professional learning. The Report findings also complement many of the findings in the US National Reading Panel study (NICHD, 2000), including the implementation of evidence-based reading approaches, with a focus on phonological awareness and ongoing assessment of reading (see previous discussion). The committee recommended the implementation of: evidence-based literacy interventions, systematic and explicit phonics instruction, and literacy instruction throughout the schooling years. The report did not examine specific interventions but recommended an integrated approach by experienced teachers. The inclusion of parents, whole-school literacy policies, and specialist literacy teachers was also recommended by the committee. A diagnostic assessment system, applicable to all Australian schools, beginning upon entry to school and continuing bi-annually during the first three years of school, was recommended by the Committee. Almost half of the recommendations in the Report on Teaching Reading pertain to the training of teachers. The committee calls for universities to provide postgraduate literacy courses, literacy training inclusion in all secondary teaching courses, evidence-based practices being included in primary teacher training, and higher personal literacy expectations of graduates. According to the committee, schools and universities should be working in collaboration to provide adequate support and literacy training for teachers to cater for a diverse range of needs. The committee proposed a national program of literacy action, reflecting their recommendations, and called for Australian, State, and Territory governments to support and be responsible for implementing these recommendations (DEST, 2005).

The Report on Teaching Reading (DEST, 2005) follows many other reports commissioned by Australian governments to consider the teaching of literacy in Australian schools (e.g., DEET, 1991; DEETYA, 1998; Louden, et al., 2000). Education in Australia is not the responsibility of the Commonwealth Government; rather, it is the responsibility of six State Governments and two Territory Governments. Reports commissioned by the Commonwealth Government have limited potential to
initiate real change for children (Louden et al., 2000). No statute changes have been suggested in response to this report, and changes of ministers and governments have minimised any impact of this report for children with reading difficulties (Bond et al., 2010). There have been no curriculum or funding changes to schools to assist them in acting on the recommendations of the Report on Reading.

The Rose Report (United Kingdom)

In 2006 an independent review of the teaching of early reading was conducted in the United Kingdom. This review consulted the findings of the National Reading Panel (NICHD, 2000) and the Report on Teaching Reading (DEST, 2005), in addition to a large body of additional international literature. The review was entitled the Independent Review of the Teaching of Early Reading, but is more commonly referred to as The Rose Report (Rose, 2006), named after Jim Rose, the independent reviewer of the literature.

The Rose Report (Rose, 2006) advocates the use of psychological research to inform reading instruction practices and recommends the adoption of a simplified view of reading, with a clear distinction between decoding and comprehension. The Rose Report advocates the direct and explicit instruction of letter-sound knowledge, phonological awareness, word recognition (sight words), and language comprehension by teachers who have received additional and specialised training in the teaching of reading. Teacher training is central to the recommendations of The Rose Report, which emphasises that teachers need to understand the cognitive processes of reading development and the causes of reading failure (combinations of word recognition and language comprehension) to be effectual teachers.

New educational policies were implemented after this report was released in the United Kingdom. The Early Years Foundation Stage and the revised Primary National Strategy framework mandate the implementation of evidence-based practices, direct instruction, and scientifically based phonological awareness programs in all schools in the United Kingdom.
Identifying and Teaching Children and Young People with Dyslexia and Literacy Difficulties (United Kingdom)

A second review was undertaken in the United Kingdom, at the request of the British Government, specifically in the area of reading, chaired again by Sir Jim Rose. School visits, community consultation, research reviews, and examination of 863 responses from interested parties formed the basis of this report. This review was underpinned by the belief that “dyslexia is identifiable as a developmental difficulty of language learning and cognition” (Rose, 2009, p. 9) and that the priority for researchers, educators, and politicians should be directed towards “building professional expertise in identifying dyslexia and developing effective ways to help learners overcome its effects” (Rose, 2009, p. 9). Recommendations made by Rose included extensive funding to support schools in providing specialist face-to-face and online training for teachers in identifying and teaching children with dyslexia, early identification and intervention, training specialist dyslexia teachers, providing one-to-one support for children with dyslexia, and supporting families to assist and prepare their child for high school (Rose, 2009).

Implications for the Present Investigation

Taken together, these reports represent strong agreement regarding potentially potent reading intervention strategies: direct instruction, explicit phonological awareness instruction, sight word recognition, and reading practice. Key relevant recommendations from these key international documents have been integrated into the R4L intervention to be utilised in the present investigation.

An Overview of Approaches to Reading Intervention

Introduction

Historically, there two distinct theoretical approaches towards reading have been employed throughout schools: (a) implicit meaning-based instruction, more commonly referred to as whole language instruction, and (b) explicit code-based instruction, more commonly referred to as phonics instruction. The controversial debate between these theories, the reading wars, has remained topical since the 1960s (de lemos, 2002; DEST, 2005; Elkins, 2002; Ellis, 2005; NICHD, 2000; Purdie & Ellis, 2005; Snow, Burns, & Griffith, 1998; Westwood, 1999). This debate has traditionally positioned these two theories as mutually exclusive: to prefer one, implied that the other was expelled from
classroom practice and school policy. As a result, reading instruction practices have fluctuated regularly, reflecting the popular theory and educational policies of the time. The debate continues to this day, despite recent calls for a balanced approach (DEST, 2005; Rankin-Erickson & Pressley, 2000) and the abundance of empirical support for explicit teaching methods (NICHD, 2000). This section will discuss the history of these approaches and the current trends in reading pedagogy.

**Meaning-Based Instruction (Whole Language)**

The implicit meaning-based theoretical orientation in reading pedagogy reflects the philosophies of constructivism. Constructivist theories are influenced by the writings of linguist Noam Chomsky, who believed that children were born with an innate knowledge of language structures and would not require formal instruction to acquire spoken language (Liberman & Liberman, 1990, p. 52). In education, these theories of spoken language have been applied to reading acquisition. It was thought that children would learn to read in a similar manner to the way in which they learn to speak, by immersion and modelling experiences created by their teachers (Daniels, Zemelman, & Bizar, 1999; Stahl & Miller, 1989; Tunmer, Prochnow, & Chapman, 2000). It was believed that children derive meaning from the predictability of sentence and story structure and do not rely on individual words. Advocates of whole language also question letter-sound knowledge as a beneficial strategy for reading as there are so many irregularities in the English language (deLemos, 2002; DEST, 2005; Ellis, 2005; Tunmer, Prochnow, & Chapman, 2000). “Whole language” is the term employed by researchers and educators to describe this pedagogical theory.

Since the 1980s, many Western countries, including Australia, have implemented a constructivist teaching philosophy, or whole language approach, in primary school classrooms (de Lemos, 2002; DEST, 2005; Ellis, 2005; Purdie & Ellis, 2005). For example, Westwood (1999) conducted a survey in South Australia to identify the bias towards whole language approaches in teacher education. A total of 79% of teachers had been strongly encouraged to implement constructivist approaches, such as inquiry-based problem solving, in their classrooms and 67% had been instructed only in these constructivist approaches (Westwood, 1999). Consequently, over half of Australian teachers included in this survey had been taught to teach reading using a limited range of instructional methods. Whole language approaches continue to be implemented in
Australian schools and Australian teacher education courses in universities (DEST, 2005; Louden et al., 2005).

Additionally, concerns have been raised from the results of more recent studies (DEST, 2005; Louden et al., 2005), pertaining to the preparation of student teachers to teach reading and specific prerequisites of reading, such as phonological awareness. Australian teachers have reported that they have not been provided with the necessary knowledge and tools to teach children with reading difficulties (Rohl & Milton, 2002) and that specific learning difficulties such as reading, do not comprise a large component of undergraduate teaching degrees (DEST, 2005). Classroom teachers and special education teachers, in a series of self-report studies, indicated that they spent less time engaging in professional reading, post-completion of their degree, than other professionals, and that when they did participate in professional reading, practical and curriculum-based materials were favoured over research-based journals (Boardman, Arguelles, Vaughm, Hughes, & Klinger, 2005; Landrum, Cook, Tankersley, & Fitzgerald, 2002). This is problematic in that many practising teachers may not be aware of recent research advances that can inform effective intervention.

**Explicit Code-Based Instruction (Phonics)**

The explicit code-based theoretical orientation in reading pedagogy reflects the philosophies of behaviouralism. The term “code emphasis” was penned by Jeanne Chall in her influential 1967 text *Learning to read: The great debate*. Behaviouralists emphasise the importance of explicit instruction in the morphological and orthographical systems of language—that is, unambiguous, sequential, and precise teaching of the sounds of the English language and the patterns produced when these letters are combined in words. Teachers are responsible for the learning of all children in their classrooms and for providing strategic instruction to teach the necessary skills of reading (Casey, 1994; Shorrocks-Taylor, 1998). “Phonics” is the term generally employed by educators and researchers to describe this pedagogical theory.

Research evaluating explicit code-based reading interventions, or phonics approaches, is prevalent in the literature (DEST, 2005; Ellis, 2005; Purdie & Ellis, 2005). Explicit code-based interventions, such as direct instruction, consistently fare well in meta-analyses (e.g., Ellis, 2005; Hattie, 2009; Purdie & Ellis, 2005). Direct instruction is
a teaching method where the teacher clearly informs children of the purpose, applications and processes of completing a skill (Baumann, 1998; Hempenstall, 1997). There is strong and consistent empirical evidence to support the implementation of phonics instruction in classrooms. Studies have indicated that young children who utilise word cues to assist in reading are more successful than children who rely on pictorial cues and estimating or guessing words (Tunmer, Chapman, Ryan, & Prochnow, 1988). For example, Lloyd, Forness, and Kavale (1998) conducted a meta-analysis comparing the effect sizes of constructivist whole language interventions, early intervention programs, and direct instruction programs. They found that whole language does not result in a significant effect size for the average population ($d = .09$, $n = 180$), early intervention programs produce a moderate effect size ($d = .68$, $n = 74$), and that direct instruction is the strongest intervention ($d = .82$, $n = 25$). These results suggest that phonics instruction is more effective than whole language at facilitating reading development in the general school population, for primary aged children.

**Integrated Approaches**

“Reading education is too important to trivialize with extremist political posturing.” (Cater & Wheldall, 2008, p. 18)

Although the whole language and phonics instruction perspectives have been considered as opposing methodologies, they have the potential to complement one another in a balanced and integrated program. Rather than being dictated by pendulum swings of popularity in pedagogical philosophies, the most effective elements of each perspective, as evidenced by rigorous scientific evidence, can be utilised to develop literacy skills for all children (Purdie & Ellis, 2005). Purdie and Ellis (2005) conducted a comprehensive literature review as a component of a larger project to investigate intervention strategies for children with persistent learning difficulties in primary schools. In this review seven meta-analyses were reviewed, to identify the most effective teaching practices for children with learning difficulties. Purdie and Ellis (2005) recommended that teachers combine approaches, such as strategy instruction and direct instruction, to provide the optimal benefits for children with learning difficulties. They also acknowledge that there is no single strategy that will be applicable for all learning or suitable for all children. An integrated approach is being recommended by researchers, whereby teachers select and combine, where appropriate,
instructional strategies to provide children with the best opportunities for success (Purdie & Ellis, 2005; Rankin-Erickson & Pressley, 2000). The majority of children learn to read with minimal effort; however, for those who do not learn to read naturally, careful and systematic teaching is required. The appropriate approach is dependent upon a range of issues at the content and child level (Ellis, 2005). For this approach to be successful, teacher knowledge is critical, so that the most appropriate strategy can be implemented at the most appropriate time (Purdie & Ellis, 2005).

**Implications for the Present Investigation**

There does not appear to be an end in sight to the debate between advocates of whole language and phonics instruction. However, future interventions need to be informed by the body of existing research, rather than these debates. This debate does not help children: it continues in spite of a growing body of literature providing clear evidence that supports explicit code-based, or phonics instruction techniques (Forness, 2001; Lloyd, Forness, & Kavale, 1998; Stahl, McKenna, & Pagnucco, 1994; Swanson, Carson & Sasche-Lee, 1996). The R4L intervention has been designed in consideration of the available research of effective reading strategies for children with reading difficulties. Explicit code-based instructional techniques, such as direct instruction and strategy instruction, have been incorporated into the R4L intervention, informed by the empirical evidence demonstrating the effectiveness of this pedagogy for children with reading difficulties. The R4L intervention is primarily focussed upon improving reading accuracy, and as such, is aligned with explicit code-based instruction practices (see Chapter 4).

**Reading Skills**

**Introduction**

Reading is a complex task and a vital requirement for success in school and life. Reading involves skills in the area of fluency (decoding accuracy and speed) and comprehension (understanding). For a child to be a successful reader he/she requires proficient skills in phonological awareness (McNamara, Scissors, & Dahleu, 2005; Torgesen, Wagner et al., 1997), automaticity for recalling alphabet letters rapidly (Wolf & Bowers, 1999), a bank of consistently recognised sight words (Fuchs, Fuchs, Hosp, & Jenkins, 2001; Stahl & Kuhn, 2002) and a variety of successful strategies to decode
unfamiliar words (LeBerge & Samuels, 1974) before applying meaning to what has been read. These individual skills are essential prerequisites for reading accurately, but are successful only when accompanied by a rich, sequenced, supportive, and engaging reading program. A good reading program is a marriage of interesting and suitable texts with sound instruction and regular practice. The R4L intervention in the present investigation is a reading program, fusing all of the related skills of phonological awareness, sight word recognition, decoding strategies, and reading practice into an interesting program, supported by an adult reading buddy.

Beginning readers rely on visual cues to estimate words, before progressing to a more sophisticated estimation by relying on letter-sound relationships and initial phonetic cues. The alphabetic phase occurs as children begin to rely on phonological processing and sound words out. Reading practice helps readers create stronger visual and semantic memories of words to use when reading (Ehri, 1995; Marsh, Friedman, Welch, & Desberg, 1981) as children look for familiar word families and letter patterns to read words (Tunmer & Chapman, 2004). It is in this final orthographic phase that skilled readers rely more on orthographic knowledge (Reitsma, 1983), utilising analogy and syllabification to read unknown words. This is referred to as a dual-route framework, accessing lexical (stored words in memory) or non-lexical (grapheme-to-phoneme rules) pathways (Coltheart, 1978; Coltheart, Curtis, Atkins, & Haller, 1993). It is probable that primary school children with reading difficulties rely on visual, letter-sound, and phonetic cues to read unfamiliar words in texts. The activities included in the R4L intervention of the present investigation aim to develop improved competency in these skills to assist children to read with greater accuracy and fluency. The following section summarises research findings concerning the processes involved in the acquisition of reading. These findings have informed the development of the R4L intervention.

**Letter-Sound Correspondence and Rapid Automated Naming**

Letter-sound correspondence is a skill concerned with recognising the letters of the alphabet and matching the letter of the alphabet with its regular sound. For example, when a child sees the letter /t/ in print, they will automatically produce the regular sound /t/. Letter-sound correspondence is a specific skill that is taught to children in their early school experiences, at pre-school or in Kindergarten. Research indicates that
letter-sound knowledge is not an inherited or naturally-acquired skill (McNamara, Scissons, & Dahleu, 2005) and is in fact a prerequisite for foundational phonological awareness (Juel & Meier, 1999). Correlational studies have demonstrated that letter-sound correspondence (knowing the names and sounds of letters), blending (saying sound combinations smoothly), and rapid automatised naming (recognising letters quickly) are among the most predictive skills of future reading ability (Bus, van Ijzendoorn, & Pellegrini, 1995; Muter, Hulme, Snowling, & Stevenson, 2004; Scarborough & Dobrich, 1994; Torgesen, Wagner et al., 1997; Wolf & Bowers, 1999). Standardised norms are not available for the development of letter-sound correspondence: however, children must be fluent in their recall of these associations before other literacy skills can be introduced.

**Phonological Awareness**

Phonics, Phonemic Awareness, and Phonological Awareness are terms that are often used interchangeably in educational literature, but are quite distinct. Phonological Awareness refers to an appreciation of oral language and the ways in which language can be divided into smaller components (speech sounds) and manipulated; it is the overarching umbrella term encompassing phonemic awareness and phonics. Phonemic Awareness is an oral (speech) and aural (hearing) skill of sound knowledge, independent of print. It is the understanding that words are made up of individual sounds or phonemes and the ability to manipulate these phonemes either by segmenting, blending, or changing individual phonemes within words to create new words. Phonics is a visual skill dependent on print. Phonics instruction explicitly introduces the alphabetic principle (also known as letter-sound correspondence)—knowledge that letters in print (graphemes: written) correspond to sound units (phonemes: speech). Phonological Awareness is the term used throughout the R4L intervention in the present investigation, as it reflects the scope of the activities included, where a combination of aural, oral, and print activities are utilised.

The skills that represent the development of phonological awareness lie on a continuum of complexity. The less complex end of the continuum involves activities such as rhyming and sentence segmentation (sentences can be broken down into individual words). At the centre of the continuum are activities related to syllables (wallet), onset-rime (r-ain, bl-ue, s-aunt), and blending and segmenting (pen, p-e-n). The
most complex level of phonological awareness involves blending and segmenting individual phonemes (Chard & Dickson, 1999; Ehri, 1995). Ehri and colleagues (2001) propose the following developmental stages of phonological awareness: (a) recognising sentences are made up of words; (b) identifying and producing rhyme; (c) segmenting words into syllables; (d) isolating onset and rime in words; (e) identifying and producing individual phonemes in words (initial-final-medial); (f) manipulating sounds in words (deletion); and (g) blending sounds to produce words (Ehri, Nunes, Stahl, & Willows, 2001). These sequential stages of development formed the basis of the phonological awareness section of the intervention in the present investigation.

Phonological Awareness is a vital prerequisite skill for both reading and spelling. In the English language, there are up to 44 phonemes or discrete sounds and to read, children must understand that words are comprised of individual sounds or phonemes that are blended together to form syllables and whole words (Adams, 1990; Ehri et al., 2001; Plaza & Cohen, 2006). Each word is a combination of phonemes, such as up, with two phonemes (u-p), cut, or rain, with three phonemes (c-u-t, r-ai-n), or flash, with four phonemes (f-l-a-sh). Phonological awareness helps children to read individual words as they blend the phonemes on the page and recognise similar patterns or blends (Adams, 1990; Chard & Dickson, 1999; Ehri et al., 2001; Juel & Minden-Cupp, 2000). Many researchers have concluded that letter-name knowledge and phonological awareness are the two best predictors of how well children will read in their first two years of schooling (Juel & Meier, 1999; McNamara, Plaza & Cohen, 2006; Sciss ons & Dahleu; Scarborough, 1998; Tunmer, Chapman, Ryan, & Prochnow, 1998; Wagner et al., 1997). Consequently, phonological awareness training should occur concurrently with letter-sound correspondence, where individual alphabetic letters correspond to phonemes, and the alphabetic principle, where the written word is composed of graphemes that correspond to phonemes (Wong, 1994). A child needs to know the difference between a sound, which is spoken (phoneme) and a letter, which is written (grapheme). They also must know that words are made up of sounds joined together (the alphabetic principle) and that a sentence is many words put together. Children need to be taught phonological awareness skills in an explicit manner, in the form of oral demonstration and practice exercises (DEST, 2005; NICHD, 2000; Rose, 2006).
Phonological awareness training should begin as early as possible, as it is the primary cue employed by children when decoding words (NICHD, 2000; Pressley, 1998; Shaywitz, et al., 1999). Almost one third of children in Year 1 experience difficulty understanding the phonological structure of words (Biemiller, 2001), and this incidence is higher in disadvantaged children (Raz & Bryant, 1990). Remediation of phonological awareness skills is imperative for future literacy learning, and is possible for all children (Felton & Brown, 1990; Felton, 1993). From Years 2 to 6 there is no evidence of a developmental window beyond which phonological deficits cannot be effectively remediated with intensive phonological training (Lovett & Steinbach, 1997; Pogorzelski & Wheldall, 2005).

Phonological awareness is a predictor of future success in reading. However, there are additional benefits to phonological awareness training. Bus and van Ijzendoorn (1999), in a meta-analysis of studies measuring the effects of phonological interventions, found large short-term effects on phonological awareness ($d = 1.04$) and medium effects on reading ($d = .70$). Longitudinally, after a period of 18 months, there were small effects on spelling ($d = .25$) and reading comprehension ($d = .26$). This finding is consistent with other studies, that have found large effects on spelling after phonological awareness training (Bradley & Bryant, 1985; Byrne et al., 2000; Lundberg, Frost & Petersen, 1988).

Direct instruction in phonological awareness in conjunction with explicit training in specific metalinguistic concepts and metacognitive strategies, has been found to be advantageous overall in phonological awareness training (Juel & Griffith, 1986). Syllabification is an important skill for inclusion in any phonological awareness program, as over 80% of spoken words in the English language have more than one syllable (Cunningham, 1998; Gimson, 1980). Syllables are the core units of spoken language, as in words such as wa-ter, um-brel-la. Multi-syllabic words are very problematic for struggling readers (Just & Carpenter, 1987; Perfitti, 1986). Studies have shown that children can make significant gains in their reading ability by being taught how to syllabify words (Archer, Gleason, Vachon, & Hollenbeck, 2003; Shefelbine, 1990).
**Sight Word Recognition**

Although it is well documented that phonological awareness is necessary for reading development, it is not the only skill a child requires. To read successfully, children also need to be able to automatically recognise words that appear commonly in texts and those that cannot be read using common letter patterns. Sight words are high frequency words that appear regularly in written texts and often have irregular spellings, known as exception words (Moseley, 2004). If a child has learned to recognise a word instantly without decoding it, it is a sight word. Evidence suggests that one of the major difficulties confronting beginning readers is the development of rapid, automatic word recognition skills (Adams, 1990; Brack, 1990; Byrne, Freebody, & Gates, 1992). Mastery of rapid sight word recognition develops independence in reading, enhances a child’s sense of control over the text and their willingness to take risks when approaching new reading passages (Hay, 1995; Henderson, 1982). In sight word reading, the words are read from memory, not from decoding and blending operations, because the words are familiar and known. As a result, the act of reading sight words is carried on by memory processes, not by decoding processes (Gaskins, Ehri, Cress, O’Hara, & Donnelly, 1996) leaving attentional resources for the more complex and unfamiliar words. Because attention resources are limited, sight word automaticity can assist the reading process in terms of reading fluency (Adams, 1990) and comprehension (Yeung, Jin, & Sweller, 1998).

To enhance the automaticity of sight word recognition, direct and explicit instruction, paired with practice and over learning is often required (Adams, 1990; Nuthall, 2005; Lerner, 2003; Shaywitz, 2003). Sight word instruction should include an emphasis on metacognitive strategies, encouraging children to attend to common letter patterns and word families within sight words (Juel & Minden-Cupp, 2000; Spencer & Hay, 1998) alongside the meaning (semantics) (Browder & Yan, 1988). Rather than isolated drill, however, this needs to be embedded in motivating activities that include reading high interest texts, games, and activities (Adams & Bruck, 1993; Hay & Fielding-Barnsley, 2006; Spencer & Hay, 1998). Sight word instruction is not an end in itself—it is a means to an end—the end being an understanding or comprehension of texts read (Lerner, 2003; Spencer & Hay, 1998).
Reading Accuracy
Repeated reading has been demonstrated to have a larger effect on reading accuracy, fluency, and comprehension than single instances of reading a passage (Chard, Vaughn, & Tyler, 2002) for younger students. Repeated oral reading refers to the practice of children reading the same passage repeatedly to reduce errors and improve fluency, and has been demonstrated to be the most effective reading fluency strategy for children (NICHD, 2000; Rashotte & Torgesen, 1985).

Therrien (2004) examined the results from the National Reading Panel (NICHD, 2000) and was interested in separating out the findings for repeated oral reading as a specific strategy for improving reading fluency. He considered the effect sizes of studies under two circumstances: (a) transfer measures, where the child’s reading ability was assessed on a new passage following repeated reading; and (b) non-transfer measures, where the child’s reading ability was assessed using the same passage. The gains from repeated reading were very promising from this meta-analysis. Overall, children made moderate gains in fluency ($d = .77, \ SE = .09$) and comprehension ($d = .59, \ SE = .11$). Non-transfer results were stronger, with gains in fluency ($d = .83, \ SE = .066$) and comprehension ($d = .67, \ SE = .80$). Therrien (2004) concluded that “repeated reading is an effective strategy for improving reading fluency and comprehension” (p. 257), validating findings from the National Reading Panel (NICHD, 2000). In addition, Therrien (2004) reported effect sizes to recommend repeated reading activities be conducted by an adult using corrective feedback (Fluency $d = 1.37$; Comprehension $d = .71$), rather than peers (Fluency $d = .36$; Comprehension $d = .22$), and that passages should be read three to four times to ensure maximum benefits for children ($d = .85$ and $.95$, compared with $d = .57$ for reading the passage twice). Therrien’s (2004) meta-analysis provides clear recommendations for the inclusion of repeated reading in a remedial reading program and the conditions for the most successful repeated reading intervention. He recommends three to four opportunities of re-reading to enhance comprehension.

Other reading strategies that have been supported by research include: pre-teaching of new words before reading a passage (Johnson & Pearson, 1984); adult modelling of good reading (Dowhower, 1987; Hoffman, 1997); repeated reading along with a model (Rose & Beattie, 1986); tape or computer reading (Rose and Beattie, 1986);
text being read to a child before comprehension activities begin (Monda, 1989; Rose & Beattie, 1986), and reading in a group (Elbaum et al., 1999). Silent reading is not well supported by research, due to the lack of feedback from adults during the process (NICHD, 2000).

**Reading Fluency**

The ability to read accurately and quickly is termed “fluency”. Fluency contributes to a child’s ability to recall knowledge, maintain performance and attention, and apply skills to perform more complex skills in new situations (Binder, 1996; Wolf & Katzir-Cohen, 2001). Researchers agree that accurate reading is not enough; speed is also an important element of fluency that contributes greatly to a child’s comprehension (Carreker, 2002; Chall, 1967; Nathan & Stanovich, 1991). Children with reading difficulties are most at risk of experiencing difficulties in reading fluently (Meyer & Felton, 1999), and this affects their ability to understand what they have read: the ultimate purpose of reading. In previous intervention studies focusing on phonological awareness, reading fluency outcomes have not improved significantly: that is, improving phonological awareness has not always led to an improvement in overall reading fluency (Bus & van Ijzendoorn, 1999; Lovett, Steinback, & Frijters, 2000; NIHCD, 2000; Torgeson, 2004). Fluency results from the development of accuracy and automaticity in reading letters, words and connected text.

**Reading Comprehension**

To be a successful reader, a child needs to be able to both decode words and understand the meaning created by those words. Creating meaning, or reading comprehension, involves many interrelated processes. Beginning readers concentrate on learning to read as they practice decoding printed words quickly and accurately. As they decode, or successfully blend the sounds in a word correctly, they use their oral vocabulary to understand the words they read in print (Jitendra, Edwards, Sacks, & Jacobson, 2004). Words and concepts in these texts are more complex than the day-to-day events children experience. For children to be able to read more advanced texts, they must learn the meaning of new words that are not part of their oral vocabulary. This is often difficult for poor readers, as a child cannot understand what they are reading without knowing what most of the words mean (Beck, Perfetti, & McKeown, 1982). Reading comprehension is reliant upon a rich vocabulary, as word knowledge in
primary school can predict comprehension in high school (Biemiller, 2001). Longitudinal predictors of reading comprehension include word reading, grammatical awareness, and vocabulary knowledge (Muter, Hulme, Snowling, & Stevenson, 2004). Reading comprehension is the ultimate goal of any reading intervention, and relies on mastery of a range of other skills.

Researchers have found that dysfluent reading compromises reading comprehension (Adams, 1990; LeBerge & Samuels, 1974; Torgesen, Rashotte, & Alexander, 2001). This is referred to as the “verbal efficiency model” (Perfitti, 1985) where reduced word processing speed interferes with automaticity and comprehension as it consumes working memory (Brown, 1982; Samuels, 1994). It is recommended that reading programs focus on the mechanics of reading (decoding) before specific comprehension strategies are introduced (Pressley, 2001).

The teaching of reading comprehension skills is an effective strategy, as demonstrated in an effect size of 1.13 in a meta-analysis conducted by Forness (2001). However, the complexity of skills required for children to understand texts they have read demands direct and explicit instruction in comprehension strategies by experienced professionals, who have received extensive formal instruction in reading comprehension (NICHD, 2000).

**Implications for the Present Investigation**

The R4L intervention utilised in the present investigation incorporated the research described in this section to create an empirically sound, potentially potent early reading intervention. Phonological awareness, an integral component of the R4L intervention, was introduced using direct and explicit scripts of phonological awareness skills in a developmental sequence (Archer et al., 2003; Ehri et al., 2001). The R4L intervention is for children who have achieved mastery in their knowledge of letter-sound relationships, and this matter was discussed with schools prior to the selection of children to ensure, that this was the case: hence, activities to promote letter-sound knowledge were not included in the R4L intervention. Sight word recognition activities in the R4L intervention involve visual identification of the word and repetitive card games to rehearse these words, ensuring that children have many opportunities to learn these words (Adams, 1990; Lerner, 2003). Repeated oral reading, utilising Therrien’s (2004)
recommendations, is included in the revised R4L intervention. Other reading accuracy strategies, including adults modelling good reading and the text being read to the child before comprehension activities begin, are suggested for parents as home practice. Reading comprehension was a small component of the R4L intervention in the present investigation, given that research suggests that highly trained teachers are best placed to teach this skill (Muter, Hulme, Snowling, & Stevenson, 2004; NICHD, 2000). As R4L was administered by volunteers from companies and by university students who were trained to use the intervention, this was not sufficient to deal with the complex area of reading comprehension. The focus of the R4L intervention was on phonological awareness and reading accuracy. R4L also capitalised on recent advances in reading research by employing the most successful reading strategies of direct and explicit instruction of phonological awareness, sight word recognition, and reading strategies as well as repeated oral reading, for children with reading difficulties. Reading comprehension was also included at a recall level within the R4L intervention, in consideration of the short time frame of the R4L intervention and its implementation by volunteers. Phonological awareness, sight word recognition, and reading accuracy activities formed the basis of the weekly activities in the R4L intervention (see Chapter 4).

Essential Learning Considerations

Introduction

The development of the R4L intervention was informed by research addressing both the essential components of reading instruction and effective pedagogical strategies and considerations. This next section summarises research findings related to instructional methods, the home literacy environment, and student-teacher ratios.

Direct Instruction

Direct instruction, based on behavioural theory, assumes that all children can learn and will learn best from “faultless instruction” (Engelmann, 1980) where the child is explicitly taught the identified skills. Lessons in direct instruction are scripted, and individual children can begin at their appropriate level and have sufficient guided practice before progressing (Hempenstall, 1996; 1997). Direct instruction is also referred to as explicit instruction in much of the literature, and is considered an essential component of explicit code-based, or phonics instruction. Direct instruction has been
shown in repeated studies and meta-analyses to be an effective instruction technique for all children, especially those with reading difficulties. Effect sizes have been consistently strong for direct instruction: $d = .91$ (Swanson, Carson, & Sachse-Lee, 1996) and $d = .68$ (Swanson & Hoskyn, 1998).

**Strategy Instruction**

Strategy instruction has also been identified as an effective intervention for children with learning difficulties, especially reading difficulties (Borowski, Estrada, Milstead, & Hale, 1989; Jitendra et al., 2004; Forness, 2001; Louden et al., 2005; Swanson, 2001). Strategy instruction is concerned with teaching children learning strategies to enhance their learning outcomes: they are “mental plans of action” (Westwood, 2004, p. 7). Strategy instruction approaches include: cognitive, task-related skill achievement strategies such as note-taking and summarising; meta-cognitive, management of learning task strategies such as planning and monitoring effort; and self-regulation, and goal orientated thinking strategies (Zimmerman & Schunk, 1989). The primary objective of strategy instruction is the direct teaching of strategies to approach learning situations, not the direct teaching of skills.

Swanson et al. (1996) considered 78 intervention studies that evaluated the effectiveness of teaching practices for children with learning difficulties. Swanson et al. (1996) grouped studies into four main areas and reported mean effect sizes for these: strategy instruction, effect size $= 1.07$ (learning strategies to plan and complete learning tasks); direct instruction, $d = .91$ (teacher-led lessons); remedial, $d = .68$ (individual tutoring in academic subjects); and therapeutic, $d = .59$ (interventions which do not target academic skills). No significant differences were found in effect sizes for different subjects in the intervention studies. However, they found that strategy instruction was most effective, followed by direct instruction, remedial instruction, and therapeutic approaches.

Self-instructional training is an effective manner of teaching strategies to children. In self-instructional training, children are taught to rely on a series of self-talk statements to guide their approach to a learning situation (Cole & Chan, 1990). The teaching process involves several phases of modelling and the progressive fading of cues during training. Initially, the teacher models the required task and repeats the self-talk
statements aloud. The child then assumes the role of completing the task while the teacher continues to repeat the self-talk statements aloud. As the child becomes more competent at completing the task, he/she assumes the role of repeating the self-talk statement him/herself, progressing to a whisper and finally saying the instructions to him/herself in his/her head (Ashman & Elkins, 1994). Generalisation of learning strategies is enhanced when children are explicitly told when, why and where to use the strategy, have automaticity in the skill, practise the skill regularly, and are directed to use a strategy (Vaughn, Gersten, & Chard, 2000; Wong, 1994).

**Revision and Practice**

Children with reading difficulties require greater exposure to sounds, words, and reading strategies to achieve mastery (Byrne, Fielding-Barnsley, & Ashley, 2000; Gredler, 2001; Hay & Fielding-Barnsley, 2006; Lerner, 2003; Louden et al., 2005; Nuthall, 2005; Spencer & Hay, 1998). Extensive research has been undertaken to understand how the mind remembers. Children require 16–22 presentations, and practise to learn a new skill (Beck, Perfetti, & McKeown, 1982). Revision and guided practice therefore become essential components for effective teaching and learning for children with reading difficulties, beginning at a recognition level (point to /and/) then progressing to a recall level (read this word /and/) (Swanson, 2001; Swanson & Hoskyn, 1998). It is recommended that this revision and guided practice be distributed in small time allotments over a longer period of time to facilitate memory of these important skills (Dempster, 1987; Gredler, 2001). Games provide a wonderful way for children to revise and practise concepts (Charlton, Williams, & McLaughlin, 2005; Etess, 2004; Lepper, 1988), and assist to reduce boredom where repetition and drill are required (Baker, Herman, & Yeh, 1981). Flashcards have been found to be an effective way of assisting children to develop mastery in recall of essential skills (Falk, Band, & McLaughlin, 2003; Stone, McLaughlin, & Webber, 2002).

**Transfer and Generalisation**

Many children are able to use reading strategies in the context they are taught but experience difficulty when applying this knowledge to new situations. The ultimate goal of any teaching experience is for children to use that knowledge widely. Transfer and generalisation are often the elusive goals in a teaching program. Generalisation of learning strategies is enhanced when children are explicitly told when, why, and where
to use the strategy and have automaticity in the skill (Vaughn, Gerstem, & Chard, 2000; Wong, 1994). Children require explicit instruction in the generalisation as well as the initial mastery of the skill (Lyon & Moats, 1997). Children with reading difficulties experience difficulties in transferring new knowledge to different situations (Lover, Ransby, Hardwick, Johns, & Donaldson, 1989).

**Home Literacy Environment**

The home literacy environment is considered to make a significant contribution to the development of reading skills, to participation in reading activities, and to reading enjoyment (Adams, 1990; Frijters et al., 2000; Cotton & Wilkelund, 2001; Jeynes 2005; Rashid et al., 2005; Rowe, 1991; Senecah et al., 1996; Tunmer, Chapman, & Prochnow, 2006). Rashid, Morris, & Sevick (2005) conducted a study into the home literacy experiences of children with reading difficulties and concluded that home reading experiences had the greatest impact on spelling and reading comprehension. Parents’ modelling of reading behaviours, shared reading experiences, and the availability of books are considered to contribute to children’s opportunities for literacy success (Edwards, Dandridge, & Pleasant, 2000; Miedal & Reynolds, 1999). Erion (2006) found that parents can affect their child’s success in academic related tasks when completing structured home tutoring with their children ($d = 0.55$, $SD = 0.33$), which indicates that this is a successful strategy for children, to enhance their overall literacy skills. However, Erion (2006) cautions that it is necessary to consider how well parents have mastered tutoring skills, prior to working with their child, to ensure success. Hence, a parent’s own literacy skills and capabilities will affect the overall effectiveness of any home tutoring activities.

Previous research has identified that home reading practice and exposure to books at home influences the development of oral language skills (Sénéchal & LeFevre, 2002), such as vocabulary (Jordan, Snow, & Porche, 2000), comprehension (Jordan, Snow, & Porche, 2000; Long & Leseman, 2001; Rashid, Morris, & Sevick, 2005), phonological awareness (Sénéchal et al., 1998), and sequencing (Jordan, Snow, & Porche, 2000). Parent involvement in home reading can also lead to an increase in voluntary reading of children in the middle years of school (Braten, Lie, Andreasson, & Olaussen, 1999) establishing long-term and permanent reading habits in teenagers (Jennings, Caldwell, & Lerner, 2006; Krashen & McQuillan, 2007). Parental aspirations, the
dreams and goals they set and articulate for and with their child, have also been found to have an impact on children’s outcomes at school (Hong & Ho, 2005; Jeynes, 2005).

Given the link between heredity and reading difficulties, children with reading difficulties may have a home environment with parents who also have reading difficulties and thus there will be limited opportunities to engage with text at home (Petrill, Deater-Deckard, Schatsneider, & Davis, 2005). Previous studies have reported that home reading does not occur frequently, for a range of reasons: these include parents’ own reading skills, access to books, and large families (Snow, Burns, & Griffin, 1998). These findings are particularly important for the present investigation. The participating children had reading difficulties and required as much assistance as possible at school and at home: however, it may not have been possible for this practice to occur in their home environments. Children with reading difficulties may not be able to access the benefits of home literacy environments and thus will be further disadvantaged.

**Student-Teacher Ratios**

Children working in environments with smaller student-teacher ratios, have more opportunity for meaningful interactions with their teachers, receive timely feedback, and are being monitored and evaluated on a more regular basis (Thurlow, Ysseldyke, Wotruba, & Algozzine, 1993). These factors create a learning environment that has the greatest chance of success. It is interesting to note in the review conducted by Thurlow and colleagues (1993), that although teachers working in a one-to-one situation with a child reported greater time being engaged and receiving feedback during academic tasks than one teacher working with six children, there were no significant differences between one-to-one environments and groups where three children worked with a teacher. This indicates that, although individual tutoring is considered the gold standard, similar results may be obtained working in pairs (Iversen, Tunmer, & Chapman, 2005), or groups of three children (Vaughn et al., 2003) thus utilising resources in a more efficient manner (Vaughn, Linan-Thompson, Kouzekanani, Pedtorry Bryant, Dickson, & Blozis, 2003). Swanson et al. (1996) also verified the success of remedial one-to-one tutoring programs, with a mean effect size of .91. Working one-to-one is considered by classroom teachers the ideal for children with learning difficulties (Moody, Vaughn, &
Schumm, 1997); however, schools are challenged in providing adequate staff, training, and resources to provide this (Shanahan & Barr, 1995).

To provide one-to-one support for children with reading difficulties, classroom space also must be considered. In many cases, this support is offered in the form of withdrawal, where children leave their classroom to work in a smaller or alternative location to their regular classroom. In a study conducted by Norwich and Kelly (2004) 101 children with learning difficulties, aged between 10 and 14, were asked to rate their preferences for in-school assistance. A total of 40% preferred withdrawal, 33% preferred in-class support, and 30% preferred a mix of the two forms. There were no gender or age differences. Children reported that withdrawal provided them with better quality support, less noise, appropriate and better work, more fun, less distraction, more attention, less bullying, and being with friends. Smaller group, particularly one-to-one, intervention is recommended (Thurlow, Graden, Greener, & Ysseldyke, 1983), and withdrawal arrangements can be successful.

**Implications for the Present Investigation**
The R4L intervention is designed to improve children’s skills in reading and their reading self-concept (see Chapter 4). Underlying the content of the R4L intervention is an amalgamation of instructional theories and strategies with demonstrated efficacy for children with reading difficulties. Although the R4L intervention is not a formal direct instruction program, scripts for each of the components of the R4L intervention (sight words, phonological awareness, reading accuracy) have been designed to reflect the philosophies of direct instruction, which have repeatedly been demonstrated to be effective in improving achievement (Hempenstall, 1997; Swanson et al., 1996). Strategy instruction has also been incorporated into the R4L intervention to help the children to assume responsibility for applying reading strategies when reading texts. Independence in reading new texts is one of the core goals of the R4L intervention, and teaching children strategies to decode unfamiliar words will assist children in reading more accurately (Jitendra et al., 2004; Forness, 2001; Swanson, 2001). The R4L intervention provides numerous opportunities for revision and practice of sight words and phonological awareness concepts, essential for children with reading difficulties (Beck et al., 1982) by incorporating engaging games to stimulate interest and maintain attention on these repetitions (Falk et al., 2003; Stone et al., 2002). A transfer and generalization
activity was included in the R4L intervention to assist children to see the relevance of their learning and identify where they could apply these new skills to learning situations (Lovet et al., 1989; Vaughn et al., 2000). Although the R4L intervention occurred within the school environment, it was intended to utilise the experience of an active home literacy environment to forge lifelong reading habits (Ertin, 2006; Frijiters et al., 2000). Finally, the R4L intervention relied on the one-to-one working relationship between a child and adult reading buddy, capitalising on the research demonstrating the effectiveness of this strategy for children with reading difficulties without any pressure on a school’s limited resources, as external volunteers were utilised (Thurlow et al., 1993; Moody, Vaughn, & Schumm, 1997). Hence, the R4L intervention capitalised on advances in reading research, with theories of direct instruction forming the basis of the learning activities for phonological awareness and sight word recognition, in tandem with opportunities for engaging revision and practice.

Existing Reading Interventions and Challenges for Research

Introduction
Schools have enormous potential to make a difference in the lives of children with reading difficulties. There is a range of interventions currently available in schools for children with reading difficulties. Many of these rely on adult or peer volunteers, due to the high costs of providing specialist services (Wasik, 1998). There is no one intervention or pedagogical strategy that is capable of helping every child, despite claims from various researchers, educators, and marketing departments (Rohl & Rivalland, 2002). Schools need to find an acceptable balance, providing the best possible services for children with their available resources (Nye, Boyd-Zaharias, Fulton, & Wallenhorst, 1992). In this section an overview of Reading Recovery, Teacher Supported Programs, and Tutoring Programs offered in schools is presented, and the implications of these programs for the present investigation are discussed. Programs available in other countries, such as Success for All and the America Reads Challenge, are not examined in this section, as they are not widely available for Australian students.
**Reading Recovery**

Reading Recovery (Clay, 1985, 1987, 1993) is a program developed in New Zealand, and is employed as a first phase intervention program for children in the second year of many Australian schools (Elkins, 2002). This structured program focuses on the process of reading accuracy and comprehension. It utilises a Diagnostic Survey with a running record/miscue analysis, letter identification, sight word recognition, concepts about print, writing vocabulary, and spelling test to identify children suitable for the program. The Reading Recovery program can only be implemented by a trained professional in a school to a small number of children at any one time. Reading Recovery is an intensive program offered for 12–20 weeks, where children meet with a trained practitioner on a daily basis for around 20 minutes. It is an expensive program to implement, as only qualified teachers who have participated in intensive professional development can implement the intervention at the school (Wasik, 1998).

The Reading Recovery program has been evaluated by various researchers and Reading Recovery organisations (e.g., Briggs & Young, 2003; D’Agostino & Murphy, 2004), who report that children who participated in the Reading Recovery program in Year 1 had improved reading skills that were still evident in Year 4. However, some concerns have been raised about the cost of providing the Reading Recovery Program (Hiebert, 1994) and its effectiveness for children with learning difficulties (Chapman & Tunmer, 1991; Elbaum, Vaughn, Hughes, & Moody, 2000) due to the omission of phonological awareness instruction (Chapman, Tunmer, & Prochnow, 2001). Previous evaluations of Reading Recovery have also been criticized by researchers for a lack of adherence to strict experimental design, especially in relation to the assignment of children to experimental and control groups (i.e., not randomised), and to the small sample sizes (Reynolds & Wheldall, 2007).
Teacher Supported Programs

Schools also provide assistance to children with reading difficulties utilising learning support teachers or teachers’ aides. This assistance is often in the form of a commercial reading program, such as Multilit (MULTILIT, 2007). Multilit stands for Making Up for Lost Time in Literacy and is an initiative of Macquarie University’s special education centre. Multilit is designed for low progress readers in Years 2 and above and, after an initial assessment, children work individually with a tutor trained in the Multilit system on a daily basis. Multilit sessions include phonic word attack skills, sight word recognition, and reinforced reading using the pause, prompt, and praise system (Ellis, Wheldall, & Beaman, 2007; Wheldall & Beaman, 2007). The pause, prompt, and praise system describes the actions of tutors during Multilit sessions when a child is unable to read a word. Initially the tutor pauses for five seconds, then prompts the child to use the initial letters as a cue to read the word, and then provides praise when the word has been read successfully. Multilit tutors do not need to be classroom teachers (MULTILIT, 2007) but must be trained in using the tutor program and be available for the daily instruction.

Volunteer Programs

Tutoring programs are also common in schools and are the foundation of the present investigation. Tutoring programs, conducted by peers, paraprofessionals, and adult volunteers, increase the availability of assistance to children (Dawkins, Ritz, & Louden, 2009). However, limited research is available evaluating the effectiveness of volunteer tutoring programs in schools, especially for children with reading difficulties (Ritter, Barnett, Denny, & Albin, 2009). This is an area of need in educational research as many interventions for children with reading difficulties are administered by volunteers (Elkins, 2002). Children who work with adult volunteers report improved self-esteem and attitudes to schooling (Dawkins, Ritz, & Louden, 2009; Fitzgerald, 2001; Hon & Shorr, 1998; Tierney & Grossman, 1995). Snow, Burns, and Griffith (1988) in their influential text, advise educators to consider the benefits and limitations of tutors, recommending that tutors provide opportunities for reading practice and motivational support but do not provide instruction. This recommendation is supported by several meta-analyses of tutoring interventions, summarised below.
Ritter, Barnett, Denny, and Alblin (2009) meta-analysis. A recent meta-analysis conducted by Ritter et al. (2009) synthesised 21 studies of randomised field trials conducted after 1985 using adult volunteers in schools. They found a moderate effect size \( (d = 0.30) \) for the impact that adult volunteers have on children’s academic outcomes. This was analysed further to consider specific reading skills, and it was concluded that adult volunteers working as tutors in schools can have the greatest impact on assisting children to read letters and words \( (d = 0.41) \) and oral reading fluency \( (d = 0.30) \), and only a low impact on reading comprehension \( (d = 0.18) \). They did not report any differences based on grade or tutor type, but did identify that more structured programs yielded a greater effect size \( (d = 0.59) \) compared with unstructured programs \( (0.14) \).

Elbaum, Vaughn, Hughes, and Moody (2000) meta-analysis. Elbaum et al. identified two critical factors affecting the success of a tutoring intervention: reliability and tutor training. Tutors who were consistent in session attendance were far more effective \( (d = .85) \) than those who were inconsistent \( (d = .06) \). Training was also highly influential for tutoring outcomes, with untrained tutors averaging a negative effect size \( (d = -.17) \), compared with trained tutors \( (d = +.85) \). This negative effect size indicates that children who worked with an untrained tutor performed worse on post-testing, than pre-testing measures.

Cohen, Kulik, and Kulik (1982) meta-analysis. Cohen et al. conducted a meta-analysis of 65 studies of tutoring programs, selected on the basis of a methodologically sound research design with a control group. On average, children made a moderate improvement as a result of tutoring programs \( (d = .40, \ SE = .069) \). There was a clear bias identified in the results of the studies included as effect sizes were significantly larger for studies employing an instructor-developed measurement \( (d = .84, \ SE = .21) \), compared with a standardised measurement \( (d = .27, \ SE = .05) \). Also, effect sizes were strongly influenced by the source of the study: unpublished studies produced the strongest effect sizes \( (d = .85, \ SE = .42) \), published studies produced moderate effect sizes \( (d = .47, \ SE = .12) \), and dissertation studies produced small effect sizes \( (d = .27, \ SE = .06) \). Further analysis of the studies produced trends to assist the planning of effective tutoring programs. Tutoring programs for mathematics skills produced a greater result \( (d = .60, \ SE = .16) \) than reading \( (d = .29, \ SE = .30) \) or other skills
Structured tutoring programs were more effective \( (d = .51, SE = .11) \) than non-structured tutoring programs \( (d = .26, SE = .07) \). The skill level (lower-order versus mixed) targeted by the intervention and assessment was differentiated by effect sizes, with low-order measures producing a higher effect size \( (d = .76, SE = .17) \) than mixed measures \( (d = .24, SE = .05) \). The length of the tutoring program also produced differential effect sizes: shorter programs produced a higher effect than longer programs \( (0–4 \text{ weeks } d = .95, SE = .28; 5–18 \text{ weeks } d = .42, SE = .08; 19–36 \text{ weeks } d = .16, SE = .09) \). However, no longitudinal data were analysed in any of the studies examined. Cohen et al. concluded that the most successful tutoring interventions were those utilising a structured program, for a short period of time, focussing on lower level mathematics skills, and assessed by teacher-produced assessment measures. Consistent with these findings, the R4L intervention in the present investigation was a structured program of 15 weeks duration, targeting the foundational skills of reading.

**Challenges in Conducting Experimental Studies**

Experimental designs utilising randomised experimental and control assignment are considered the “gold standard” of scientific methods (What Works Clearinghouse, 2003), especially in the determination of a program’s effectiveness (Raudenbush, 2008; Teddlie & Tashakkori, 2009). Research designs that include a control group allow researchers to make substantiated claims about the impact of a new strategy or intervention. However, the advantages of including a control group in a research design can often be compromised in the “capriciousness of school environments” (Ehri, Dryer, Flugman, & Gross, 2007, p. 444) as researchers attempt to conduct precise studies in messy school environments (Carter & Wheldall, 2008). Researchers have found that children in control groups are often exposed to some kind of diffusion effect from the intervention being delivered to children in the experimental group (Craven, Marsh, Debus, & Jayasinghe, 2001; Plewis & Hurry, 1998). This is especially apparent in research conducted in classrooms, where teachers are expected to utilise a new strategy or program with one group of children and continue with regular teaching with another group of children. Sometimes this may be accidental, as the teacher, informed by the new strategy or program, unconsciously alters his/her teaching practices for the whole class (Moerbeek, 2005). At other times, children in control groups are provided with compensatory assistance because they are missing out on the treatment received by the
experimental group (Cook & Campbell, 1979). Many teachers are unable or unwilling to withhold a new intervention from children. In the case of children already failing to read, it could be considered unethical not to provide support to children. This contamination of the control group can reduce the overall effect size of the intervention and mask the true results (Craven et al., 2001; Moerbeek, 2005; Plewis & Hurry, 1998).

The issue of contamination of the control group has been examined by several researchers, who have utilised different methods to attempt to minimise the threat this poses. Some researchers separate experimental and control groups geographically, ensuring that the experimental and control groups are located in schools geographically isolated from each other. This separation prevents the control group from knowing about the intervention from other participants or from receiving indirect benefits from teachers (Craven et al., 2001; Moerbeek, 2005). This significantly increases the cost of research and these additional funds are often not available to researchers. Increasing the sample size is also recommended, to counteract the impact of control group contamination (Moerbeek, 2005). Other researchers have utilised scores from a separate group of children to act as a comparison group (Wheldall, 2009) and large sample sizes (Wheldall, 2009). Researchers can take precautions to minimise the extent of the control group contamination, but may not completely eradicate this. In educational research, the control group cannot be considered as receiving no education: rather, it receives regular education without the addition of the new strategy or program being studied (Kember, 2003).

**Implications for the Present Investigation**
Schools have programs in place to support some of the children with reading difficulties. However, many children are not able to access these services. The present investigation is intended to provide greater access to services for primary school children with reading difficulties, by using volunteers to administer the intervention. R4L was designed to complement and extend existing programs being offered in schools. As such, the R4L intervention can available to a greater number of children than existing programs, such as Reading Recovery, due to the reduced cost to schools through reliance on volunteers.
The present investigation utilised a waitlist control experimental design to test the effects of the R4L intervention. Issues surrounding the possible contamination of the control group were considered, steps were taken to counter the possible contamination (see Chapter 5) and were also taken into consideration when interpreting the findings (see Chapter 9).

The Significance of the Self-Concept Construct for Reading Interventions

“Confident and creative individuals . . . have a sense of self-worth, self-awareness and personal identity that enables them to manage their emotional, mental, spiritual and physical wellbeing.” (MCEETYA, 2008, p. 9)

Introduction

The development of a positive self-concept is included as one of the three core goals for education in Australia, as encapsulated in the quote above (MCEETYA, 2008). Self-concept refers to the feelings and thoughts individuals that hold about themselves overall, and in particular circumstances (Bracken, 1996; Hay, Byrne, & Butler, 2000; Marsh & Craven, 2006). Self-concept is influenced by the reactions of people surrounding the individual (Byrne, 1984; Marsh & Craven, 1997) and their own interpretations of their academic, physical, and social capabilities (Marsh & Hattie, 1996; Shavelson, Hubner, & Stanton, 1976). People who feel good about themselves and have confidence, approach life with a greater chance of success (Bandura, 1997; Marsh & Craven, 2006). Conversely, a poor self-concept can act to stifle life potential.

The Multidimensional Structure of the Self-Concept Construct

The present consensus is that self-concept is multi-dimensional and hierarchical in structure (Byrne, 1996; Hay & Ashman, 2003; Marsh, Byrne, & Shavelson, 1988; Marsh, Craven, & McInerney, 2003; Marsh & Craven, 2006; Marsh & Hattie, 1996; Marsh & Shavelson, 1985; Marsh & Yeung, 1999; Valentine, DuBois, & Cooper, 2004). The multidimensional model of self-concept considers that individuals hold a separate self-concept in specific domains, such as academic (English, history, maths, and science) and non-academic (emotional, physical, and social) domains (Marsh & Hattie, 1996; Marsh & Shavelson, 1985; Marsh & Yeung, 1999) as well as a general self-concept. General self-concept forms the top of the hierarchy of this multi-dimensional model, with the individual domains, academic and non-academic, comprising the second level. As such,
a boy who is in the representative football team for his school but experiences difficulty writing may report a high physical self-concept and low English self-concept. This is important for children with reading difficulties as, although they will experience a poorer reading self-concept, they may be able to hold a positive self-concept in other areas in which they excel.

**The Importance of Holding a Positive Self-Concept**

Self-concept is an important psychological construct in its own right. A positive self-concept is considered advantageous for personal happiness and fulfilment and is thought to contribute to creating possibilities for enhancing life potential (Marsh & Craven, 2006). A positive self-concept has been shown to have a beneficial effect on motivation and on resilience after failure (Dodgson & Wood, 1988; Sommer & Baumeister, 2002). In addition, self-concept is also thought to contribute to a range of other outcomes, including academic achievement (Marsh & Craven, 2006; Marsh, Craven, & Debus, 1991, 1998; Marsh & Yeung, 1997; McInerney, Roche, McInerney, & Marsh, 1997). It is also recognised that when children feel good about themselves and are confident in their abilities they will persevere with tasks and participate in learning activities (McInerney, Roche, McInerney, & Marsh, 1997). The confidence derived from a positive self-concept is considered to be the “most powerful precursor and outcome of schooling” (Hattie, 2009, p. 47).

Poor self-concept has wide ranging implications for children. It is important for children to remain positive and committed after experiences of failure. Persistence is linked to improved performance (Marsh & Craven, 2006). A positive self-concept improves a child’s motivation, their willingness to try and persistence to continue trying (Chapman, 1988; Helmke, 1989; Helmke & van Aken, 1995). Children with poor self-concept may reduce their effort and give up when work is challenging, thus disengaging from school (Chapman, 1988; Cullen, Boersma, & Chapman, 1981; Dyarski et al. 2008). In addition, children with poor self-concept may avoid new learning experiences, to protect their weakened self-concept (Helmke & van Aken, 1995; Jones, 1973). Poor self-concept can be informed by interactions with teachers, peers (Kavale & Forness, 1998), and the children themselves. Chapman (1988) asserts that children with reading difficulties are engaged in a destructive cycle of blame where failure is attributed to lack of ability and success is attributed to luck, help from others, or easy tasks. There is no
opportunity for a child with reading difficulties to be proud of their successes and believe in their abilities. This has devastating consequences for future learning. This withdrawal from learning experiences further threatens the learning capabilities of a child with reading difficulties and contributes to the lack of emotional wellbeing of the child (Mercer, 1997; Poplin, 1984). The adverse consequences of a low self-concept for children must be averted, especially for children with reading difficulties, who need the greatest improvement in educational outcomes.

**Self-Concept of Children with Reading Difficulties**

Children with learning difficulties, including reading difficulties, experience repeated failure in academic tasks (Humphrey, 2002; Licht, 1983; Kavale & Forness, 2000). They are often also expected to perform tasks that are beyond their capabilities and experience the disappointment of failing these tasks and the expectations of themselves and others (Pearl, Bryan, & Donahue, 1980; Rogers, 1983; Rogers & Saklofske, 1985). These feelings of disappointment and failure are exasperated by comparison with peers who do not experience these same difficulties (Ausubel, 1968; Eshel & Klein, 1981). In an environment where reading is part of the expectations of school and a way to communicate with peers, there is enormous pressure for children to achieve success in reading. Their reading difficulties can place them in situations where others view them as different, dumb, or lazy (Burden, 2008; Humphrey, 2002). It is reasonable to assume that children with reading difficulties will have a poor reading self-concept based on comparisons they make with their peers, perceptions of how others see them, and evaluation of their own performance (Burden, 2008).

Numerous studies have demonstrated that children with reading difficulties have a poorer academic self-concept than their peers (e.g., Bear, Juvonen, & McInerney, 1993; Chapman, 1988; Chapman & Tunmer, 1995; Cullen, Boersma, & Chapman, 1981; Hagborg, 1996; Harter, Whitesell, & Junkin, 1998; Hattie, 1992; Kistner & Osborne, 1987; Rogers & Saklofske, 1985; Prout, Marcal, & Marcal, 1992; Stone & May, 2002). In some of these studies, children with reading difficulties held average general self-concept; however, this was lower than their peers, who held above average general self-concept beliefs (Chapman, 1988). Other studies have found that children with the indicators for reading difficulties, poor phonological awareness skills and letter-sound knowledge, develop a negative self-concept within the first two years of schooling,
whereby they doubt their abilities in reading (Bear, Clever, & Proctor, 1991; Chapman, Tunmer, & Prochnow, 2000). Two reviews, in the area of self-concept and learning difficulties, concluded that children with reading difficulties have poorer academic self-concepts than their peers (Chapman, 1988; Zelke, 2004).

Studies that have found minimal to no differences between the self-concept of children with reading difficulties and their peers have considered general self-concept, rather than academic self-concept (Crabtree & Rutland, 2001; Durrant et al., 1990; Vaughn et al., 1992). This represents a small proportion, 7%, of the studies reviewed by Zelke (2004). These researchers suggest that non-academic pursuits (Bear et al., 1998; Poplin, 1984) and placing less importance on academic pursuits (Clever, Bear, & Juvonen, 1992) can help to preserve general self-concept. For example, Klooomok and Cosden’s study (1994) of 72 students with learning difficulties concluded “children with learning disabilities tend to feel good about themselves in general, but less adequate about their scholastic competence” (p. 150).

Studies considering the self-concept of children with learning disabilities are confounded by several factors. These include: (a) confusion surrounding the definition of and criteria for the learning difficulty; (b) inconsistent measurement of self-concept; and (c) a primary focus on general self-concept, rather than the more specific domains affected by a reading difficulty (Byrne, 1996; Durrant, Cunningham, & Voelker, 1990; Polychroni, Koukoura, & Anagnostou, 2007; Zelke, 2004). Consequently, the conclusions made by researchers concerning self-concepts of children with reading difficulties must be interpreted carefully. One of the goals of the present investigation is to facilitate improved reading self-concept of children with reading difficulties. The section below summarises the key findings in relation to the self-concept of children with reading difficulties.

**The Relations Between Self-Concept and Academic Achievement**

Academic self-concept is concerned with the way children perceive their competence in the scholastic domain (Chapman, 1988). Academic self-concept consists of both cognitive (I am good at English) and affective (I like English) perceptions (Byrne, 1996; Harter, 1990; Strein, 1993). The cognitive component is concerned with a child’s evaluation of their abilities, whereas the affective component is concerned with the
degree of enjoyment of or anticipation towards a specific learning task. Yeung (2005) suggests that the cognitive component may have more immediate effects on subsequent achievement, whereas the affective component may have more long-term effects. An internal/external frame of reference model (I/E model) was developed by Marsh (1986; 2007) to explain how students develop academic self-concept. Students compare themselves to their peers (external frame of reference) and to their own achievements in other subjects (internal frame of reference). These comparisons with peers who do not suffer from reading difficulties, impact on children with reading difficulties.

Researchers have considered the relation between self-concept and academic achievement in empirical studies and many recognise a degree of reciprocity between self-concept and academic achievement (Caslyn & Kenny, 1977; Hay, 1995; Hay, Ashman, & van Kraayenoord, 1994, 1997; Marsh 1993; Marsh & Craven, 1997; Valentine, Du Bois, & Cooper, 2004; Wylie, 1979). The reciprocal effects model (REM) proposed by Marsh and Craven (1997) recognises the shared contributions of prior self-concept and prior academic achievement on future self-concept and future academic achievement (see also Marsh & Craven, 2006). The REM is based on the premise that children who think of themselves as more competent, confident, and capable achieve more than children who think of themselves as less competent, confident, and capable. The reciprocal effects model has been empirically validated for young children and adolescents. Researchers have demonstrated that academic self-concept and achievement share a dynamic and reciprocal relation such that improvements in one lead to improvements in the other and vice versa, beyond what can be explained by prior levels of both (Marsh 2007; Marsh & Craven, 2006; Marsh et al., 1999; Marsh & Yeung, 1998; Valentine, DuBois, & Cooper, 2004). Academic self-concept is responsible for and affected by academic achievement (Byrne, 1984; Guay, Marsh, & Boivin, 2003; Marsh, Byrne, & Yeung, 1999) and becomes more reliable and stable with age (Skaalvik & Hagtvet, 1990). Marsh and Craven (1997) conclude, “enhancing a child’s academic self-concept is not only a desirable goal but it is likely to result in improved academic achievement as well” (Marsh & Craven, 1997, p. 155).

The REM has invaluable potential for all children, especially those with reading difficulties. Educational interventions in themselves are not sufficient, nor are psychosocial interventions. Gains made in either of these isolated interventions are
likely to be short-term, failing to improve the life potential of children (Hurry & Sylva, 2007; Marsh & Craven, 2006). To provide children with optimal opportunities for success, educators must simultaneously develop a child’s self-concept and skills in the target intervention domains, whilst addressing academic skills (Yeung, 2005; Marsh & Craven, 2006). The REM presents possibilities for educators to develop and implement new interventions capable of having a significant impact on the life potential of children. The REM underpins the R4L intervention, with its focus on both reading skills and reading self-concept (see Chapter 4).

**Self-Concept Enhancement Interventions**
The enhancement of self-concept is a goal of education (Marsh & Craven, 1997; MCEETYA, 2008) and can substantially alter the futures of children. For children with reading difficulties, whose self-concept is poor from repeated experiences of failure and frustration, self-concept enhancement interventions are essential. Researchers have recommended effective self-concept enhancement interventions to be domain (self-concept) and skill (academic) specific (Chapman & Tunmer, 2003; Elbaum & Vaughn, 2001; Hay, Byrne, & Butler, 2000; Lau, Yeung, Jin, & Low, 1999; Marsh, 1993; Marsh & Craven, 1997; 2006), as interventions will yield maximum gains in the domain of self-concept that most closely reflects the intervention (Marsh, 1993; March & Craven, 1997; 2006). These findings have been supported in a meta-analysis of the most effective strategies for enhancing self-concept.

The most recent meta-analysis examining the effects of self-concept enhancement interventions considered studies acknowledging the multidimensional structure of self-concept and waitlist control group designs (O’Mara, Marsh, & Craven, 2004). The results of this meta-analysis have guided the inclusion and development of self-concept enhancement in the R4L intervention. The overall impact of self-concept enhancement interventions was moderate \((d = .51)\), but higher when a specific self-concept domain (such as English) was targeted, and measured using a multidimensional measure \((d = 1.16)\). O’Mara et al. (2004) found the strongest effect size for self-concept interventions using praise or feedback \((d = 1.13)\). Children with pre-diagnosed conditions benefited more \((d = .54)\) than children involved in preventative interventions \((d = .42)\). The authors conclude that although self-concept gains are the greatest in the short-term, by focussing on self-concept enhancement interventions, long-term gains may be greater.
when a combined self-concept enhancement and skills training intervention is employed. These findings are promising for the present investigation, where the sample includes children disadvantaged by their reading difficulties. Coupled with evidence from previous studies demonstrating the diminishing effects of short-term gains from reading interventions (Borman & D’Agostino, 2001; Lee, Brooks-Gunn, & Schnur, 1988; White, 1985), a combined approach may yield stronger outcomes for children.

Performance feedback is also an integral component of the learning process (Hattie, 1987; Hattie & Timperley, 2007), and is most effective when it is positive and immediate (Cohen, Kulik, & Kulik, 1988). Hattie contends, “Feedback is a ‘consequence’ of performance” (Hattie, 2009, p. 174, italics in original) and hence must be authentic and relate directly to the preceding performance. Feedback contributes to the self-concept of children (Hattie, 1987; Hay, Ashman, & Van Kraayenoord, 1994; O’Mara et al., 2004) and has the potential to sustain motivation and persistence on the task (Dönyei, 2001; Schunk, 1985). Two types of feedback, attributional feedback and internally focussed feedback, have been demonstrated to be effective in promoting increased self-concept for children (Craven, Marsh, & Debus, 1991), including those with learning difficulties (Tabassam & Grainger, 2002).

Craven et al. (1999) developed Internally Focussed Feedback as a strategy to directly enhance self-concept and enable children to internalise praise for specific behaviours for use again in the future. This structured feedback involves five key elements: (1) acquiring the child’s attention; (2) publicly praising the specific behaviour; (3) generalising this behaviour to situations beyond the present occurrence; (4) encouraging the child to internalise the feedback; and (5) modelling the internalisation for the child (Craven, Marsh, & Debus, 1991). Children are provided with performance feedback, coupled with statements to encourage them to realise their influence on the outcome. An example of such statements is, “You have read that story well. You’re doing very well in reading. You must feel good about your abilities in reading. I do too” (see Appendix L). This statement identifies competence in the specific task of reading a story, generalises this to the greater subject area of reading, encourages the child to internalise the feedback, and finally models the internalisation.
Craven et al. (1999) utilised Attributional Feedback as an indirect form of self-concept enhancement. Attributional Feedback is a strategy designed to encourage children to attribute their success in a situation to the effort applied, their abilities, or selection of the correct strategy. Craven et al. (1999) consider that this should be structured feedback that involves three key elements: (1) acquiring the child’s attention; (2) publicly praising the specific behaviour; and (3) attributing current success to the child's efforts, abilities, or strategies used (Craven, Marsh, & Debus, 1991; Robertson, 2000). Attributional retraining interventions encourage children to stabilise their perception of their ability, and consider their efforts and task difficulty to influence academic outcomes (Brophy & Good, 1986; Weiner, 1986). An example of these statements is “The reason your reading has been so good lately is that you’re using good methods and you keep on trying” (Learning Links, 2007). This statement identifies competence in the specific task of reading and attributes this success to the strategies being used. The enhancement of self-concept is significant for long-term benefits of interventions (Marsh & Craven, 2006), a desirable trait for any intervention.

**Implications for the Present Investigation**

The R4L intervention in the present investigation was designed to take advantage of international advances in self-concept theory and research to create a powerful reading intervention for primary school children with reading difficulties. The relation between academic achievement and self-concept has significant implications for educational practice and the present investigation. Further to the inclusion of direct and explicit instruction in reading skills are the internally focussed and attributional feedback statements offered to children throughout the R4L intervention. It was anticipated that the synthesis of educational and psychological research-derived advances in theory, research, and practice would result in a more powerful intervention, with greater gains for the children who need it most.

**Chapter Summary**

The R4L intervention capitalised on best-practice research for literacy interventions. In consideration of the importance of reading, psychological research was also consulted, to design the intervention for primary school children with reading difficulties. A positive self-concept influences a range of life variables and is a desirable goal in and of
itself. Children with reading difficulties do not have a positive academic self-concept, and this limits their life potential and psychosocial wellbeing. Self-concept enhancement interventions are necessary to improve the self-concept of children with reading difficulties and to assist children to feel better about themselves and their abilities. Self-concept has also been demonstrated to share a powerful and dynamic causal relation with achievement (Marsh & Craven, 2006). The R4L intervention is designed to simultaneously develop the skills of reading and improve the self-concept of children, by encouraging them to identify their successes and attribute these to their ability, effort, and use of the right strategy, whilst developing skills in phonological awareness, sight words, and reading accuracy.

The R4L intervention in the present investigation was a structured, volunteer-administered, psychosocial reading intervention. The program complements existing programs available for children with reading difficulties. Resources in schools are limited, as is the availability of programs for reading difficulties, and many children who require assistance are unable to receive it. A volunteer-administered program, like the one in the proposed study, is an attempt to remedy this shortage and the disadvantage for children with reading difficulties. Volunteer-administered programs have the potential to assist far more children than are currently receiving assistance, with no additional drain on the resources of schools.

This chapter has presented the research identifying the most effective inclusions of potent reading interventions for children with reading difficulties, which informed the development of the R4L intervention. The results of international meta-analyses and reviews of reading instruction have been considered, with consistent findings that direct and explicit instruction of phonological awareness and oral repeated reading are recommended. The research focussing on the individual sub-skills of reading and learning has also been reviewed in this chapter, refining the sequence and processes to introduce phonological awareness, sight word recognition, reading accuracy, and comprehension. Existing reading interventions available to children in Australia were considered, as well as the challenges for researchers in conducting intervention studies. The contributions of self-concept enhancement interventions to the achievements gains of children also were presented. This chapter has presented the research advancements
underpinning the development of the R4L intervention in the present investigation. In Chapter 4, the origins and development of the R4L intervention are described.
CHAPTER 4

READING FOR LIFE: AN OVERVIEW OF THE DEVELOPMENT, NATURE, AND STRUCTURE OF AN INNOVATIVE VOLUNTEER-ADMINISTERED INTERVENTION

Introduction

The present investigation had, as its central aim, the development, implementation, and critical analysis of the effectiveness of an innovative volunteer-administered reading intervention designed to contribute to addressing the challenges faced by young children with reading difficulties. Reading for Life (R4L) was originally designed in 2003, and periodically revised and updated by an Australian-based children’s charity, Learning Links, with the financial support of a worldwide corporation, Unilever Australasia. For the purposes of the present investigation, R4L was modified to capitalise on recent advances in reading intervention and self-concept theory and research (see Chapter 3).

The purpose of this chapter is to describe the development, nature, and structure of the newly revised R4L intervention. Firstly, an overview of how R4L emerged from the relationship between Learning Links and Unilever Australasia is afforded. Secondly, a chronology of the development of R4L to its present incarnation is presented. Finally, the revised R4L’s intervention structure, content, and activities are described, as well as the strategies employed to implement the intervention within a school and corporation.
The Origins of Reading for Life

Background

“There were lots of reasons that started us on the road that led to R4L, many of which were linked to our employees and how they were feeling. We were hoping for something that would make a difference and bring our employees together. What we got was far more than that—being a Reading Buddy is an amazing experience and our company is much better off as a result.” (Tracey, 2003).

R4L is an initiative developed by Learning Links and Unilever Australasia to improve the reading skills of primary school children who are struggling to read. The partnership commenced with the Unilever Australasia Foundation and Learning Links working together to address a need in the community. The result of this partnership, R4L, is a volunteer-administered reading intervention to help children having difficulty reading at primary school.

Relationship Between Unilever Australasia and Learning Links

Unilever Australasia, an international company, originated in the 1890s after William Hesketh Lever, founder of Lever Bros, patented his ideas for Sunlight Soap, and popularised cleanliness and hygiene in Victorian England. The company that has produced dietary, cleaning, and personal hygiene products worldwide for over a century. The Unilever Australasia Foundation, established in 2002, provides resources to assist people and organisations develop the capabilities they require to meet their goals. Unilever Australasia aims to make a real difference by encouraging its employees to take the initiative and help others with various projects in the community. Their community involvement is focussed around three areas: (a) health, with a particular focus on nutrition; (b) education, with a particular focus on youth; and (c) environment, with a particular focus on water. These primary goals were established during focus groups conducted with Unilever Australasia employees in 2002. R4L came out of the Unilever Australasia Foundation’s desire to make a greater social contribution in Australia and New Zealand and to focus on issues that concerned their employees.
The Unilever Australasia Foundation partnered with another firm, Positive Outcomes, to develop their initiative further. Founded in 2000, Positive Outcomes is an Australian-based corporate social responsibility advisory firm. It assists companies to deliver on their community and environmental responsibilities in practical ways that make business sense. Positive Outcomes worked with the Unilever Australasia Foundation to seek out an organisation that would have the necessary expertise and experience to develop, implement, and evaluate a reading intervention for children experiencing learning difficulties. Learning Links was approached to provide this service.

Learning Links is an Australian not-for-profit children’s charity, which has successfully operated since 1972, working in partnership with families to help them realise their dreams for their children. It is a unique organisation, employing a team of specialist teachers, psychologists, speech pathologists, occupational therapists, physiotherapists, and family counsellors to provide services to children from birth to 18 years of age with learning difficulties, learning disabilities, developmental delays, and their families.

The Unilever Australasia Foundation worked with Learning Links to develop R4L and realise their goal of helping children learn to read. The first incarnation of R4L was designed by a team comprising a psychologist and teacher and was piloted in New South Wales and New Zealand in 2003. The next section summarises the aims and results of the pilot research.

Pilot Research

Overview
Unilever Australasia and Learning Links conducted four pilot programs of R4L during 2003 in two primary schools in New South Wales, Australia and two primary schools in New Zealand. These schools were chosen due to their close proximity to Unilever Australasia sites within New South Wales and New Zealand. Initially, only a New South Wales pilot was planned; however, the proposed pilot resulted in such enthusiasm from Unilever Australasia employees in New South Wales that Learning Links was asked to conduct a similar pilot in New Zealand.
**NSW Pilot Study**

**Aims.** The Unilever Australasia Foundation explicated desirable outcomes for the pilot from the perspective of schools, children, and their organisation. For participating schools and children, Unilever Australasia Foundation aimed for R4L to: (a) assist young children who were experiencing reading difficulties to increase their reading levels; (b) assist non-English speaking background children to develop reading skills in the English language; (c) build children’s self-esteem and aspirations; and (d) provide children with positive role models from businesses. Unilever Australasia Foundation also hoped that R4L would benefit Unilever Australasia by: (a) helping to produce a future generation of literate employees and consumers; (b) providing employees with the opportunity to make a difference in the community; and (c) helping to connect with the local community.

The pilot program was designed to: (a) identify resources involved in establishing the program at a school, and at the Unilever Australasia site; (b) understand the level of training and support required for volunteers in the program; (c) ascertain what factors attract or hinder employees’ participation in the program; (d) ascertain what aspects of the program are most useful to the participating schools and children; and (e) identify appropriate tools to measure and track the impact of the program for children, schools, and the workplace volunteers.

**Participants.** A total of 22 children participated in the New South Wales pilot of R4L, with equal numbers of boys and girls. The children were identified by their classroom teachers according to selection criteria provided by Learning Links, that is: children who were: (a) in Years 2 to 4 (although one student in Year 1 was involved in the trial); (b) struggling to acquire literacy skills; (c) without significant cognitive, behavioural, or mental health issues; (d) in possession of an adequate grasp of the English language; and (d) not receiving any specific additional funding support at school. Adult participants included 2 principals (one from each participating school), 22 parents, 10 teachers, and 36 volunteers from Unilever Australasia.
The thirty-six volunteers worked in two Unilever Australasia sites: 22 of these were full-time reading buddies, matched with a child to go to the school each week. The remaining 14 volunteers were reserves, replacing full-time buddies when they were unable to attend, or administering the program at the site. The majority of the volunteers in the pilot worked in managerial roles within Unilever Australasia, with 15 females and 21 males participating. Many of the volunteers had volunteered in the community previously: working with children however was a novel experience.

**Measures.** Standardised achievement in reading was measured by the: (a) Neale Analysis of Reading Ability—Third Edition (Neale, 1999); (b) Sutherland Phonological Awareness Test (Neilson, 2003); and (c) Ants in the Apple Sight Word List (Meeks & Easson, 1995). Reading self-concept was measured by the Self-Description Questionnaire (Marsh, 1989).

The Neale Analysis of Reading Ability—Third Edition (Neale, 1999) is a standardised reading achievement test with Australian normative data for students aged 6 to 12 years. Approximate reading ages can be calculated in the areas of reading accuracy, comprehension, and rate. The Sutherland Phonological Awareness Test (Neilson, 2003) is a standardised phonological awareness test with Australian normative data for students from Kindergarten to Year 3. Percentile rankings can be calculated from this test, representing the percentage of peers the child is performing better than. The Ants in the Apple Sight Word List (Meeks & Easson, 1995) is not a standardised test, but a teaching list of sight words, different to those used during R4L. Results were reported as a score out of 208. The Reading Self-Concept scale of the SDQ-I (Marsh, 1989) comprises 8 declarative items (e.g., I am good at reading) with responses rated from one to five (always false, mostly false, sometimes true/sometimes false, mostly true, always true) with higher scores reflecting higher reading self-concepts. A semi-structured interview schedule was designed to ascertain teachers’, principals’, and children’s perspectives of the impact of the R4L intervention.

**Procedures.** Children with reading difficulties were identified by classroom teachers and had parental consent to participate. All children were tested using the battery of reading achievement standardised measures and the SDQ-I reading self-concept scale, prior (T1) to the implementation of the 14 week program (T2).
Educational psychologists, experienced in test administration, conducted the assessments and scored individual tests by hand. Raw scores on the Neale Analysis of Reading Ability—Third Edition (Neale, 1999) were converted to the corresponding age ranges provided in the standardisation manual by the educational psychologist. At the beginning of the program the children participating in the pilot were, on average, 19 months behind their peers in reading accuracy, 13 months behind in reading rate, and 16 months behind in reading comprehension.

Volunteers attended a three-hour training session, conducted by Learning Links, to learn how to administer the intervention. All volunteers received a full copy of the intervention to use with the children. Children were paired with a reading buddy from a Unilever Australasia site.

For 14 weeks, reading buddies went to the schools and worked with their child for a 45-minute session, using the R4L manual prepared by Learning Links. The content of the program was modelled on best practice in special education and was developed by a team comprising a psychologist and a teacher. The program was semi-structured, in order to provide routine and predictability for children, yet contained a variety of activities that would encourage engagement and interest. The program emphasised praising effort and ability and on using the right strategy (see Craven et al., 2003) to enhance children’s self-concept in reading.

At the completion of the 14-week intervention program, all of the 22 children participated in post-testing, conducted by the same educational psychologist. The Educational psychologist calculated the raw scores and conversions to standardised age norms by hand. The difference between the pre-and post-test scores was calculated by hand and an average was found for the total sample of children.

Classroom teachers from each of the three grades involved in the pilot study, from both schools who had children participating in the pilot \(n = 9\) were invited to provide feedback on their experience at the completion of the program. This feedback was collected either through attendance at a semi-structured interview or through the completion of a survey, depending upon the teacher’s availability. The principals from both schools were also interviewed \(n = 2\). Responses from both the interview and the
surveys were collated into themes, to communicate the school’s perspective on the R4L pilot.

All parents whose children participated in the pilot program were also invited to provide feedback on their child’s experience of R4L. This feedback was collected through the completion of a survey, with 18 surveys returned (81% return rate). Responses from the parent surveys were collated into themes to communicate parents’ perspectives on the R4L pilot.

At the completion of the pilot all participating children participated in a semi-structured interview with an educational psychologist from Learning Links, which was recorded on a digital recorder. Group numbers varied from two to six, depending on the children’s availability. Audio files were transcribed and key themes were identified, to communicate children’s perspectives on the R4L pilot.

All volunteers, both full-time and reserves, were invited to take part in a semi-structured focus group interview with an educational psychologist at their place of work. The groups ranged from three to ten participants. Volunteers who were unable to attend the evaluation session were provided with a survey to complete and return to Learning Links.

Interview data and survey data were recorded and transcribed. Data was analysed by reviewing transcripts and identifying common themes. Themes were revised as subsequent transcripts were reviewed.

**Results.** Results emanating from analysis of qualitative data were impressive, with children, teachers, parents, and volunteer employees all reporting positive experiences. Children reported that they: (a) enjoyed the program and felt special being a part of it; (b) believed the program was different to their classroom work; (c) felt they had improved their reading skills and confidence through the program; and (d) valued the relationship formed with their Reading Buddy. Analysis of survey responses received from parents identified that they: (a) noticed improvements in terms of their child’s reading skills, approach to learning, and self-concept; and (b) were thankful for their
child’s involvement in the program, and more specifically the volunteers and Unilever Australasia’s contribution to their child’s development.

Analysis of qualitative data from the teachers and principals explicated that they: (a) perceived the intervention material and process as professional and of great educational value; (b) were especially appreciative of the one-on-one support offered to these students, as the schools were unable to provide this resource; (c) believed that the children enjoyed the program and that this was an essential part of its success; (d) witnessed improvements in children’s reading skills, approach to learning, and self-confidence; and (e) were impressed by the professionalism and friendliness of the volunteers.

Responses from both the interview and the surveys were collated into themes to communicate volunteers’ perspectives on the R4L pilot. Volunteers commented that: (a) the initial training delivered by Learning Links provided them with the necessary information and inspiration to serve as a Reading Buddy; (b) they made a significant contribution to the child’s reading skills and self-confidence, as well as the school community; (c) they personally benefited from the program by gaining insight into their own skills, personality, or aspects of the community; and (d) volunteers reported that their investment of time was manageable; nearly all indicated they would like to volunteer again.

Analysis of quantitative data identified substantial gains in all reading skill areas and reading self-concept after the fourteen week program whereby: (a) reading accuracy gained an average of eight months; (b) reading comprehension gained an average of nine months; (c) reading rate gained an average of six months; (d) phonological awareness skills increased an average of 18 percentile points; (e) children recognised an average of 33 additional sight words; and, (f) children reported higher reading self-concept scores by four points (on a 40-point scale).

**Limitations.** It is important to recognise that this was not a controlled pilot study, and it was not possible to attribute the reported improvements to the trial alone. During this time children were also receiving an intervention in the form of schooling, and there may have been other factors influencing the improvements. However, the
pilot study provided Learning Links and Unilever Australasia with useful information about the child’s performance prior to and following the intervention.

**New Zealand Pilot Study**

The goal of the New Zealand pilot was to: (1) examine the ability to establish partnerships between schools and the Unilever Australasia Foundation; and (2) inspire enthusiasm and commitment from the Unilever Australasia employees. The New Zealand pilot was instigated several weeks into the New South Wales pilot, and was modified so that both programs would be completed and evaluated at the same time.

**Participants.** A total of 22 children participated in the New Zealand pilot of R4L, with 13 boys and nine girls. No surveys or achievement measures were administered to children in the New Zealand trial, due to restrictions in time and cost. All participating children participated in a semi-structured interview with an educational psychologist from Learning Links at the completion of the pilot. The parents of each of the 22 children participated in a pre-and post-test survey during the pilot that considered any changes observed in reading skills or attitudes throughout the pilot intervention. The principals from both schools, and six classroom teachers, also participated in surveys (n = 8) or interviews (n = 12) at the completion of the pilot. Thirty-three volunteers participated in the New Zealand pilot: 17 females and 15 males. There were 22 full-time reading buddies and the remaining 11 became reserves or assisted with the administration of the program. The majority of the volunteers in New Zealand had no previous experience with volunteering.

**Procedures and results.** Six weekly R4L sessions were administered in the New Zealand trial. All participants were interviewed at the completion of their six sessions, and their comments were included in the qualitative analysis of the program. The qualitative feedback from the New Zealand pilot mirrored that of New South Wales, even given the much shorter time frame in which the program was delivered.

**Section Summary**

In 2003 Unilever Australasia and Learning Links conducted two complete pilot programs in New South Wales and two modified pilot programs in New Zealand to identify the potential, resources, and viability of R4L. During the 14-week pilot
intervention, children in New South Wales improved an average of eight months in reading accuracy, nine months in reading comprehension, and six months in reading fluency on standardised reading tests. All participating children wished to continue on the program, especially those in New Zealand, who only received six sessions with their Reading Buddy. Qualitative feedback from parents, teachers, principals, and volunteers described the R4L experience in positive terms, highlighting the effective resources, strategies, and buddy relationship. Given the success of the R4L pilot, it was recommended that the program continue and be expanded to all Unilever Australasia sites across New South Wales, New Zealand, and Victoria.

Unilever Australasia’s Vision

Expansion of R4L

R4L was developed, piloted, and undertaken exclusively by Unilever Australasia and Learning Links during 2003 and 2004. By the end of 2004, Unilever Australasia and its employees were so happy with the results and experience of R4L that the company announced that R4L would become its flagship community involvement initiative. Together with Learning Links, Unilever Australasia set an ambitious goal of helping 10,000 children through R4L by 2010. In November 2004, Unilever Australasia and Learning Links developed a Memorandum of Understanding to establish the goals and expectations of their partnership to grow R4L. They agreed to involve other businesses and public sector organisations to deliver the program and help improve the literacy skills of 10,000 children over the next six years.

Growth of the Program

Unilever Australasia and Learning Links have worked in partnership since 2003 to assist an increasing number of children. There have been some incredible milestones in the growth of R4L. In 2003, 44 children were assisted during the pilot program. In 2004 this rose to 133 children. This small sample had such a significant and lasting effect on the company and its employees that they wanted to share this experience with other companies, to achieve their goal of helping 10,000 children. In 2005, 475 children were involved in R4L, and the Sydney legal firm Allens Arthur Robinson became the second business to participate in R4L. In 2006 celebrations were held to celebrate 1,101 children participating in R4L. This milestone was the result of a range of companies,
trusts, registered clubs, and other organisations working together to help children falling behind in reading at school. To date, programs have been conducted in NSW, Victoria, Western Australia, Queensland, Tasmania and also in New Zealand. In 2007 this number continued to climb, with 1,507 children in R4L.

As participation in the R4L program increased, interest developed in learning more about and understanding the experience of R4L for children, parents, teachers, and schools. Hence, the Educational Excellence and Equity Research Program, Centre of Educational Research, University of Western Sydney was approached to partner these organisations in an Australian Research Council Linkage project to strengthen the R4L intervention, based on advances in theory, research, and practice, and to develop a large-scale research project to test the efficacy of R4L. The present investigation is one component of this investigation. With the inclusion of the present investigation, a grand total of 3,094 children had received a literacy boost from R4L by the end of 2010.

Learning Links and Unilever Australasia aim to continue to expand to involve other businesses, organisations, and community members, and to help more children who find reading difficult. Many new partners have been involved with R4L since 2005, from a variety of sectors including legal firms, accounting firms, registered clubs, and charitable foundations. Learning Links and Unilever Australasia are always looking for new ways to deliver R4L. In 2005, a new model of delivery was developed, using the expertise of Masters of Psychology students from a university to deliver the program in Sydney metropolitan schools. The students used the program as part of the practical requirements of their course and were able not only to work with children, but also to assess them both before and after completion of each 15-week period. This new method of delivery enabled a greater number of children to be assisted by R4L, as the Masters students could work with more than one child as a reading buddy, in contrast with the traditional corporate model.

Further growth of R4L has occurred in the past few years, funded by a range of corporate and charitable foundations. R4L is now available as an online module, where children from geographically isolated areas can be paired with a buddy in the CBD. Schools can purchase a black line R4L master kit, to photocopy and produce their own materials for children at their school, and provide the sessions using parent and
community volunteers. A DVD for parents was also developed, to complement the R4L program. Following the success of R4L, a mathematical program entitled Counting for Life has been developed, and is undergoing similar modifications and expansion.

Section Summary
R4L was born from Unilever Australasia employees identifying children’s literacy as a need in the community and the consequent partnership between Learning Links and Unilever Australasia Foundation. R4L has seen expansive growth in its seven years of development, from its early pilot incarnation at four schools with a single corporation to an international reading program, provided at hundreds of schools by thousands of different volunteers. The present investigation enables: (1) modification of the R4L to capitalise on advances in reading intervention and self-concept theory and research; (2) a rapid extension of the program to an additional 220 children hence a larger sample size; and (2) empirical tests of the salience and impact of R4L upon young children’s reading skills and reading self-concepts.

The Reading for Life Intervention

Introduction
This section describes the overall goals and objectives of R4L, before detailing the specific content of each section of the intervention manual. Modifications made to strengthen the R4L intervention for the present investigation are also discussed. A complete copy of the intervention is included at the completion of this thesis (see Appendix D).

Goals and Objectives of the Program
R4L aims to complement the current provisions for children in schools by offering one-to-one intensive support based on sound educational practice. The goal is not only to enhance the reading skills of participating children but also to encourage them to feel good about themselves as learners (i.e., enhance their reading self-concepts). Volunteer-administered reading programs in schools are not new. R4L, however, is unique in a number of respects. Firstly, R4L capitalises on sound educational theory, research, and practice and as such is more sophisticated than many reading programs that simply have
volunteers reading with children. Secondly, R4L includes activities to also develop children’s reading self-concept, by including special feedback statements for adult volunteers. Finally, R4L incorporated pre-and post-testing to measure improvements made by children. The content of the program provided routine and predictability for children, yet contained a variety of activities to encourage engagement and interest. To maximise the impact of the program, each session was structured to incorporate specific skills required for successful reading.

R4L has three core components; (a) communication with schools, companies, and parents; (b) assessment; and (c) intervention. Within each of these components there are many logistic considerations and resources required to ensure that R4L runs smoothly for both schools and volunteers. A team at Learning Links developed all of these components for the 2003 trial. These were redeveloped and strengthened for the present investigation, as detailed in the next section of this chapter. A R4L program begins after a corporate or funding body provides the necessary funding for a program, and then a suitable school is approached for involvement. Once a volunteer group and school have been matched, the program’s routines can begin. In the following section the three core components of R4L are discussed.

**Communication with Schools, Companies, and Parents**

One of the key elements for success in R4L is the relationship between the volunteer reading buddy and the child. This relationship is fostered by careful matching of buddies, based on gender and similar abilities. It begins with initial assessments at the school and is not completed until the final celebration party, which concludes the intervention.

Learning Links collects information about the hobbies and interests of volunteers and children prior to the assessments. Then the assessment takes place at the school. In consideration of this written and face-to-face information gathered about the children and volunteers, Learning Links matches the children with a full-time volunteer. Matching is made firstly according to same sex pairing and then interests/hobbies. Parental requests also are considered. Learning Links provides an “Introducing your Buddy” (Appendix A) certificate for each volunteer for distribution prior to the school orientation identifying their buddy and hobbies.
Volunteers participate in a three-hour training session, conducted by a Learning Links employee, to learn how to use the materials. The training generally occurs after the pre-testing in the school, so the trainer can talk about the school and children and help to situate the training. The volunteers are taken through each activity, step-by-step, and have opportunities to practise the reading games with each other. Throughout the program, volunteers are able to contact Learning Links for support. A further two-hour support session is available to volunteers half-way through the program to discuss any difficulties, revise any aspects of the intervention training volunteers would like further assistance with, and share experiences. This training and support helps to ensure R4L is implemented correctly. A key staff member from the school may also attend the training session. Their attendance helps the volunteers feel knowledgeable about the school and signifies the value of the program to the school.

Volunteers attend an orientation session at the school to meet their reading buddies, the classroom teachers, and the children’s parents. This occurs prior to the weekly sessions. During the orientation session, the school principal discusses the routines of the school with the volunteers, to help them feel at ease within the school environment. The volunteers also host a post-program party for the children to celebrate their achievements. At this party the children receive a book from their reading buddies to foster a continued love of reading.

R4L also actively involves families and classroom teachers. Classroom teachers and parents are invited to a school orientation session, where children first meet their Reading Buddy. They are also invited to an end of program celebration. During the program, children and volunteers use a communication book to provide feedback to teachers and parents.

**Assessment**

Classroom teachers are asked to identify children they believe would be suitable for the program, according to selection criteria set by Learning Links (see Chapter 6). Each child identified by the school is tested before the program using standardised reading achievement tests (see Chapter 6), to determine their learning strengths and weaknesses and provide a baseline for a final test at the end. The testing is critical, to ensure that children participating benefit from the program. Test results are provided in a written
report to teachers and parents by Learning Links (see Appendix B for an example). Participating children are assessed again at the completion of the program, to identify areas of growth. In the present investigation children were tested a third time, several months after the intervention had ceased, to test the program’s effectiveness longitudinally.

**Intervention materials**

R4L intervention materials comprise: a manual for the volunteers, activity materials for children, and training activities to prepare and support the volunteers throughout the program’s duration. The R4L manual (see Appendix D) describes the process of administering the intervention during each 45-minute session and contains all of the necessary resources to work with the children. The pilot R4L intervention is divided into five clear activities: (a) building the relationship; (b) sight words; (c) knowledge of sounds, (d) reading, and (e) celebrating effort and ability, and use of the right strategies. The overall structure of the intervention was strengthened for the present investigation, with an additional section added and all sections re-named to represent a “race” to reading success, with new labels for the components of the program: (a) Highlights; (b) Warm Up; (c) Stretching; (d) The Main Event; (e) Cool Down; and (f) Celebrating Effort. Each of these sections are described below.

**Building the relationship (Highlights).** In this initial section of R4L, volunteers begin to develop a working relationship with their buddy. The volunteers pick up the child from their class and move to the designated reading location in the school. They are encouraged to demonstrate to the children, by their tone and body language that they are excited to see their buddy again. In the pilot R4L intervention, volunteers initiated a friendly conversation with their buddy, for example asking the child about what they were doing in class, their week, their hobbies and interests, and what activity they are looking forward to in the session.

Systematic evaluations of mentoring programs has provided evidence that the relationship between adults and children in a mentoring capacity, as with R4L, has an effect on children’s life potential (Du Bois, Holloway, Valentine, & Cooper, 2002). In the revised edition of the R4L used in the present investigation (see Appendix D), volunteers were provided with a list of statements to prompt discussion with the
children. Volunteers could select one or two during the initial discussion each week, to gain more insight into the interests of their buddy. Statements included such things as “My favourite time of day is . . .” and “If I could be any age I wanted, I would be . . .”, and the children were invited to complete the statement. Volunteers were also encouraged to finish some of these statements themselves, so that the relationship with their reading buddy was reciprocal. These statements were added into the intervention after receiving feedback from previous volunteers, about the difficulty that some children had in conversing freely with their adult buddy. This new inclusion was made to ensure that this phase of the intervention was easier to implement, and to help facilitate the relationship between the buddies—an important element of R4L.

**Sight words (Warm-Up).** This second section of R4L is the first where reading skills are introduced. Volunteers are provided with a clear script to explicitly introduce the sight words and employ resources such as a sight word list, blank flash cards, coloured markers, and a recording form, all of which were provided in the R4L manual and pack. The explicit teaching script was the same each week, helping the child to focus on the individual words rather than the activity. The child reads from the master list of sight words contained in the R4L manual and after eight errors have been made, the target set of sight words for the week is determined. The volunteers record the children’s responses on a recording form provided. The eight words are written on a blank flash card by the volunteer and then copied by the child. Each pair of cards is then used for a matching task, where children have one set laid out in front of them and are asked to “point to /word/”, “find the partner for /word/”, “give me /word/” and play a series of traditional card games (snap, snail, memory, concentration, fish, bingo) using flashcards. These sight word cards are sent home for practice each week in the back of the communication book, along with the instructions for these card games. In each session the set of cards from the previous session is checked and then replacement words are added as necessary (dependent upon how many of the eight previous words have been mastered).

Sight words are high frequency words, appearing regularly in written texts, which often have irregular spellings, in which case they are known as exception words (Moseley, 2004). Mastery of rapid sight word recognition develops independence in reading, enhances a child’s sense of control over the text and their willingness to take
risks when approaching new reading passages (Hay, 1995; Henderson, 1982). Sight word reading is an important inclusion in R4L. Sight words from an Australian teacher’s resource *What, When, Where to teach English K-6* (Orange District Office, 2000) were selected for inclusion in the pilot R4L program. This list was relevant for Australian children, as it was prepared by an office of the NSW Department of Education (2000), and provided 625 sight words. These words were organised by school year, and provided reading buddies with an estimated starting point.

In the course of strengthening the R4L intervention for the present investigation, the list of words was reviewed. The original author of the sight word list could not be established, and there was no research to support or validate the distribution of words to year levels. This led to the inclusion of a new list of sight words, *Instant Words* (Fry, Kress, & Fountoukidis, 2004) in the revised edition of R4L used in the present investigation. This list of words contains 1000 words, more than the previous list and many other, commercially available lists (Bishop, Wilkinson, & Agnew, 1978–79; Dolch, 1953; Johnson & Pearson, 1984; Meeks & Eason, 1998; Reiter, 2007) to provide children with an expanded base of sight words. The Instant Words (Fry, Kress, & Fountoukidis, 2004) are presented in order of their frequency of appearance in the English language. The first 100 words in this list represent 65% of the words most frequently used in the English language (Fry, 1980), and are the result of an extensive literature search. This frequency order reduces the need for volunteers to assess the level of children, as all children need to start at the first list, since these are the most important words to know by sight (Appendix D).

**Knowledge of sounds (Stretching).** The pilot R4L intervention included card and board games from a variety of commercial programs, to develop phonological awareness skills in the areas of sound identification, rhyme, compound words, vowel digraphs, and homophones (Dunn, 1995; Meeks & Eason, 1995; Gallacher & Grubb, 2000; Love & Reily, 1995; Taggart, 1999; Turley, 1999). Ten games were provided in the pilot R4L intervention manual: these games were the basis of introducing and practising phonological awareness skills. The specific strategies were not introduced in a formal way in the pilot intervention—the games were the mechanism for revising skills of sound identification, rhyme, compound words, vowel digraphs, and homophones.
The phonological awareness (Knowledge of Sounds) section was developed extensively in the re-write for the present investigation, due its strongly predictive properties for reading competence (Juel & Meier, 1999; McNamara, Scissors, & Dahleu; Scarborough, 1998; Torgesen, Wagner et al., 1997). The essential phonological awareness skills related to rhyme, compound words, syllables, first sounds, last sounds, middle sounds, and vowel sounds, were included, in their developmental sequence (Chard and Dickson, 1999; Ehri, 1995; Ehri, Nunes, Stahl, & Willows, 2001). All children begin with rhyme and work their way through the activities. In each section there is a routine of sound identification and sound production. There is a script to introduce the skills. For example: “Words rhyme when they sound the same at the end. Listen to these words pen and hen. These words rhyme because they both end in the sound /en/. Does men rhyme with pen and hen?” This is followed by five examples for the child to practise orally. Several card games (the same as those used in the sight word section) were then available for children to practise identifying the phonological awareness skill using a set of coloured playing cards, which had both the words and pictures printed on them. There was a script for children to produce words using this phonological awareness skill—for example, “Tell me a word that rhymes with sun”, with five examples for the child following this. More card games or specially designed game boards were available for this section. The scripts provided the explicit instruction necessary for children with reading difficulties (DEST, 2005; NICHD, 2000; Rose, 2006) to develop competence in critical phonological awareness skills before they attempted to apply them in practising the playing games (Charlton, Williams, & McLaughlin, 2005; Etess, 2004; Lepper, 1988).

The “Stretching” or phonological awareness section consumes the greatest proportion of the R4L manual, as each new topic contains explicit scripts (Appendix D). The three board games and decks of cards were also a component of the phonological awareness section (Appendix D). It was not expected that all children would use all of the resources—volunteers were encouraged to work with the children at their own pace, providing them with the time they required to master each skill (Dempster, 1987; Gredler, 2001).
**Reading (The Main Event).** This is the primary purpose of R4L, for reading buddies to read together. Activities were included for the before reading, reading, and after reading stages, for the children to develop strategies to read better. The pilot edition of R4L included activities to help stimulate interest in the book and draw the child’s attention to the important features of the book (e.g., author, pictures, predict type of story) prior to reading, in the form of a series of question cards. During reading, the volunteers were provided with a series of decoding strategies, the Reading Helper, to assist children when they reach a word they cannot read. After reading, the children select several question cards from envelopes categorised according to Bloom’s Taxonomy of Thinking Skills: (a) summarising, (b) clarifying, (c) questioning, and (e) evaluating (Bloom, 1956; Krathwohl, 2002), to recall and infer information from the text.

The revised edition of R4L developed for the present investigation simplified this section of the R4L intervention to focus on the core skill of decoding. It was aptly named the “Main Event”, the very reason for the program. The pre-reading activities were revamped a little in design only, now being presented in a chatterbox (folded paper game) for the children to cut out and fold (Appendix D). Prediction before reading a book stimulates interest and allows the child to establish a knowledge base and meaningful context before reading the text for the first time. Often known as activating background knowledge (Duke & Pearson, 2002; Gersten, Fuchs, Williams, & Baker, 2001), it helps make the reading process positive and successful for children. During reading, the children had their own copy of the reading helper strategies, in the form of a bookmark, to guide their approach to tricky words, and to take home and read with their parents. This section was not re-written, as it offers a strong basis for teaching children to read (Forness, 2001; Jitendra et al., 2004; LeBerge & Samuels, 1974; Swanson, 2001). Volunteers were provided with helpful instructions to implement the reading section, such as to be attentive and show interest while the child reads. When a child got stuck on a word, volunteers paused to give the child a chance to solve the problem on their own (approximately 5 seconds). If the child did not read the word correctly, the volunteer then asked their buddy to read the questions on the bookmark, to help them read these tricky words. The children were praised if they read the word correctly, and the volunteer would name the strategy used by the child.
The after reading section of the R4L intervention was also revised, to simplify the process. On the back of the bookmark were a set of recall questions pertaining to when the story took place, where, who, and the order of events. Children in R4L are children who are struggling to read fluently, the primary skills need to improve significantly before the child can be expected to answer complex comprehension questions (NICHD, 2000). For this reason, recall questions only were included in the present edition of R4L (Appendix D).

In successive sessions, volunteers were encouraged to demonstrate good reading behaviours with their buddies. The children took their book home to practise with their parents during the week, an exercise known as Repeated Reading (NICHD, 2000; Therrien, 2004), and then spent a few minutes before starting their new book, re-reading the book with their buddy (Appendix D). The child and volunteer took turns to read pages in the book and the child had an opportunity to demonstrate their improved reading rate, resulting from the repeated practice during the week. The inclusion of repeated reading and reading with a model, capitalised on research into effective reading practice (Kuhn & Stahl, 2003; NICHD, 2000; Rasinski, 2006) and increased the opportunities for success for the children involved.

**Cooling down.** This section was not included in the pilot R4L intervention, but was included in the strengthened R4L intervention designed for the present investigation. It was included in the re-write to strengthen the efficacy of the program and help with the transfer of skills (Lovett, Barron, & Benson, 2003; Vaughn, Gersten, & Chard, 2000; Wong, 1994). Many children are able to use the strategies in the context in which they are taught, but experience difficulty when applying this knowledge to new situations, particularly back in the classroom. Transfer and generalisation are the goal in most educational programs. The cooling down activity allows the child to see the value of what they have been learning with their buddy (Appendix D). They also have a wonderful opportunity to apply their knowledge in a supportive environment whereby the child identifies “how (do I do it?)” and “why (am I learning this?)”. In the “Cool Down”, the final section of the reading race, children were asked to select their favourite page of the book they had just read and to identify sight words they knew, and other elements of phonological awareness they had learnt so far (e.g. rhyming words, words with 2 syllables, words with the same first sound, compound words). This
activity helped the child see the relevance of the activities they had been learning in the program and to identify real-life applications of their new skills.

**Celebrating effort.** In the final section of the program, “Celebrating Effort”, children and volunteers recorded their work in the Communication Book, a separate book to the R4L manual. Children were encouraged to identify areas in which they had done well during the session, and heard praise from their buddy. The Cool Down was an instrumental component of R4L and served to enhance the child’s self-concept of their reading skills and attitudes. Self-concept has an influential role in the outcomes of education (Marsh & Craven, 2006; Marsh & Yeung, 1997; McInerney, Roche, McInerney, & Marsh, 1997), as described in Chapter 3.

In the pilot R4L intervention, volunteers were provided with a page of information relating to enhancing self-concept. This information focused on encouraging the children to attribute their success to internal causes such as ability and effort and their failures to external causes, such as task difficulty and luck (Weiner, 1986). The strategy provided to the volunteers in the pilot R4L intervention was to praise the effort the child applied to activities.

In the revised R4L intervention self-concept enhancement was significantly redeveloped to improve the way that feedback statements and praise were implemented, to capitalise on recent advances in self-concept theory and research, including the reciprocal effects model (see Chapter 3; Craven, Marsh, & Debus, 1991; Marsh & Craven 2006; Yeung, 2005). Following Craven et al., volunteers were provided with three variations to provide feedback to children after success: (a) Recognise ability. “You have worked out that sight word well” (identify competence). “You obviously have the ability to do well in reading” (attribute success to ability); (b) Recognise effort, ability, and use of good strategies. “You have worked out that long word quickly” (identify competence) as you put a lot of effort into it and used the right strategy of breaking it into syllables (attribute success to effort / strategy/ ability)”, and (c) Encourage self-recognition. “You have read that story well” (identify competence). You're doing very well in reading (generalise to subject area). “You must feel good about your abilities in reading” (encourage internalisation). “I do too” (model internalisation now and then). Volunteers were also provided with examples of feedback when children had not been successful (i.e.; failure
feedback): (a) Identify failure. “No, that’s not right”; (b) Identify child has ability: “You have the ability to do well in reading”; and (c) Attribute future success to effort, ability, and use of right strategy: “and you will do well when you use the right strategy and keep trying”. This was a significant extension to the pilot intervention as it emphasised the effort of the child only. These feedback statements are provided in Appendix D.

Section Summary

For the purposes of the present investigation, the R4L intervention was revised to capitalise on recent advances in reading intervention, self-concept theory and research. Some modifications were also incorporated to simplify activities for volunteer-administration, based on results from pilot studies undertaken by Learning Links. A summary of these modifications is included as Appendix D.

Chapter Summary

This chapter has described the origins of R4L, the nature and findings of the pilot program, and the intervention revisions implemented to capitalise on recent advances in theory, research, and practice to strengthen the R4L intervention and test its efficacy in the present investigation. In the next chapter the aims, hypotheses, research questions and their rationale, are presented for the current investigation.
CHAPTER 5

AIMS, HYPOTHESES, RESEARCH QUESTIONS, AND THEIR RATIONALE

Introduction

The central purpose of the present investigation was to test the impact of an innovative reading intervention, Reading for Life (R4L), on multiple reading achievement outcomes and reading self-concept. To address this overarching purpose, a mixed methods study, comprising two interrelated studies, was designed to elucidate the effects of the R4L intervention on children’s reading skills, reading behaviours, and reading self-concepts. Study 1 was a quantitative study designed to test the impact of R4L on multiple dimensions of children’s reading achievement. Study 2 was a qualitative study designed to (1) extend the findings of Study 1 by providing an enriched understanding of the impact of the R4L intervention on reading achievement, reading behaviours, and reading self-concept, (2) survey participants’ perceptions of the impact of the R4L experience; and (3) explicate potential further improvements for the intervention.

The purpose of this chapter is to present the overarching aims, hypotheses, and research questions, including their rationale, for each of the two studies that comprised the present investigation. Hypotheses have been formulated where previous reading theory and research provide adequate research-based evidence to inform predictions. Research questions have been posed where existing theory and research were not sufficient to make predictions. The aims for each of the studies precede discussion of the respective hypotheses and research questions. Each hypothesis and research question has been numbered so that the aim it relates to within each study can be clearly identified. Hypothesis 1.1.1 refers to Study 1, Aim 1, Hypothesis 1; Research Question 1.2.1 refers to Study 1, Aim 2, Research Question 1 and so on. Similarly, the rationales for the hypotheses are presented with clear titles so that they too may be easily linked to their corresponding aim and hypothesis or research question.
Study 1: Impact of the Reading for Life Intervention for Primary School Children

Statement of the Problem

What will be the effect of the R4L intervention on the reading achievement of primary school children with reading difficulties? Specifically, to what extent will the R4L intervention impact upon children’s skills in: (a) phonological awareness; (b) sight word recognition; (c) reading accuracy; and (d) reading comprehension?

Aims

The overarching aim of Study 1 was to apply multilevel statistical techniques to measure the effectiveness of a newly developed and potentially powerful reading intervention, R4L, upon the reading achievement of children with reading difficulties. More specifically, Study 1 aimed to:

1.1 Test the salience of the psychometric properties of the reading achievement measures employed for the specific population of primary school children with reading difficulties;

1.2 Test the effectiveness of the R4L intervention for primary school children with reading difficulties in regard to their reading achievement (phonological awareness, sight word recognition, reading accuracy, and reading comprehension);

1.3 Test whether the effectiveness of R4L varies as a function of gender;

1.4 Test whether the effectiveness of R4L varies as a function of type of buddy;

1.5 Investigate whether the effects of R4L are maintained over time;

1.6 Test the effectiveness of the R4L intervention in regard to children’s reading achievement (phonological awareness, sight word recognition, reading accuracy, and reading comprehension) with a second sample population; and

1.7 Investigate whether the effects of R4L are maintained over time with a second sample population.
**Statement of the Hypotheses and Research Questions**

**Hypothesis 1.1.1: Reliability of Sutherland Phonological Awareness Test (SPAT-R).** The Sutherland Phonological Awareness Test—Revised (Neilson, 2003) will be a reliable measure of phonological awareness for the first sample of children with reading difficulties.

**Hypothesis 1.1.2: Reliability of Burt Word Reading Test (Burt).** The Burt Word Reading Test (Gilmore, Croft, & Reid, 1981) will be a reliable measure of sight word recognition for the first sample of children with reading difficulties.

**Hypothesis 1.1.3: Reliability of Neale Analysis of Reading Ability (Neale-R)—Accuracy.** The Neale Analysis of Reading Ability—Revised (Neale, 1989) will be a reliable measure of reading accuracy for the first sample of children with reading difficulties.

**Hypothesis 1.1.4: Reliability of Neale Analysis of Reading Ability (Neale-R)—Comprehension.** The Neale Analysis of Reading Ability—Revised (Neale, 1989) will be a reliable measure of comprehension for the first sample of children with reading difficulties.

**Hypothesis 1.2.1: Impact of R4L on reading achievement skill: phonological awareness.** Primary school children who participate in R4L will perform better on phonological awareness tasks compared to children matched on reading achievement and age who have not received the intervention.

**Hypothesis 1.2.2: Impact of R4L on reading achievement skill: sight word recognition.** Primary school children who participate in R4L will perform better on sight word recognition tasks compared to children matched on reading achievement and age who have not received the intervention.

**Hypothesis 1.2.3: Impact of R4L on reading achievement skill: reading accuracy.** Primary school children who participate in R4L will perform better on
reading accuracy tasks compared to children matched on reading achievement and age who have not received the intervention.

**Hypothesis 1.2.4: Impact of R4L on reading achievement skill: reading comprehension.** Primary school children who participate in R4L will perform better on reading comprehension tasks compared to children matched on reading achievement and age who have not received the intervention.

**Research Question 1.3.1: Impact of gender on effects of R4L on reading achievement skill: phonological awareness.** If the R4L intervention is successful in improving phonological awareness for participating children, is the effect of the intervention different for males and females?

**Research Question 1.3.2: Impact of gender on effects of R4L on reading achievement skill: sight words.** If the R4L intervention is successful in improving sight word recognition skills for participating children, is the effect of the intervention different for males and females?

**Research Question 1.3.3: Impact of gender on effects of R4L on reading achievement skill: reading accuracy.** If the R4L intervention is successful in improving reading accuracy skills for participating children, is the effect of the intervention different for males and females?

**Research Question 1.3.4: Impact of gender on effects of R4L on reading achievement skill: reading comprehension.** If the R4L intervention is successful in improving reading comprehension skills for participating children, is the effect of the intervention different for males and females?

**Research Question 1.4.1: Impact of type of buddy on effects of R4L on reading achievement skill: phonological awareness.** If the R4L intervention is successful in improving phonological awareness for participating children, does the effect of the intervention change depending on the type of reading buddy (i.e., university student or corporate employee)?
**Research Question 1.4.2: Impact of type of buddy on effects of R4L on reading achievement skill: sight word recognition.** If the R4L intervention is successful in improving sight word recognition skills for participating children, does the effect of the intervention change depending on the type of reading buddy (i.e., university student or corporate employee)?

**Research Question 1.4.3: Impact of type of buddy on effects of R4L on reading achievement skill: reading accuracy.** If the R4L intervention is successful in improving reading accuracy skills for participating children, does the effect of the intervention change depending on the type of reading buddy (i.e., university student or corporate employee)?

**Research Question 1.4.4: Impact of type of buddy on effects of R4L on reading achievement skill: reading comprehension.** If the R4L intervention is successful in improving reading comprehension skills for participating children, does the effect of the intervention change depending on the type of reading buddy (i.e., university student or corporate employee)?

**Research Question 1.5.1: Long-term effects of R4L on reading achievement skill: phonological awareness.** What are the outcomes for children longitudinally after participating in R4L, with respect to their phonological awareness?

**Research Question 1.5.2: Long-term effects of R4L on reading achievement skill: sight word recognition.** What are the outcomes for children longitudinally after participating in R4L, with respect to their sight word recognition?

**Research Question 1.5.3: Long-term effects of R4L on reading achievement skill: reading accuracy.** What are the outcomes for children longitudinally after participating in R4L, with respect to their reading accuracy?

**Research Question 1.5.4: Long-term effects of R4L on reading achievement skill: reading comprehension.** What are the outcomes for children longitudinally after participating in R4L, with respect to their reading comprehension?
Hypothesis 1.6.1: Consistent impact of R4L on reading achievement skill: phonological awareness. When implemented with a second group of primary school children with reading difficulties (i.e., a waitlist control group), there will be no significant differences between the performance in phonological awareness of this group and the original experimental group who received the intervention.

Hypothesis 1.6.2: Consistent impact of R4L on reading achievement skill: sight words. When implemented with a second group of primary school children with reading difficulties (i.e., a waitlist control group), there will be no significant differences between the performance in sight word recognition skills of this group and the original experimental group who received the intervention.

Hypothesis 1.6.3: Consistent impact of R4L on reading achievement skill: reading accuracy. When implemented with a second population sample of primary school children with reading difficulties (i.e., a waitlist control group), there will be no significant differences between the performance in reading accuracy skills of this group and the original experimental group who received the intervention.

Hypothesis 1.6.4: Consistent impact of R4L on reading achievement skill: reading comprehension. When implemented with a second population sample of primary school children with reading difficulties (i.e., a waitlist control group), there will be no significant differences between the performance in reading comprehension skills of this group and the original experimental group who received the intervention.

Research Question 1.7.1: Consistent long-term effects of R4L on reading achievement skill: phonological awareness. When implemented with a second population sample of primary school children with reading difficulties (i.e., a waitlist control group), what are the outcomes for children longitudinally after participating in R4L, with respect to their phonological awareness?

Research Question 1.7.2: Long-term effects of R4L on reading achievement skill: sight word recognition. When implemented with a second population sample of primary school children with reading difficulties (i.e., a waitlist
control group), what are the outcomes for children longitudinally after participating in R4L, with respect to their sight word recognition?

**Research Question 1.7.3: Long-term effects of R4L on reading achievement skill: reading accuracy.** When implemented with a second population sample of primary school children with reading difficulties (i.e., a waitlist control group), what are the outcomes for children longitudinally after participating in R4L, with respect to their reading accuracy?

**Research Question 1.7.4: Long-term effects of R4L on reading achievement skill: reading comprehension.** When implemented with a second population sample of primary school children with reading difficulties (i.e., a waitlist control group), what are the outcomes for children longitudinally after participating in R4L, with respect to their reading comprehension?

**Rationale for the Hypotheses and Research Questions**

The following section provide a brief rationale for each of the hypotheses and research questions for Study 1. These hypotheses and research questions have been formulated in consideration of the literature (reviewed in Chapter 2).

**Rationale for Hypotheses 1.1.1-1.1.4: Reliability of instruments (SPAT-R, Burt, Neale-R).** The three reading achievement measures selected for the present investigation have been validated as measures of phonological awareness, sight word recognition, reading accuracy, and reading comprehension for primary school children (Gilmore, Croft, & Reid, 1981; Neale, 1999; Neilson, 2003), with psychometric properties and standardised norms accompanying each test. Reliability measures available for the populations of children involved in the standardisation studies for each of the tests are: (a) \( r = .95 \) for SPAT-R (Neilson, 2003); (b) \( r = .97 \) for Burt (Gilmore, Croft, & Reid, 1981); (c) \( r = .95–.96 \) for Neale-R accuracy (Neale, 1989); and (d) \( r = .71–.89 \) for comprehension (Neale, 1989). The sample of children participating in the present investigation were primary school children with reading difficulties, and as such the reliability of these measures must be verified as reliable measures of the reading constructs under examination for this population. Given the established robust psychometric properties of these measures for “normal” readers and their demonstrated
applicability to “weak” readers (Hay et al., 2007; Thomson, 2003; Wheldall & Bearman, 1999), it is predicted that all three measures—SPAT-R, Burt, and Neale-R—will be reliable measures of phonological awareness, sight word recognition, reading accuracy, and reading comprehension for children identified with reading difficulties.

**Rationale for Hypotheses 1.2.1-1.2.4: Impact of R4L on reading achievement skills (phonological awareness, sight words, reading accuracy, and reading comprehension).** The R4L intervention was designed to develop the sub-skills considered essential to develop the reading skills of infants and primary school children (see Chapter 2), including: (a) phonological awareness; (b) sight word recognition; and (c) oral reading practice. In pilot work, Tracey (2003) found that R4L was successful for primary school children with reading difficulties. After participating in R4L over a four-month period children made gains in: reading accuracy (8 months); reading comprehension (9 months); reading rate (6 months); and sight words (33 words) (Tracey, 2003). Similarly, in accordance with the revised content of the R4L intervention and pilot research, it is predicted that R4L will improve the reading skills of primary school children. Specifically, improvements in phonological awareness, sight word recognition, reading accuracy, and reading comprehension are expected as a result of participating in R4L. These improvements are expected to be small, in anticipation of the possible contamination of the control group during the intervention phase, where children identified with reading difficulties yet not receiving the intervention at first, may be provided with additional support, given that their difficulties have been identified with schools and parents (Craven, Marsh, Debus, & Jayasinghe, 2001; Plewis & Hurry, 1998; Wheldall & Bearman, 2000). Improvements in reading comprehension are not expected to be as great as those of phonological awareness, sight word recognition, and reading accuracy as reading comprehension does not feature strongly in the R4L intervention.

**Rationale for Research Questions 1.3.1-1.3.4: Impact of gender on effects of R4L on reading achievement skills (phonological awareness, sight word recognition, reading accuracy, and reading comprehension).** There is wide discrepancy in the reports of gender bias in reading difficulties, related to methods of selecting children for studies and variability in the definitions of reading difficulties (see Chapter 2). The identification and noting the incidence of reading difficulties in terms
of gender was not an aim of the present investigation. Rather, similarities and
differences between the reading achievement outcomes for boys and girls were tested.
Research suggests that boys and girls have different preferences for reading materials
and should be encouraged to select materials of interest to them to promote and sustain
motivation in reading (Brozo, 2002; Coles & Hall, 2001; Probst, 2003; Sullivan, 2004).
R4L involves children selecting their own reading materials from those available at the
school, involves reading buddies of both genders, and includes many hands-on activities
to engage and interest children. These inclusions are designed to be gender-neutral—
that is, to cater for the learning needs of both girls and boys. A research question thus
has been posed, to explore whether any differences exist in the outcomes for boys and
girls after receiving the R4L intervention.

Rationale for Research Questions 1.4.1-1.4.4: Impact of buddy on effects
of R4L on reading achievement skills (phonological awareness, sight word
recognition, reading accuracy, and reading comprehension). Children participating
in R4L worked with one of two groups of reading buddies. Some reading buddies were
volunteers from corporations who took time out of their regular day to work with one
child only. Other reading buddies were university students, participating in R4L for
course credits. These university buddies, enrolled in a course, Learning through
Community Service (LCS) and worked with five children at each school. Each child still
received their individual 45-minute session, with five children allocated to the one
buddy. It was unknown whether there would be a difference in the student-buddy
relationship dependent upon the type of buddy (i.e. corporate or university student) the
child was working with, as previous R4L research has not addressed this issue.

Numerous studies have been conducted to evaluate the impact of mentoring
programs on children. These consistently identify improvements in self-esteem,
attitudes to schooling, and academic performance (Hon & Shor, 1998; Tierney &
Grossman, 1995). In a recent meta-analysis evaluating the effectiveness of adult
volunteers in schools, no significant differences were found in children’s outcomes
when different types of volunteers (adult within school, outside volunteer, and college
student) were considered (Ritter et. al., 2009). Hon and Shor (1998) emphasise the need
for children to have an adult in their life who can care for them and challenge them to
do well in life. The research question being considered here is whether children view
that person differently if they are a special person for only one child, rather than for more than one child at their school.

The impact of the intervention may be stronger for those buddies who are delivering more programs each week: that is, the outcomes for children working with university students could be better than for those working with a corporate buddy. University students will have more practice implementing the intervention, as they repeat the same lesson five times during the day. Hence, the children working with a reading buddy from the university may be receiving a more rehearsed and confident presentation of the materials. This may have an effect on the performance of those children.

The increased presence of university students within the school may also have other effects on the children. As the university students are physically present on school grounds for the whole day, the R4L session may not be seen as so special across the whole school, as it runs all day, for many children. Conversely, the corporate reading buddies will arrive at the school as a unified group, work with the children at the same time in an area designated by the school, and that short period of time is devoted to R4L for the small number of children participating. Those children working with reading buddies from the corporate program may feel more special, as their buddy is arriving at the school to work only with the one child. This feeling of uniqueness may be different across the programs. These differences may influence the outcome of the psychosocial intervention. Hence, a research question was posed to explore these issues.

**Rationale for Research Questions 1.5.1 to 1.5.4: Long-term effects of R4L on reading achievement skills (phonological awareness, sight word recognition, reading accuracy, and reading comprehension).** Published reports about the impact of reading interventions demonstrate a range of moderate to strong improvements in targeted areas following the implementation of an intervention, with little information about the durability of these improvements over time (Hurry, 2004; NICHD, 2000). Studies that do report the long-term effects of interventions often show that these effects fade over subsequent months and years (Borman & D’Agostino, 2001; Hurry & Sylva, 2007; Lee, Brooks-Gunn, & Schnur, 1988; White, 1985). For
example, in a meta-analysis of phonological awareness interventions short-term gains were moderate for reading (ES = .70) but these gains were not significant in the long-term (ES = .16) (Bus & van Ijzendoorn, 1999). Children with reading difficulties may require additional support over a longer period of time for gains to be sustained (Byrne, Fielding-Barnsley, & Ashley, 2000). Hence, research questions have been posed to consider whether short-term effects of R4L are sustained several months after the intervention period has ceased.

**Rationale for Hypotheses 1.6.1-1.6.4: Consistent impact of R4L on reading achievement skills (phonological awareness, sight word recognition, reading accuracy, and reading comprehension).** Children in the waitlist control group will receive the R4L intervention after the experimental group has ceased involvement in the study. It is expected that the children in the control group will achieve similar results to those children in the experimental group. That is, R4L will have the same effect on children’s reading achievement outcomes with a different group of children with similar reading difficulties, and hence a series of hypotheses have been posed.

**Rationale for Research Questions 1.7.1-1.7.4: Consistent long-term impact of R4L on reading achievement skills (phonological awareness, sight word recognition, reading accuracy, and reading comprehension).** Children in the waitlist control group will be assessed again four months after receiving the R4L intervention, as is the case with the experimental group. Six weeks of this four-month break will be school holidays and hence, the waitlist control group will not receive regular teaching sessions and reading tasks during this period. Hence, a series of research questions have been posed to consider the trends in reading achievement scores three months after the intervention for children in the control group.

**Study 2: Children’s Journey to Read for Life**

**Statement of the Problem**
What are the impacts of the R4L intervention on children from the perspectives of multiple stakeholders (children, teachers, principal, parents, and volunteers)?
Aims

Study 2 is concerned with clarifying and extending the results of Study 1, to further elucidate the impact of the intervention on children from the viewpoints of multiple stakeholders and to identify areas of intervention strength and potential areas that could enhance its effectiveness. More specifically, Study 2 aimed to:

2.1 Illuminate the key quantitative findings of Study 1 by examining, using qualitative research methods, the impact of the intervention on children’s reading achievement from the perspectives of multiple stakeholders (volunteers, teachers, principals, parents, and children);

2.2 Identify additional themes emerging from data generated from multiple stakeholders that are highlighted as impacting on children’s reading achievement and attitudes as a result of the intervention; and

2.3 Identify multiple stakeholders’ perceptions of the strengths and limitations of the study.

It is important to note that the qualitative study was not intended to test the quantitative data and so no hypotheses were proposed for Study 2. Rather, the qualitative study was designed to illuminate the quantitative findings, enrich the findings by identifying themes that may not have been addressed in the quantitative study; and to provide enriched insights into the impact of the intervention on students and other participants.

Statement of the Research Questions for Study 2

Research Question 2.1.1: Impact of the intervention on children’s reading achievement. What are the substantive and most frequently occurring themes that emerge from multiple stakeholder perspectives regarding the impact of the R4L intervention on children’s reading achievement, behaviours, and self-concepts? Are these similar or different to the findings of Study 1?

Research Question 2.1.2: Impact of possible threats to the control group. What has occurred within the school and home environment during the first phase of the intervention for the control group? To what extent have parents and schools assisted children in the waitlist control group?
**Research Question 2.2.1: Impact of the intervention on children's reading self-concept.** What are the substantive and most frequently occurring issues and themes that emerged from multiple stakeholder perspectives regarding the impact of the R4L intervention on children’s reading self-concept?

**Research Question 2.2.2: Impact of the intervention on children’s reading behaviours at home.** What are the substantive and most frequently occurring issues and themes that emerged from multiple stakeholder perspectives regarding the impact of the R4L intervention on children’s reading behaviours at home?

**Research Question 2.3.1: Strengths and limitations of the intervention.** What do multiple stakeholders perceive as the strengths and limitations of the R4L program?

**Rationale for the Research Questions for Study 2**

**Rationale for Research Question 2.1.1: Impact of the intervention on children’s reading achievement.** Anecdotal benefits of previous R4L programs have been reported by Unilever and Learning Links (Tracey, 2003). During a range of qualitative interviews with children, parents, teachers, and principals at the completion of the pilot program in 2003, it was noted that children had improved in their reading skills and confidence to read, felt special from being involved, and were appreciative of the time spent with their reading buddy. These anecdotal reports are common in volunteer-administered research studies (e.g., Cohen et al., 1982; Elbaum et al., 2000; Elkins, 2002). One of the goals of the present study was to explore the experiences of the intervention from multiple perspectives. Children may demonstrate changes in reading achievement that are not evident in the standardised testing conducted in Study 1. Hence, a research question was posed to further elucidate the value-added benefits for children of participating in R4L.

**Rationale for Research Question 2.1.2: Impact of possible threats to the control group.** Researchers have found that children in control groups are often exposed to some kind of diffusion effect from the intervention being delivered to
children in the experimental group (Craven et al., 2001; Plewis & Hurry, 1998). This may be accidental, as the teacher, informed by the new strategy or program, unconsciously alters their teaching practices for the whole class (Moerbeek, 2005). It may also be intentional, as children in control groups are provided with compensatory assistance because they are missing out on the treatment received by the experimental group (Cook & Campbell, 1979). As a result, children in the control group may become involved in interventions that are similar to the one being examined. Contamination of the control group can reduce the overall effect size of the intervention and mask the true results (Craven et al., 2001; Moerbeek, 2005; Plewis & Hurry, 1998). In the present investigation, schools and parents were informed of the measured reading delays of the whole sample of children, both the experimental and control groups. The research design, where the children in the control group received the same intervention in the second half of the year, was explained to both parents and schools. However, it was anticipated that the test results identifying children with reading difficulties significant enough for inclusion in the present investigation would result in some action from schools and parents, in the form of additional home reading or more focused support at school. A research question was posed to explore the kinds of additional support that may occur for children in the control group in the present investigation, to elucidate the extent to which the control group may have been contaminated.

**Rationale for Research Question 2.2.1: Impact of the intervention on children’s reading self-concept.** Self-concept enhancement is an objective of R4L, with children receiving praise and feedback acknowledging their effort and improved skills in reading (i.e., ability and strategy attributional feedback; Craven, Marsh, & Debus, 1991). Many children with reading difficulties develop a negative self-concept within their first two years of schooling (Chapman et al., 2000) and these negative perceptions affect their schooling. The R4L intervention involves children working closely with an adult volunteer who uses the materials in the R4L manual to develop improved reading skills and offers praise for successes and feedback on unsuccessful attempts. An outcome of this focused attention is perhaps an improved or stronger reading self-concept, or belief about skills in reading. A research question was posed to further elucidate the value-added benefits for children in regard to reading self-concept as a result of participating in R4L.
**Rationale for Research Question 2.2.2: Impact of the intervention on children’s reading behaviours at home.** Previous research has suggested that home reading practice and exposure to books at home positively influence the development of oral language skills (Erion, 2006; Sénéchal & LeFevre, 2002), vocabulary (Jordan, Snow, & Porche, 2000), comprehension (Jordan, Snow, & Porche, 2000; Long & Leseman, 2001; Rashid, Morris, & Sevick, 2005), phonological awareness (Sénéchal et al., 1998) and sequencing (Jordan, Snow, & Porche, 2000) (see Chapter 3). Parent involvement in home reading has also been found to contribute to the establishment of long-term and permanent reading habits (Jennings, Caldwell, & Lerner, 2006; Krashen & McQuillan, 2007) in teenagers and an increase in voluntary reading of children in the middle years of school (Braten, Lie, Andreadsson, & Olausen, 1999) establishing long-term reading habits. Children with reading difficulties require greater exposures to sounds, words, and reading strategies (Gredler, 2001; Hay & Fielding-Barnsley, 2006; Lerner, 2003; Nuthall, 2005; Spencer & Hay, 1998) to achieve mastery. Throughout the R4L intervention, children take their reader and sight words home for practice, to provide opportunities for the additional practice and to promote reading behaviours. A research question was posed to consider whether participation in R4L affected the home reading practices for children with reading difficulties, and to explore issues related to home reading practice.

**Rationale for Research Question 2.3.1: Strengths and limitations of the intervention.** Researchers often provide their own perspective of the strengths and limitations of the studied intervention. It is important to examine the strengths and limitations of the intervention from the perspective of multiple stakeholders, so as to identify potential factors that may strengthen or threaten the success of the R4L intervention. Listening to and understanding the perceptions of multiple stakeholders is an acknowledgement of the value of participants and commensurate with the aims of understanding the experience of R4L in the present investigation (Lincoln & Guba, 1985; Patton, 2002; Teddlie and Tashakkori, 2009). In the present investigation children and reading buddies worked directly with the R4L materials and each other for the duration of the program, and shared these experiences with classroom teachers and parents. Their perspectives about the strengths and limitations of the R4L intervention are invaluable, as they represent both direct participants and related stakeholders in the program. Intervention studies in other fields, such as health sciences and business, have
prioritised the input of direct participants and the community in conducting evaluations (Babbie, 2001; Bledsoe & Graham, 2005; Shepard, 2000). Involving the stakeholders of the R4L intervention in evaluating the experience of R4L was an integral aspect of the mixed methods research design. A research question thus was posed to explore the strengths and limitations of the R4L intervention from the perspectives of multiple stakeholders.

Chapter Summary

This chapter has presented the aims, hypotheses, and research questions to be examined for the two studies that comprise the present investigation. Rationales for each of these hypotheses and research questions were also outlined in this chapter in the context of theory and research presented in Chapters 2 and 3. The following chapter describes the methodology that was employed to rigorously test the hypotheses and research questions posed in this chapter.
CHAPTER 6

METHODOLOGY

Introduction

A mixed methods research design with two inter-related studies was used to systematically address the hypotheses and research questions described in Chapter 4. The effects of the R4L intervention on reading achievement were measured in Study 1. Study 2 examined the experience of R4L for children from the perspectives of multiple stakeholders. The methods employed to investigate each of these two studies successfully are presented in this chapter. The chapter begins by providing a rationale for the use of mixed methods in the present investigation and continues by presenting the framework used to plan and conduct the mixed methods research. Subsequently, the process of selecting the appropriate methods in the present investigation is described with reference to the mixed methods framework, demonstrating how both studies were conducted and the ways in which they informed each other throughout the investigation. The recruitment of participants, selection of instruments, development of intervention materials, procedures for the intervention’s implementation, and an overview of the data analysis procedures is presented for each of the two studies. More detailed and specific methodology and statistical analysis techniques are described in the corresponding results chapters for each study.

Mixed Methods Research Design

Rationale for the Mixed Methods Design

There is a long history of researchers using two or more methods in a single study, and this practice continues to gain momentum (Tashakkori & Teddlie, 2003, 2009). There is increasing recognition that qualitative and quantitative research methods complement each other, and many researchers across a variety of disciplines now combine these two
methods in studies (Berg 2001; Cresswell, Clark, Gutmann, & Hanson, 2003; Tashakkori & Teddlie, 2003, 2009). Qualitative and quantitative research methods each possess strengths and limitations. The combination of both methods has the potential to counteract many of the limitations of each method when used in isolation, as well as consolidating and elucidating additional findings illuminated by either method (Cresswell, Clark, Gutmann, & Hanson, 2003; Tashakkori & Teddlie, 2003, 2009). The employment of a mixed methods approach to research is aimed at improving the validity of the findings using numerous types of triangulation, where the same phenomenon is considered using varied theories, research methods, data, and/or researchers (Bryman, 1988, 2004; Greene, 2007). Mixed methods is defined, in the present investigation, as a “class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts, or language into a single study” (Johnson & Onwuegbuzie, 2004, p. 17).

There have been significant developments in the recognition of mixed methods approaches in the past decade. Mixed methods research is beginning to emerge in the literature as a third methodological approach (Johnson & Onwuegbuzie, 2004; Teddlie & Tashakkori, 2009), alongside qualitative and quantitative approaches. This is in contrast to the historical perception of mixed methods being a combination of qualitative and quantitative methods or an attempt to bridge the dichotomous debate between qualitative and quantitative researchers (Greene, 2007; Patton, 2002; Teddlie & Tashakkori, 2009). Mixed methods research, referred to as the “third methodological wave” by Teddlie and Tashakkori (2009) is the process of investigating a phenomenon utilising multiple studies or data sources within a single study. Teddlie and Tashakkori, leaders in the field of mixed methods, write that mixed methods “present an alternative to the QUAN and QUAL traditions by advocating the use of whatever methodological tools are required to answer the research questions under study” (Teddlie & Tashakkori, 2009, p. 7; capitals in original). In mixed methods research the rationale, purpose, and subsequent research questions that are posed, dictate which research methods are selected (Collins, Onwuegbuzie, & Sutton, 2006; Greene, 2007; Johnson & Onwuegbuzie, 2004; Tashakkori & Cresswell, 2007; Teddlie & Tashakkori, 2009). The determination of a research question, informed by the rationale for conducting the research and purpose of the study, defines the direction and boundaries of a study, thereby allowing researchers to focus on a consistent and clear path. Research methods
are selected based on a review of all methods, identifying which method will answer the research question. Research designs, data analysis techniques, and representation of the results are multi-faceted, reflecting both the unique insights gained from each component of the research and the thoughtful integration of these within a study.

Mixed methods research is premised on beliefs “that there are multiple legitimate approaches to social inquiry, that any given approach to social inquiry is inevitably partial and that thereby multiple approaches can generate more complete and meaningful understanding of complex human phenomena” (Greene, 2007, p.xii). Underlying these assumptions is a range of beliefs about the nature and purpose of research informing the decision-making process of researchers. Researchers who view the world and their research through a pragmatic lens seek to answer questions of a practical nature and are motivated to achieve their research outcomes using the most appropriate and suitable means. Pragmatism is a philosophical belief system that acknowledges that, although there is an external reality, it is not possible to discover the truth of this reality (Cresswell, 1994; Teddlie & Tashakkori, 2009). This pragmatic philosophical stance and its usefulness for researchers is described by educational researchers Johnson and Onwueguzie (2004):

. . . it offers an immediate and useful middle position philosophically and methodologically; it offers a practical and outcome-oriented method of inquiry that is based on action and leads, iteratively, to further action and the elimination of doubt; and it offers a method for selecting methodological mixes that can help researchers better answer many of their research questions (p. 17).

As mixed methods research gains momentum as a discrete method (Teddle & Tashakkori, 2009), frameworks are being proposed to assist researchers in conducting mixed methods research. These frameworks have common elements: (a) the purpose of the research informs the formation of the research questions; (b) research questions determine the kinds of data required and thus the most appropriate methods for the research; and (c) in designing the overall study, the nature and purpose of mixed methods are identified. These elements have been employed in designing the research in the present investigation. The process for undertaking the mixed methods study in the present investigation was informed by the writings of Teddle and Tashakkori (2009)
and Johnson and Onwuegbuzie (2004). Figure 6.1 summarises the process followed in planning the mixed methods research design in the present investigation. Each of these stages is discussed in subsequent sections of this chapter.

![Figure 6.1](image)

**Figure 6.1.** Stages for planning mixed methods research followed in the present investigation. Adapted from Johnson & Onwuegbuzie (2004).

The next section of this chapter describes the first three stages displayed in Figure 6.1 above.

**Purpose for and Rationale of the Study**

The present investigation emerges from the promising preliminary results of a pilot implementation of an earlier version of R4L by Unilever Australasia and Learning Links (see Chapter 4). As discussed previously (see Chapter 4) the present investigation was a component of a large-scale Australian Research Council Linkage grant awarded to the University of Western Sydney (see Chapter 4) led by Professor Rhonda Craven and undertaken in collaboration with Learning Links and Unilever Australasia.
Increasingly, in the international education community there is an expectation for schools and children to have access to pedagogical methods and programs that have been demonstrated to effect real change in children’s educational outcomes (Cook, 2002; MCEETYA, 2005; Raudenbush, 2005, 2008). In some countries, such as the United States, there are funding opportunities for schools that implement programs with demonstrated efficacy, verified through the use of “gold” standard scientific methods (What Works Clearinghouse, 2003), where randomised controlled experiments determine the effectiveness of a program (Gersten, Baker, & Lloyd, 2000; Raudenbush, 2008; Teddlie & Tashakkori, 2009). There exists a strong debate amongst educational researchers in respect of the political and commercial interests of this approach (Allington, 2002; Coles, 2003; Raudenbush, 2005), the quality of the research being conducted (Berliner, 2002), and the appropriateness of randomised controlled experiments to answer all research questions (Pellegrino & Goldman, 2002; Rowbottom & Aiston, 2006). For example, Brooks (2007), who has completed a review of literacy interventions being implemented across UK primary schools, writes of the need to empirically test the effectiveness of educational programs:

In order to judge whether an initiative has really made a difference, it is not enough just to ask the participants—they will almost always say it has. So quantitative data on the learners’ progress are essential, measured by appropriate tests of [in this case] reading, spelling, or writing (Brooks, 2007, p. 18).

Irrespective of these debates and potential biases, children will be the primary beneficiaries from the increased availability of empirically demonstrated effective intervention programs. Researchers must demonstrate the tangible effects of intervention programs using the most appropriate methods available to them that are aligned with their research objectives. Especially in the area of reading, the foundation for success in school and life, the stakes are too high for demonstrated efficacy to be ignored or compromised. The present investigation was designed to address this need by empirically investigating the short- and long-term effects of the R4L intervention on primary school children.
Formulation of Mixed Methods Research Questions

The overarching purpose of the present investigation was to test the impact of an innovative reading intervention, Reading for Life (R4L), on multiple reading achievement outcomes and reading self-concept. This involved proposing hypotheses and research questions (see Chapter 5) that took into consideration the different outcomes of R4L: those that are tangible and thus measurable (i.e., skills and some behaviours), and those that are internal to the child and described by the child or the people around them (i.e., attitudes and some behaviours). Hence, the central purpose of the study and the hypotheses and research questions flowing therefrom, are intended to test the hypothesised impacts upon key targeted constructs of the R4L intervention (reading achievement, behaviours, self-concept) in the context of the experience for children of working with adult reading buddies. Further examination of the purpose therefore, established the need for the use of mixed methods, as there were two kinds of data (quantitative and qualitative) and thus approaches, required to answer the central question. Deconstruction of the central purpose provided a clear rationale for conducting a qualitative and quantitative study in the present investigation.

The two subsequent overarching research questions implicit in this central purpose are: (1) Does R4L work? Do participating children perform better on reading measures of sight word recognition, phonological awareness, reading accuracy, and reading comprehension than those who have not participated in R4L?; and (2) If R4L works, then why does it work? What do participants identify as the contributing factors of R4L’s success? Therefore, there is both a predictive (deductive) and explanatory (inductive) problem being posed in the central purpose of the present investigation. The predictive aspect involves testing a priori assumptions, based on prior educational and psychological research, in regard to a volunteer-administered reading program targeting core skills. A quantitative study, in which children’s reading skills were measured prior to and at the completion of R4L, was designed to provide the appropriate data to test these assumptions. The explanatory nature involves observing patterns and relationships amongst participants in R4L and listening to the perceptions of those participants. A qualitative study, in which interviews and focus groups were held with multiple stakeholders, was designed to provide the appropriate data in this circumstance. The subsequent research questions subsume inherently different aspects of R4L and, although decisions regarding the most appropriate research design and
methods need to be respectful of each research question, they must also provide the best possible answer to the central purpose of the investigation.

It was anticipated that combining the qualitative and quantitative studies in one unified mixed methods research design would broaden the interpretive capacity of the present investigation. Mixed methods research enables triangulation of the results, clarification and elaboration of the findings, and expansion of the overall findings of the investigation (Greene, Caracelli, & Graham, 1989; Johnson & Onwuegbuzie, 2004; Teddlie & Tashakkori; 2009). The data from the present investigation was considered both separately and together, to test the effectiveness of the R4L intervention and to understand the issues related to these results and to the broader experience of participating children.

**Quantitative Methods: Rationale**

Study 1, the quantitative aspect of the sequential explanatory mixed methods design, provided measurable R4L outcomes. In this study, participating children were assessed using standardised reading achievement measures, and changes in their achievement over a period of eight months were measured. It was hypothesised that children would improve their reading skills when these skills were targeted in a systematic and focussed way. It was hoped that findings could be generalised from the sample to the wider population of children with reading difficulties. The data collected were numerical, defined, and could be analysed in a comparatively independent manner, providing statistical results to stakeholders.

There were, however, some limitations to the quantitative study. It was possible that the reading achievement tests would not reflect changes in reading ability. There could also be changes in areas not related to reading achievement, or changes that would not be reflected in test scores. The children in the present sample may have experienced reading failure for many years and as such may have been affected by test anxiety (Mazzocco & Myers, 2003; Thompson, Marcel, & Marcel, 1992) and lower self-concept (Chapman et al., 2000; Lackaye & Margalit, 2006), as a result of their history of learning failure. This could contribute to poor performance on standardised testing of reading ability throughout the present investigation. The period of time between testing periods was also short, only four months, and gains on the standardised tests may not
have been evident. The qualitative component, Study 2, minimised some of the risks associated with relying solely on one form of data to evaluate the R4L program.

**Qualitative Methods: Rationale**

The qualitative study, in which children, parents, teachers, principals, and reading buddies from over half of the participating schools were interviewed, provided additional insights and enabled greater understanding of the quantitative results. Participants were provided with an opportunity to convey their own perceptions and constructions of meaning by reflecting on the experience of R4L. Children were able to describe how they experienced the program directly, allowing those who may not have demonstrated improvements on test scores a chance to speak about the changes they had directly experienced. The adults surrounding the child, their parents, teachers, and reading buddies, provided an additional lens to report changes as a result of R4L. Additional aspects of R4L, such as intervention fidelity and the identification of areas for improvement for both the intervention and the implementation, could also be explored with participants in an open-ended way. The researcher could be responsive during the interview process and could explore unexpected and interesting issues, to improve their understanding of the experience of R4L.

As with the quantitative study, there were limitations in the qualitative study that required deliberation by the researcher, in designing the overall mixed methods research design. Questions regarding whether findings from individuals and small groups could be generalised to larger groups, bias from the researcher, and the wider community’s confidence in the validity of the results, were considered. The availability of quantitative results from a large sample demonstrating changes in reading achievement, and the ability to triangulate these two sources of data, were anticipated to enhance the trustworthiness of the findings from the qualitative study. To ensure that the analysis of the qualitative interviews was trustworthy and transparent, a second coder also undertook thematic analysis.

**Strengths of the Mixed-Methods Approach**

The sequential explanatory mixed methods research design (Cresswell, 1994, 2003; Greene, Caracelli, & Graham, 1989; Ivankova, Cresswell, & Stick, 2006), where both qualitative and quantitative methods were employed throughout the study, capitalised
on the strengths of both methods. The perspectives of participants, through their dialogue during interviews, enhanced the interpretation and understanding of numerical results. Additionally, the numerical results endowed the interpretations from the interviews with further supporting evidence. Conclusions made by the researcher about the effectiveness of R4L were informed by converging and diverging data sources, a more solid foundation of data, and hence the generalisability of the findings was enhanced. Additional findings were also able to be identified and explored throughout the present investigation. A mixed methods research design capitalised on the best methods available to comprehensively answer the research question and achieve the purpose for conducting the present investigation. The finalised mixed methods research design is described in the next section.

Mixed Methods Research Design in the Present Investigation

Overview
An explanatory sequential mixed methods design was established for the present investigation, to “elaborate on or expand the findings of one method with another method” (Creswell, 1994, p. 14). Both the quantitative and the qualitative studies were comprised of two phases with the findings at each phase informing the progression of the study. This design is summarised in Figure 6.2 on the next page.
Figure 6.2. Explanatory Sequential Mixed Research Design

The two phases of the qualitative study and three phases of the quantitative study are summarised in Figure 6.2. In the square boxes, representing the quantitative study, the phases of testing for the Experimental (Exp) and Control (Con) groups are conveyed. Times of testing are represented as T1 (Time 1), with “pre” referring to testing before the intervention to determine eligibility, “post” referring to testing completed after the intervention period ceased, and “long” referring to longitudinal testing three (experimental) and four (control) months after the intervention period.

In the first stage of the mixed methods research design, quantitative hypotheses were tested to evaluate the effectiveness of R4L on children’s reading achievement scores, illustrated in Figure 6.2 as Phase 1 of the quantitative study. To measure the changes in reading achievement of participating children, a waitlist control experimental design was employed and children were assessed using a battery of standardised reading achievement measures. Comparison of the children in the experimental and control groups would ascertain if changes in reading achievements were related to R4L, as only one group would have received the intervention. Preliminary analyses from this first stage, in identifying whether participating children improve on reading measures, were considered in the development of interview schedules for the qualitative component of the study.

In the second stage of the mixed methods design, a range of interviews were held with participants of R4L to explore the experience of the intervention and gain
greater insight from direct and indirect participants about the impact of R4L on children’s reading skills and behaviours. These are represented in Figure 6.2 as Phase 1 of the qualitative study. Children, reading buddies, and teachers participated in focus groups at their schools and workplaces to capitalise on the joint experiences of the program and promote a greater exchange of ideas in the group environment. Principals and parents were interviewed individually in person at a convenient time and place. This pattern of data collection (quantitative then qualitative) was then repeated for the control group when they received the intervention, illustrated as Phase 2 in Figure 6.2.

The first interviews in Phase 1 of the qualitative study also informed the development of a revised interview schedule for the control group, to elicit greater detail from participants. The sequential collection of data related to R4L from multiple sources allowed the researcher to identify issues associated with the fidelity of the implementation of R4L throughout the study, to involve all of the participants in R4L (i.e., children, parents, teachers, and reading buddies), and illuminate environmental and individual variables associated with the implementation and outcomes of R4L.

Section Summary

A mixed methods research design was established for the present investigation to thoroughly answer the core purpose of the present investigation. Two interrelated studies work together to enable understanding of the full impact of R4L for children with reading difficulties. The first tests the effectiveness of the R4L intervention on reaching achievement outcomes and the second explores the experience of R4L from the perspectives of multiple stakeholders.

Overarching Methods for Studies 1 and 2

Overview

The present investigation comprised two studies implemented in a cyclic manner (see Figure 6.2). There was a quantitative study with Phases 1 and 2 and a qualitative study with Phases 1 and 2. The research design details for each of the quantitative and qualitative studies are provided in subsequent sections of this chapter. The purpose of this section is to provide an overview of the methods employed across the entire study. This section describes the data collection stage of the present investigation (see Figure 6.1), where quantitative and qualitative data were collected to address the research questions described in Chapter 4.
Sample

Participants were recruited for the present investigation from primary schools, universities, and companies. Schools participating in the present investigation were drawn from Catholic Education Office primary schools in three dioceses of NSW, Sydney ($n = 7$), Parramatta ($n = 1$), and Wollongong ($n = 2$), and NSW Department of Education Primary Schools in south ($n = 2$) and south-west ($n = 2$) regions.

Participating staff members are summarised in Table 6.1 below. At each participating school, the school principal was involved in the initial meeting with the Learning Links R4L Co-ordinator and UWS Project Manager. Classroom teachers identified children for initial testing, and were asked to supply participating children with an appropriate book for each session. School champions were the contacts for the research team during the program and assisted with scheduling, communication with parents, and troubleshooting, with one champion per school. In most cases the site champion was a classroom teacher. Only in cases where this was different is a record made in the school analysis below.

Table 6.1.

<table>
<thead>
<tr>
<th>Adult Participants</th>
<th>Sample Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Principals</td>
<td>14 (13.7%)</td>
</tr>
<tr>
<td>Classroom Teachers</td>
<td>81 (79.4%)</td>
</tr>
<tr>
<td>School Champions (not classroom teachers)</td>
<td>7 (6.9%)</td>
</tr>
<tr>
<td>Total</td>
<td>102</td>
</tr>
</tbody>
</table>

The breakup of participating adults, who acted as reading buddies working with the R4L materials and children, are summarised in Table 6.2 below. Reading buddies were sourced from two sources: (1) the University of Western Sydney (UWS), comprising students completing their psychology registration, and (2) employees from corporations. The recruitment process for each of these buddy types is described later in this chapter.
Table 6.2.

Adult Participant Numbers as Reading Buddies

<table>
<thead>
<tr>
<th>Adult Participant</th>
<th>Sample Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>UWS LCS Volunteers</td>
<td>35 (44%)</td>
</tr>
<tr>
<td>Psychology Students</td>
<td>5 (7%)</td>
</tr>
<tr>
<td>Paid RA</td>
<td>1 (1%)</td>
</tr>
<tr>
<td>Corporate Volunteers</td>
<td>38 (48%)</td>
</tr>
<tr>
<td>Total</td>
<td>79</td>
</tr>
</tbody>
</table>

Child participant numbers varied throughout the course of the present investigation, influenced by initial tests of eligibility and then attrition throughout the waves of testing. The progression of child participant numbers is detailed further in the procedures section of this chapter, in relation to each wave of testing. The total participants at the commencement of the present investigation were 412 children, ranging in age from 5 years to 10.5 years of age ($M = 7.83$ years, $SD = 14.02$).

**Materials**

**R4L packs.** Each reading buddy received a calico bag which contained the items for use throughout the intervention, at their training session. A full copy of the R4L pack is included as Appendix D. These materials were explained in depth during the initial training session prior to programs beginning, and included the following:

- Reading for Life Volunteer Manual: a 48-page booklet providing reading buddies with scripts and activities for each session of the Reading for Life program;
- Communication Book; a 12-page booklet that records the progress the children make each week, for parents and teachers to read and contribute to;
- Phonological Awareness Card Deck: 80 coloured cards with words and pictures printed on one side;
- Phonological Awareness Game boards: three double-sided A3 game boards;
- Reading Helper Bookmark: double-sided bookmark with cues for reading unknown words printed on one side and prompt questions on the back to guide after reading (comprehension) activities;
- Chatterbox: an origami-type page for predicting questions prior to reading;
- Sight Word Recording Sheet: list of all the sight words;
- How to Increase Self-Concept Card: a double-sided A4 card that provides reading buddies with ways to praise and provide feedback to children during the sessions, to develop a stronger self-concept; and
- Stationery items such as: pens, coloured markers, blank white cards, plastic sheet, stickers, identification badge, dice, and game pieces.

**R4L training DVD.** An instructional DVD was prepared by the researcher for the present investigation, to provide support for volunteers during the implementation of the intervention. This 60-minute presentation demonstrates the researcher delivering the first session with a student, and is followed by a demonstration of all games and activities included in the Volunteer Manual. Volunteers viewed this DVD and were provided with a copy of it to review at their initial training session (see DVD pockets).

**Parent support materials.** All participating families received a set of support materials at the beginning of their child's involvement in the R4L program. Each parent received the following materials: (a) How to Help Increase Self-Concept card (see Appendix E); (b) Reading with your Child page (see Appendix F); and (c) Reading Helper Bookmark (see Appendix D). The Reading Helper Bookmark and How to Help Increase Self-Concept cards were the same as those included in the volunteer materials. The Reading With Your Child page is a double-sided page describing to parents how to use the Reading Helper Bookmark, and strategies for reading with their children during the program.

**R4L test administration DVD.** To support research assistants in the administration of the test instruments during data collection, the researcher also produced an instructional test administration DVD. This 40-minute DVD showed the researcher completing a full assessment with a child, and the equipment required for each test (see DVD pockets). A completed test administration cover sheet and forms, matching the responses of the child in the DVD was supplied with the DVD to each Research Assistant.

**Measurement instruments.** A battery of measurement instruments was employed to test the effectiveness of R4L. These included standardised reading
achievement tests for Study 1 and semi-structured interview schedules for Study 2. Reading achievement was assessed using three measurement instruments: the Sutherland Phonological Awareness Test (Neilson, 2003); the Burt Word Reading Test (Gilmore, Croft, & Reid, 1981); and the Neale Analysis of Reading Ability—Revised (Neale, 1999). Interview schedules were created for each group of participants being interviewed: children, parents, teachers, principals, and buddies. Each of these measurement instruments is described in the subsequent sections of this chapter.

**Procedures**

**Ethics approval.** Ethics approval was initially sought and granted from the University of Western Sydney (UWS) Ethics Committee after decisions regarding the research design and instrument selection were finalised. Ethics approval was then obtained from five organisations: the Department of Education New South Wales (NSW) and the Catholic Education Office in the Sydney, Parramatta, Wollongong and Broken Bay Dioceses. All of these applications were successful, and no modifications were requested to the research design. Relevant Child Protection screening was undertaken by the Department of Education New South Wales and the Catholic Education Office, Parramatta Diocese. Signed, prohibited declarations from all paid University and industry partner staff were required for all other organisations. Once ethics approval was obtained from these organisations, school principals were contacted to declare their interest in participating in the present investigation.

**School recruitment and participation consent.** Schools were contacted individually by industry partner Learning Links and were provided with information about the nature of the study and the implications of their involvement (see Appendix H). After this initial contact, representatives from Learning Links and the University of Western Sydney visited each school to describe the process in more depth and show the R4L intervention to the school principal. The school principal made the final decision as to whether their school would participate. A total of 20 schools were contacted, of which 14 schools agreed to participate. Prior to the commencement of the intervention study, one school chose not to continue, due to a delay in the extensive renovations at the school, which restricted the space available for the study; it was replaced by a new
school. This school participation was entirely voluntary and failure to participate did not disadvantage the schools in any way.

Following a principal's agreement to participate, each participating school was sent a package containing the information and consent forms, complying with the ethics requirements of participating organisations. Consent was required from all participants; (a) School Principal (see Appendix H); (b) Classroom Teachers (see Appendix I); and, (c) Parents (see Appendix J). Children in Grades 3-4 were asked to agree to be tested during Time 1 administration at the commencement of the study. Only children who had parental permission to participate were included in Time 1 testing, regardless of their nomination by classroom teachers.

At this time, classroom teachers were provided with the criteria for students’ inclusion into the R4L program (see Appendix K). These criteria had five elements: (1) age range Years 1 to 4; (2) student identified as struggling to acquire literacy skills; (3) student had no significant cognitive, behavioural, or mental health issues; (4) student had an adequate grasp of the English language; and (5) student not receiving any specific additional funding at school. On the basis of these criteria and the number of volunteers available for each school, classroom teachers selected the appropriate number of children from Years 1 to 4 for pre-testing. The number of volunteers available to be reading buddies (the adult participants working with the children) at each school was a critical factor, as it influenced the number of children who could be included in the sample. The process of recruiting schools and volunteers occurred simultaneously, with each being strongly dependent on the other.

**Volunteer recruitment and participation consent.** Reading buddies, the adults using R4L with the children in their schools each week, were volunteers from either university settings or corporations. The sample of reading buddies is summarised in Table 6.2. The process for recruiting reading buddies differed on the basis of their origin. The industry partner, Unilever Australasia, involved two of their NSW locations in the corporate program. One location was a factory in Sydney’s south-west and the second was an office building in Sydney’s north. Unilever managed the recruitment of their volunteers internally, asking employees to speak with their managers about participation and nominating themselves to the site champion—the person responsible
for R4L who liaised with Learning Links at each location. The two other participating companies in the corporate program were a law firm in Sydney’s CBD and a construction firm in Sydney’s west, who also had previous experience in and knowledge of the R4L program and who also requested that their employees declare their interest in participating to their site champion. Reading buddies were provided with an information pack and consent form to sign (see Appendix L) and return to their site champion. In the corporate program the site champions from each company provided a list of volunteers to the researcher and Learning Links, to aid in the determination of student participation numbers at the schools. The reading buddy corporate sample was relatively stable, as companies were asked to also identify replacement buddies, people who would fill in if a reading buddy were sick or left the company.

Reading buddies from the university were recruited in a slightly different manner. Reading buddies were students from UWS enrolled in an elective from the College of Arts, Learning through Community Service (LCS). Within LCS, R4L was one of the cohorts students could nominate to be involved in. University students were provided with information about the LCS elective through university websites and emails to College of Arts students. Specific details about each cohort were made available to the university students by email after they had enrolled in the LCS elective. Additional advertising about the LCS program and specifically the R4L cohort, took place on campus during open days, when the researcher manned information stalls and provided students with opportunities to request additional information. LCS students were provided with an information sheet and consent form to sign (see Appendix M) during the initial three-day training period. University students were able to withdraw from both the cohort and elective until the census date of the semester, three weeks into the beginning of the intervention. The number of children schools could select for testing was an estimated number, with school principals having an understanding that these numbers were influenced by the availability of university volunteers.

Educational Psychology students, completing a registration placement at Learning Links, were also reading buddies throughout the present investigation. They were included in the LCS sample, as their placement was similar, both in terms of the length of program and their involvement in R4L being a requirement of their training. Their recruitment was also voluntary, as they were able to select the programs and
activities they engaged in during their placement. They received and completed the information package and consent form (see Appendix N).

**Research assistant training.** Research assistants completed the pre-testing of children at Time 1 in all schools. Research assistants included teachers, speech pathologists, occupational therapists, and educational psychologists employed with industry partner Learning Links, as well as educational psychologists from UWS. Consent was obtained from research assistants before their attendance at the training day (see Appendix N). Prior to the testing in schools, each research assistant participated in a two-hour training session conducted by the researcher at the place of employment of the research assistants. This training session reviewed the administration procedures for each of the measurement instruments in the present investigation and specified the recording procedures for data collection. Research assistants were provided with an opportunity to practise testing each other and to discuss any confusions prior to working in the schools. At the completion of the training session, research assistants were provided with the contact details of the researcher for any additional questions, and a copy of the instructional DVD to review the procedures. Only those research assistants who had completed training were able to assess students. On the first day they completed data collection, research assistants observed an experienced professional conducting the battery of tests with a child, before being themselves observed, completing their first test administration. Supervision ceased once the professional was confident that the research assistant was conducting the tests correctly. In two cases this confidence was not achieved, and the supervisor remained for the test administration to ensure the test data were correct.

**Reading buddy training.** Reading buddies attended a two-hour training session, conducted by the researcher and the Learning Links R4L Co-ordinator, in which they were provided information about the materials and processes involved in a weekly session, as well as information regarding working in schools, child safety, and ways to seek help during the program. Opportunities to play many of the games and to practise completing activities with a partner, were provided during the training session. These training sessions occurred after the Time 1 testing at each school, so that reading buddies could be provided with the names of the children they were working with and some details about the school. A DVD of an example session (see DVD pocket) and a
follow-up support session supported reading buddies during the intervention period to review aspects of this training.

**Time 1 testing.** A range of factors influenced the participation of children throughout the present investigation, at each time of the five waves of test administration. The procedures undertaken at each of these testing periods are described below.

The research team attended each of the 14 schools to conduct the pre-tests with identified children who had parental consent to participate. The characteristics of the total sample are detailed in Tables 6.3, 6.4, and 6.5 below. Table 6.3 provides the total number of children assessed by gender, Table 6.4 summarises the total number of students assessed by grade, and Table 6.5 provides the total number of children assessed per grade with a gender breakdown.

Table 6.3.
**Total Number of Children Assessed, with Gender Breakdown**

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Sample</td>
<td>412</td>
<td>245 (59%)</td>
<td>167 (41%)</td>
</tr>
<tr>
<td>School A</td>
<td>24</td>
<td>17 (71%)</td>
<td>7 (29%)</td>
</tr>
<tr>
<td>School B</td>
<td>16</td>
<td>8 (50%)</td>
<td>8 (50%)</td>
</tr>
<tr>
<td>School C *</td>
<td>37</td>
<td>21 (57%)</td>
<td>16 (43%)</td>
</tr>
<tr>
<td>School D</td>
<td>12</td>
<td>8 (67%)</td>
<td>4 (33%)</td>
</tr>
<tr>
<td>School E</td>
<td>47</td>
<td>30 (64%)</td>
<td>17 (36%)</td>
</tr>
<tr>
<td>School F *</td>
<td>21</td>
<td>12 (57%)</td>
<td>9 (43%)</td>
</tr>
<tr>
<td>School G</td>
<td>47</td>
<td>30 (64%)</td>
<td>17 (36%)</td>
</tr>
<tr>
<td>School H</td>
<td>29</td>
<td>12 (41%)</td>
<td>17 (59%)</td>
</tr>
<tr>
<td>School I</td>
<td>36</td>
<td>23 (64%)</td>
<td>13 (36%)</td>
</tr>
<tr>
<td>School J *</td>
<td>21</td>
<td>12 (57%)</td>
<td>9 (43%)</td>
</tr>
<tr>
<td>School K</td>
<td>33</td>
<td>19 (58%)</td>
<td>14 (42%)</td>
</tr>
<tr>
<td>School L</td>
<td>18</td>
<td>14 (78%)</td>
<td>4 (22%)</td>
</tr>
<tr>
<td>School M</td>
<td>35</td>
<td>17 (49%)</td>
<td>18 (51%)</td>
</tr>
<tr>
<td>School N</td>
<td>36</td>
<td>22 (61%)</td>
<td>14 (39%)</td>
</tr>
</tbody>
</table>

*Note.* *Corporate Schools (schools at which buddies were recruited from the corporate sector).*
Table 6.4.
*Total Number of Children Assessed, with Grade Breakdown*

<table>
<thead>
<tr>
<th>Years</th>
<th>Full Sample</th>
<th>School A</th>
<th>School B</th>
<th>School C</th>
<th>School D</th>
<th>School E</th>
<th>School F</th>
<th>School G</th>
<th>School H</th>
<th>School I</th>
<th>School J</th>
<th>School K</th>
<th>School L</th>
<th>School M</th>
<th>School N</th>
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<tbody>
<tr>
<td></td>
<td>Total</td>
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<td>Two</td>
<td>Three</td>
<td>Four</td>
<td>One</td>
<td>Two</td>
<td>Three</td>
<td>Four</td>
<td>One</td>
<td>Two</td>
<td>Three</td>
<td>Four</td>
<td>One</td>
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<td></td>
<td>412</td>
<td>88</td>
<td>136</td>
<td>88</td>
<td>100</td>
<td>24</td>
<td>12</td>
<td>8</td>
<td>2</td>
<td>2</td>
<td>G</td>
<td>16</td>
<td>4</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(21.0%)</td>
<td>(33.0%)</td>
<td>(21.0%)</td>
<td>(24.0%)</td>
<td>(50.0%)</td>
<td>(33.0%)</td>
<td>(8.5%)</td>
<td>(8.5%)</td>
<td>(25.0%)</td>
<td>(50.0%)</td>
<td>(19.0%)</td>
<td>(6.0%)</td>
<td>(24.0%)</td>
<td>(35.0%)</td>
</tr>
<tr>
<td></td>
<td>School A</td>
<td>24</td>
<td>12</td>
<td>8</td>
<td>2</td>
<td>2</td>
<td>G</td>
<td>(25.0%)</td>
<td>(50.0%)</td>
<td>(19.0%)</td>
<td>(6.0%)</td>
<td>(14.0%)</td>
<td>(19.0%)</td>
<td>(21.0%)</td>
<td>(19.0%)</td>
</tr>
<tr>
<td></td>
<td>School B</td>
<td>16</td>
<td>4</td>
<td>8</td>
<td>3</td>
<td>1</td>
<td>G</td>
<td>(24.0%)</td>
<td>(35.0%)</td>
<td>(22.0%)</td>
<td>(19.0%)</td>
<td>(14.0%)</td>
<td>(19.0%)</td>
<td>(21.0%)</td>
<td>(19.0%)</td>
</tr>
<tr>
<td></td>
<td>School C</td>
<td>37</td>
<td>9</td>
<td>13</td>
<td>8</td>
<td>7</td>
<td>G</td>
<td>(52.0%)</td>
<td>(38.0%)</td>
<td>(10.0%)</td>
<td>(0.0%)</td>
<td>(14.0%)</td>
<td>(32.0%)</td>
<td>(19.0%)</td>
<td>(26.0%)</td>
</tr>
<tr>
<td></td>
<td>School D</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td>G</td>
<td>(14.0%)</td>
<td>(38.0%)</td>
<td>(24.0%)</td>
<td>(38.0%)</td>
<td>(23.0%)</td>
<td>(32.0%)</td>
<td>(19.0%)</td>
<td>(26.0%)</td>
</tr>
<tr>
<td></td>
<td>School E</td>
<td>47</td>
<td>19</td>
<td>9</td>
<td>10</td>
<td>9</td>
<td>G</td>
<td>(52.0%)</td>
<td>(38.0%)</td>
<td>(10.0%)</td>
<td>(0.0%)</td>
<td>(14.0%)</td>
<td>(32.0%)</td>
<td>(19.0%)</td>
<td>(26.0%)</td>
</tr>
<tr>
<td></td>
<td>School F</td>
<td>21</td>
<td>11</td>
<td>8</td>
<td>2</td>
<td>0</td>
<td>G</td>
<td>(24.0%)</td>
<td>(38.0%)</td>
<td>(24.0%)</td>
<td>(38.0%)</td>
<td>(24.0%)</td>
<td>(38.0%)</td>
<td>(24.0%)</td>
<td>(38.0%)</td>
</tr>
<tr>
<td></td>
<td>School G</td>
<td>47</td>
<td>11</td>
<td>15</td>
<td>9</td>
<td>12</td>
<td>G</td>
<td>(24.0%)</td>
<td>(38.0%)</td>
<td>(24.0%)</td>
<td>(38.0%)</td>
<td>(24.0%)</td>
<td>(38.0%)</td>
<td>(24.0%)</td>
<td>(38.0%)</td>
</tr>
<tr>
<td></td>
<td>School H</td>
<td>29</td>
<td>0</td>
<td>11</td>
<td>7</td>
<td>11</td>
<td>G</td>
<td>(10.0%)</td>
<td>(52.0%)</td>
<td>(14.0%)</td>
<td>(24.0%)</td>
<td>(10.0%)</td>
<td>(52.0%)</td>
<td>(14.0%)</td>
<td>(24.0%)</td>
</tr>
<tr>
<td></td>
<td>School I</td>
<td>36</td>
<td>0</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>G</td>
<td>(10.0%)</td>
<td>(52.0%)</td>
<td>(14.0%)</td>
<td>(24.0%)</td>
<td>(10.0%)</td>
<td>(52.0%)</td>
<td>(14.0%)</td>
<td>(24.0%)</td>
</tr>
<tr>
<td></td>
<td>School J</td>
<td>21</td>
<td>2</td>
<td>11</td>
<td>3</td>
<td>5</td>
<td>G</td>
<td>(10.0%)</td>
<td>(52.0%)</td>
<td>(14.0%)</td>
<td>(24.0%)</td>
<td>(10.0%)</td>
<td>(52.0%)</td>
<td>(14.0%)</td>
<td>(24.0%)</td>
</tr>
<tr>
<td></td>
<td>School K</td>
<td>33</td>
<td>0</td>
<td>7</td>
<td>16</td>
<td>10</td>
<td>G</td>
<td>(0.0%)</td>
<td>(21.5%)</td>
<td>(48.0%)</td>
<td>(30.5%)</td>
<td>(0.0%)</td>
<td>(21.5%)</td>
<td>(48.0%)</td>
<td>(30.5%)</td>
</tr>
<tr>
<td></td>
<td>School L</td>
<td>18</td>
<td>0</td>
<td>18</td>
<td>0</td>
<td>0</td>
<td>G</td>
<td>(0.0%)</td>
<td>(100.0%)</td>
<td>(0.0%)</td>
<td>(0.0%)</td>
<td>(0.0%)</td>
<td>(100.0%)</td>
<td>(0.0%)</td>
<td>(0.0%)</td>
</tr>
<tr>
<td></td>
<td>School M</td>
<td>35</td>
<td>10</td>
<td>9</td>
<td>7</td>
<td>9 (25.5%)</td>
<td>G</td>
<td>(29.0%)</td>
<td>(25.5%)</td>
<td>(20.0%)</td>
<td>(25.5%)</td>
<td>(29.0%)</td>
<td>(25.5%)</td>
<td>(20.0%)</td>
<td>(25.5%)</td>
</tr>
<tr>
<td></td>
<td>School N</td>
<td>36</td>
<td>10</td>
<td>8</td>
<td>9</td>
<td>9</td>
<td>G</td>
<td>(28.0%)</td>
<td>(22.0%)</td>
<td>(25.0%)</td>
<td>(25.0%)</td>
<td>(28.0%)</td>
<td>(22.0%)</td>
<td>(25.0%)</td>
<td>(25.0%)</td>
</tr>
</tbody>
</table>

*Note. *Corporate Schools
Table 6.5.

*Total Number of Children Assessed per Grade, with Gender Breakdown*

<table>
<thead>
<tr>
<th>Grade</th>
<th>Total Sample</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Sample</td>
<td>412</td>
<td>245 (59%)</td>
<td>167 (41%)</td>
</tr>
<tr>
<td>Year 1</td>
<td>88</td>
<td>48 (55%)</td>
<td>40 (45%)</td>
</tr>
<tr>
<td>Year 2</td>
<td>136</td>
<td>84 (62%)</td>
<td>52 (38%)</td>
</tr>
<tr>
<td>Year 3</td>
<td>88</td>
<td>51 (58%)</td>
<td>37 (42%)</td>
</tr>
<tr>
<td>Year 4</td>
<td>100</td>
<td>62 (62%)</td>
<td>38 (38%)</td>
</tr>
</tbody>
</table>

Schools were asked to select equal numbers of students from each grade and to have a representation of both girls and boys. School D requested that only Year 4 be included and School L requested only Year 2 to be included, as these were grades with particularly high rates of reading failure at the schools. School F had no learning support or early intervention program and asked for a sample of Years 1 and 2 only. Schools H, I, and K had a reading recovery program running at the school and did not wish to include Year 1 in their sample. The sample overall reflects the children identified by the schools who met the criteria of R4L discussed previously in this chapter, and whose families agreed to participate. These were the children assessed at Time 1 in the quantitative study.

Participating children were informed that a new reading program would be used at the school during the term and a research team was at the school to find children who would benefit most from the new reading program. The reading achievement testing took, on average, 30–40 minutes per child. A short break in the middle of the assessment, where children got up and stretched or took a walk around the room, helped ensure attention was maintained throughout the assessment period (Lewis, 1992). Each child completed all of the tests in the same order: (a) Burt Word Reading Test (Gilmore, Croft, & Reid, 1981); (b) Sutherland Phonological Awareness Test—Revised (Neilson, 2003); and (c) Neale Analysis of Reading Ability—Revised (Neale, 1999). At the completion of the three tests research assistants were required to fill in a qualitative survey on the test administration cover sheet, which contained four questions to identify any concerns for eligibility (see Appendix O). The R4L program involved working with a volunteer who has not participated in teacher training or behavioural support, and as such children who presented with concerns during the testing were excluded from working with the reading buddies.
The research team checked completed test booklets at regular intervals during the day to ensure the responses had been correctly recorded in the test booklet. The research team identified any question that had been missed or where no response was recorded and the research assistant returned to this child’s class to complete the missing questions. Each booklet was then allocated an individual identification code number by the researcher and entered into SPSS for initial data analysis. This initial data analysis included obtaining the standardised test scores for the three reading achievement tests to identify children who were eligible for the program. The process of determining eligibility and allocation to experimental groups is explained below.

**Determination of eligibility.** The results of the children’s performance on the reading achievement tests determined both the eligibility of children for R4L and their allocation to an appropriate group for the research. In the first instance, the children who possessed age appropriate reading skills or above age reading skills were identified. Of the 412 children tested at Time 1, 130 were ineligible for inclusion in the remaining phases of the study, based on above average performance on reading achievement tests. Their parents received a report summarising the results from the assessment and were notified that their child would not be participating in the R4L program (see Appendix B). Next, children who had been identified as having behavioural concerns or other concerns that would make the child difficult to work with a volunteer (n = 5) by research assistants, were also excluded. Hence, a total of 135 children were ineligible for inclusion in the program.

The remaining 277 poorest readers were those identified as eligible for inclusion, assessed by using the mean scores from a variety of reading measures. The 25th percentile cut-off point on standardised assessments is often used to identify children with learning disabilities (Weiner, 2003). All of the children eligible for the present investigation were below the 25th percentile in the area of phonological awareness. This standard however, could not be achieved for all of the reading achievement tests. Percentiles are not provided for the Burt Word Reading Test (Gilmore, Croft, & Reid, 1981) and thus a 25th percentile cut-off point could not be established. The children’s sight word reading age was behind their chronological age, on average six months for the experimental group and four months for the control group. Percentiles could be consulted for the Neale Analysis of Reading Ability—Revised (Neale, 1999) to identify
the proportion of children who were below the 25th percentile. In reading accuracy, 53% of children in the experimental group and 70% of children in the control group were below the 25th percentile on the Neale Analysis of Reading Ability—Revised (Neale, 1999). In reading comprehension, 56% of children in the experimental group and 76% of children in the control group were below the 25th percentile in reading accuracy on the Neale Analysis of Reading Ability—Revised (Neale, 1999). Funding and time constraints, prevented additional children who may have had poorer reading achievement results, to be pre-tested for inclusion in the present investigation. All of the children eligible for inclusion were below the 25th percentile for phonological awareness, the core aspect of the R4L program.

Eligible children from each school and grade were ranked according to achievement on phonological awareness. As such, in School A the children from Year 1 were ranked in order of achievement, lowest to highest, in phonological awareness. The majority of activities within R4L focus on phonological awareness with a view to improving reading accuracy: hence, the score for phonological awareness was the primary measure used for the purpose of matching. The bottom two students from each grade were then randomly assigned to form two groups of children for the present investigation: (1) an experimental group, participating in R4L first; and (2) the waitlist control group, acting as a comparison against the experimental group during the first phase of the present investigation before participating in R4L themselves.

Educational researchers have recommended that this method of sample distribution, with a clear and well-matched control group, improves the validity of the findings (Cook & Campbell, 1979). The number of reading buddies available from the university could not be confirmed beyond the first semester of the year, and as such, more children were placed in the experimental group at some schools. Two schools (n = 20) did not have a control group, schools B and D, due to volunteer numbers in those geographical areas being unavailable for the second half of the year. Schools were provided with a list indicating which children were ineligible, and the allocation of eligible children to control and experimental groups. The demographics for the eligible children, experimental group, and waitlist control group are summarised in Table 6.6 below.
Table 6.6.

Demographics after Time 1 Testing

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<tr>
<th></th>
<th>Ineligible</th>
<th>Experimental</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
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<td>152</td>
<td>125</td>
</tr>
<tr>
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</tr>
<tr>
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<td>10</td>
<td>0</td>
</tr>
<tr>
<td>School C</td>
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<td>13</td>
<td>12</td>
</tr>
<tr>
<td>School D</td>
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<td>0</td>
</tr>
<tr>
<td>School E</td>
<td>14</td>
<td>22</td>
<td>11</td>
</tr>
<tr>
<td>School F</td>
<td>5</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>School G</td>
<td>14</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>School H</td>
<td>14</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>School I</td>
<td>6</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>School J</td>
<td>4</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>School K</td>
<td>12</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>School L</td>
<td>11</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>School M</td>
<td>15</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>School N</td>
<td>16</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

Implementation of R4L: Experimental group. R4L was administered in a standardised manner at each location. Each reading buddy followed the scripted sessions from the R4L manual, working individually with their child for a total of 15 sessions, each lasting 45 minutes, a total of 11 ¼ hours. University reading buddies saw their children twice a week for seven and a half weeks to provide the 15 x 45 minute sessions. This timeframe was dictated by the semester delineations at the university. Corporate reading buddies saw their child once a week for 15 weeks, to provide the same number of sessions. The experimental group, of 152 children, received the intervention first. At five schools, a total of 9 children left the school during the period of R4L. These children were not replaced.

Implementation of R4L intervention: Control group. At the completion of all three waves of testing with the experimental group, the control group participated in R4L. This is standard ethical practice in experimental design, and provided a test of replicability in the present investigation. The control group received the same R4L intervention as the experimental group, with a new group of reading buddies who received the same amount and type of training as buddies in the experimental group. There were some small changes to the sample of children available to participate in the control group, previously described in this chapter (see Table 6.6).
**Time 2 testing.** After the experimental group completed their 15 R4L sessions, the research team returned to the schools for a second wave of testing. There was a reduced number of children available at this time of testing as children had left the school during the intervention period, leaving 143 children in the experimental group and 113 children in the control group (n = 256). The measurement instruments used at Time 1 were used again at Time 2 and the same procedure was followed. This second wave of testing comprised the post-test for the experimental group, to measure changes in their reading achievement scores after participating in R4L, and testing for the control group, providing comparison data of children who had similar delays in reading at the beginning of the year and had not participated in R4L. It also provided the baseline scores for the control group before they participated in R4L themselves. The results for children in the experimental group were provided to parents in the form of a written report, prepared by Learning Links (see Appendix C).

**Time 3 testing.** Longitudinal testing of students in the experimental group occurred 13 weeks after the completion of the intervention and post-testing. Follow-up testing is particularly important in intervention studies to avoid the potential of “post-group euphoria” (Marsh, Richards, & Barnes, 1986). Marsh et al. (1986) describe the phenomena of children experiencing temporary jubilation at the completion of an intervention, resulting in inflated post-test scores. They have consequently recommended conducting follow-up testing at a later period to assess whether the initial effects of the intervention are maintained over time for these children. The process of testing used previously at Time 1 and 2 was replicated for this third wave of testing of the experimental group. Three more children had left one of the schools in the period between Time 2 and 3 testing, and as such 140 children were tested across the 14 schools. This longitudinal testing occurred prior to the commencement of R4L with the control group.

**Time 4 testing.** Time 4 testing was for children in the control group after receiving the intervention. There was a reduction in the number of schools available for control testing as not all schools included a control group. The schools involved in the corporate program did not receive the control group intervention until the following year, due to volunteer availability from the respective companies. The sample for the
control group available at the beginning of their intervention period is displayed in Table 6.7.

After the control group had received their intervention they were tested again, to measure changes in reading achievement after participation in R4L. This testing followed the same procedures and utilised similar tests as previously. During the intervention period for the control group, two children from two schools did not complete the intervention, as they were included in their school's reading recovery program in the first two weeks of the intervention and were removed from the sample at the school's request. This reduced the sample of children at the 9 schools for Time 4 testing to 87 children.

Table 6.7. 
Sample for Control Group

<table>
<thead>
<tr>
<th>Control</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Sample</td>
<td>89</td>
</tr>
<tr>
<td>School A</td>
<td>10</td>
</tr>
<tr>
<td>School B</td>
<td>0</td>
</tr>
<tr>
<td>School C</td>
<td>0</td>
</tr>
<tr>
<td>School D</td>
<td>0</td>
</tr>
<tr>
<td>School E</td>
<td>8</td>
</tr>
<tr>
<td>School F</td>
<td>0</td>
</tr>
<tr>
<td>School G</td>
<td>18</td>
</tr>
<tr>
<td>School H</td>
<td>5</td>
</tr>
<tr>
<td>School I</td>
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</tr>
<tr>
<td>School J</td>
<td>0</td>
</tr>
<tr>
<td>School K</td>
<td>10</td>
</tr>
<tr>
<td>School L</td>
<td>3</td>
</tr>
<tr>
<td>School M</td>
<td>10</td>
</tr>
<tr>
<td>School N</td>
<td>10</td>
</tr>
</tbody>
</table>

Time 5 testing. The longitudinal testing for the control group, four months after their intervention, occurred at the beginning of the new school year. Seven children had left their respective schools during the break and were not available for the longitudinal testing, leaving a sample of 80 children for the fifth wave of testing in the
quantitative study. The tests and processes employed for all four previous waves of testing were followed again. This was the final wave of testing conducted at the fourteen schools.

**Section Summary**

There were many elements of the present investigation to be prepared before any data collection could take place using the mixed methods approach. The stages of preparation for the research in the present investigation included development of the strengthened R4L intervention, selection of instrumentation, ethics approval, recruitment of schools and participants, preparation of materials and finally, training procedures for research assistants. These stages occurred prior to the collection of any data in the present investigation.

**Study 1: Quantitative Study**

**Participants**

*Sample summary: quantitative study.* The sample for Study 1 was variable across the five time waves, and the procedures associated with each wave of testing have been previously described at length in this chapter. At the commencement of the present investigation 412 children were tested from 14 schools. Initial tests for eligibility deemed 135 children ineligible, as they were reading at or above age expectations, and 277 children eligible for R4L. These 277 children were grouped for each school by year group and ranked, highest to lowest, according to phonological achievement scores. The bottom two children from each year group were then randomly allocated to either the experimental or control group. The experimental group contained 152 children and the control group contained 125 students. Two schools did not have a control group, which explains the difference between these numbers. The control groups from the schools in the corporate program did not receive the intervention during the year of data collection and were not included in the sample after the second time wave. Throughout the course of the present investigation, these numbers changed as children left schools or became involved in school support programs that clashed with R4L at the school. There were 28 children who withdrew from the study during various stages, from 12 of the participating schools. Only
students who had completed the questionnaires on all occasions were included in the analyses. The 27 children from three schools in the control group for the corporate program did not receive R4L during the same year as other students and are not included in the sample for the control group after Time 2. Table 6.8 represents the variations in sample size throughout the five waves of testing.

Table 6.8.
*Child Participant Variations Across Time Waves*

<table>
<thead>
<tr>
<th>Time of Testing</th>
<th>One</th>
<th>Two</th>
<th>Three</th>
<th>Four</th>
<th>Five</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exp</td>
<td>Con</td>
<td>Exp</td>
<td>Con</td>
<td>Exp</td>
</tr>
<tr>
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<td>143</td>
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<td>0</td>
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<td>8</td>
<td>7</td>
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<td>10</td>
<td>5</td>
<td>10</td>
</tr>
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<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
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<td>7</td>
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</tr>
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<td>School K</td>
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<td>10</td>
<td>9</td>
</tr>
<tr>
<td>School N</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

*Note: *Corporate Schools

Adult participants for the present investigation included staff at the schools and reading buddies. Table 6.9 summarises their participation.
Table 6.9.
Adult Participant Numbers

<table>
<thead>
<tr>
<th>Adult Participants</th>
<th>Sample Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Principals</td>
<td>14</td>
</tr>
<tr>
<td>Classroom Teachers</td>
<td>81</td>
</tr>
<tr>
<td>Site Champions (not classroom teachers)</td>
<td>7</td>
</tr>
<tr>
<td>UWS LCS Volunteers</td>
<td>35</td>
</tr>
<tr>
<td>Educational Psychology Students</td>
<td>5</td>
</tr>
<tr>
<td>Paid RA</td>
<td>1</td>
</tr>
<tr>
<td>Corporate Volunteers</td>
<td>38</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>181</strong></td>
</tr>
</tbody>
</table>

Materials

Test administration forms. The reading achievement instruments described below were enclosed in a test administration cover sheet for use with each child (see Appendix O). The test administration cover sheet contained the scripts for administration of each measurement instrument, as well as recording instructions for administrators. The academic testing was conducted individually for every child in the study.

Sutherland Phonological Awareness Test—Revised (SPAT-R). The Sutherland Phonological Awareness Test—Revised (Neilson, 2003) considers syllabification, rhyme, individual sound identification, phoneme blending, phoneme counting, individual sound manipulation and reading and spelling nonsense words. After observing a demonstration and a practice item, children are asked four questions under each of these phonological awareness skills. The SPAT-R has been standardised on an Australian population of 559 children in the first four years of school from three schools in Sydney. The SPAT-R is a reliable measure of phonological awareness, with overall reliability reported as $r = .95$ (Neilson, 2003). SPAT-R results are reported as a percentile ranking, corresponding to the appropriate school grade. This is obtained by converting the child’s raw score out of a possible 60 to a percentile from the standardised tables available for this test. The percentile ranking indicates the percentage of children in the same year of schooling whom a child is performing better than.
**Burt Word Reading Test (Burt).** The Burt Word Reading Test (Gilmore, Croft, & Reid, 1981) is an assessment of sight word recognition. Children are asked to read a list of sight words printed on a page of 100 words. The test is discontinued after 10 consecutive errors. The Burt has been standardised on a New Zealand population of 400 children from 6 to 13 years of age. Tests of internal consistency, using the Kuder-Richardson reliability coefficient (KR-20) demonstrated high reliability, $r = .97$ of the Burt Word Reading Test. There are no Australian norms available for a standardised sight word assessment that can be administered by classroom teachers. Raw scores are converted to age ranges for primary school children.

**Neale Analysis of Reading Ability—Revised (Neale-R).** The Neale Analysis of Reading Ability—Revised (Neale, 1999) is an Australian normed standardised reading assessment used widely throughout Australian schools. Standardisation occurred on a sample of 1,394 children from 116 primary schools in Australia, with internal consistency ranging from $r = .95$ to $r = .96$ (KR-21) for accuracy and $r = .71$ to $r = .89$ (KR-21) for comprehension, for all seven years of schooling. Children view a picture and then read a series of short stories, whilst they are being timed with a stopwatch. At the conclusion of each passage a series of comprehension questions is posed to the child. This test is discontinued after the child has made 16 errors within any given passage. Raw scores from the Neale-R are converted to age ranges and percentile rankings for primary aged school children in two areas: reading accuracy and reading comprehension.

**School fidelity rating.** Representatives from industry partner, Learning Links, attended each school on at least two occasions to observe each University of Western Sydney student working with the children. On the basis of these observation visits and regular interactions with the schools and buddies by phone and email contact, Learning Links rated each school on a scale of 1–8 (1 = Definitely False; 2 = False; 3 = Mostly False, 4 = More False than True; 5 = More True than False; 6 = Mostly True; 7 = True; 8 = Definitely True) in the areas of observed Principal Support; Teacher Support; School Champion Support; and Overall Rating of School Environment. The researcher also visited each school on two occasions during the study and completed a rating survey for each school. The School Fidelity Rating is included as Appendix P.
**Procedures**

Study 1, the quantitative study measuring children’s reading achievement, comprised the first wave of data collection. The section that follows describes the first stage in the sequential explanatory mixed methods research design (see Figure 6.2), including the process of testing at each school (Times 1, 2 and 3), determination of eligibility and allocation to groups, and the processes followed in implementing the intervention. Figure 6.3 summarises the steps involved in this first stage of the quantitative study.

![Figure 6.3. Quantitative Study: Phase I](image)

**Data analysis.** The mixed methods research employed in the present investigation capitalises on the wealth of understandings about the R4L program gained from both quantitative and qualitative methods. The two studies were undertaken in a sequential manner, intersecting at several time points in the study (see Figure 6.2). The data analysis occurred simultaneously with the collection of the data. These processes are described in full in the section below.

**Data screening.** Data were entered into SPSS 19 and checked for accuracy. A thorough process of collecting and checking the data at each time wave was established,
to ensure there were no missing data when a child was assessed and that the data file mirrored the completed test administration forms. Subsequently, raw scores were converted into the normed results for the Burt, SPAT-R, and Neale-R, to identify eligible children and to allocate children to experimental and control groups.

**Instrument reliability.** Reliability is concerned with the stability of item responses, measuring the internal consistency of an instrument (Wieten, 2001). The three reading achievement instruments used in the present investigation (Gilmore, Croft, & Reid, 1981; Neale, 1999; Neilson, 2003) are existing established measures, with demonstrated sound psychometric properties for young children (see Materials section previously in this chapter). The internal consistency of these instruments with the sample of children with reading difficulties in the present investigation was measured, to ensure that the tests were measuring the reading achievement constructs under examination for the specific population of children with reading difficulties.

Cronbach’s alpha was used to estimate the internal consistency reliability of the reading achievement instruments, as it is the most widely used and accepted measure of consistency within an instrument (Cortina, 1993; Cronbach, 2004). Cronbach’s alpha, ranging from 0 to 1, measures how well the items within a factor consistently measure the factor they were designed to measure or the extent to which the items measure the same underlying construct. A Cronbach’s alpha of 0 represents no consistency among items, while 1 represents complete consistency. Higher estimates indicate a more reliable factor, with alphas above .70 considered an acceptable reliability (Hills, 2008). SPSS 19.0 for Mac was used to conduct reliability measures for factors for each reading achievement instrument used in the present investigation.

**Preliminary analyses.** A preliminary review of the raw data after Time 2 was undertaken, to identify any issues to be considered during the interviews in the qualitative phase. This review briefly examined the raw gains only and did not test statistical significance between the groups. This preliminary analysis demonstrated that many children participating in R4L, from both the experimental and control groups, had made improvements across the range of reading achievement measures, with respect to pre- and post-test percentiles and reading age ranges, as seen in Figures 6.4 and 6.5 below. However, the students in the control group had also made gains during the four-
This prompted the researcher to include some questions about the children in the control group during the first phase of the qualitative study, to understand what may have been occurring for these children during the four months between testing periods. Figures 6.4 and 6.5 illustrate the gains made by children in each of the groups over the four-month period (16 weeks) between Time 1 and Time 2 testing.

![Figure 6.4](image1.png)

Figure 6.4. Percentage Point Gains in Phonological Awareness, Reading Accuracy, and Reading Comprehension

![Figure 6.5](image2.png)

Figure 6.5. Month Gains in Sight Words, Reading Accuracy, and Reading Comprehension

The children in the experimental group improved by 44 percentile points in phonological awareness during the four-month period. The children in the control group also improved in phonological awareness during this four-month period by 36
percentile points, without the R4L intervention, so that the experiment group was only performing 7% better, on average, that its peers in the control group. This increase of scores for the students in the control group, who were similar in phonological awareness to students in the experimental group at the beginning of the present investigation was not expected, and warranted some discussion with schools during the qualitative study.

The gains in reading accuracy and reading comprehension were smaller for both the experimental and control groups. For the experimental group, students made gains of 13 percentile points for accuracy and 14 percentile points for comprehension. The control group made gains of 11 percentile points for accuracy and 14 percentile points for comprehension. On the face of it at this point, prior to performing any statistical tests of significance, these gains appear to be similar. This was an unexpected outcome: for a group of children with identified reading difficulties to have made gains without the R4L intervention being in place.

Sight word recognition scores on the Burt Word Reading Test (Gilmore, Croft, & Reid, 1981) can only be converted to a years and month score: for example, 5.06, which indicates that a child is able to recognise sight words in a similar way to an average developing child who is aged 5 years and 6 months old. As previously stated, reading accuracy and comprehension scores on the Neale Analysis of Reading Ability—Revised (Neale, 1999) can be converted to both percentile points and age norms. During the four-month period between pre- and post-testing, the children in the experimental group, participants of R4L, gained a 6-month improvement in their sight word recognition scores. The children in the control group made the same gains during this time. In both reading accuracy and comprehension, children in the experimental group improved by six months, the same improvement as seen for sight words. The children in the control group also made small gains, with a four-month gain in accuracy and a five-month gain in comprehension. These improvements for the experimental group represent a ratio gain of 1:1.5: that is, for one month of lapsed time, children improved their skills in sight words, reading accuracy, and reading comprehension at a rate of 1.5 months. They were keeping up with their peers and beginning to make some additional gains. The children in the control group also made gains during this same time period, with ratio gains of 1:1.5 for sight words (for each month of lapsed time the
control group improved their skills in sight words at a rate of 1.5 months), 1:1 for reading accuracy (for each month of lapsed time the control group made gains of one month in reading accuracy), and 1:0.8 for comprehension (for each month of lapsed time the control group made gains of 0.8 months in reading comprehension). Longitudinal studies have demonstrated that children with reading difficulties improve their reading skills by five months in every school year, a ratio gain of 1:0.4 (Thompson, 1990), where for each month of lapsed time the children gain only 0.4 months in reading accuracy. The children in the control group had results that were quite different to this: they were comparable in sight words and reading. Due to these discrepancies (students in the control group were improving without the intervention), it was necessary to investigate possible issues surrounding the research and the intervention’s implementation, at the schools participating in the qualitative study.

**Multilevel modelling.** The society in which we live is multilevel in its organisation. We participate in a range of activities with different groups of people: school, work, sports, families, and friends. These groups in turn form larger communities. For research in schools, there are many factors that ultimately affect the child. The child is a member of a class within a school in a geographical location, and also a member of many differentiations within the school: for example, sex, interest groupings, family backgrounds. It is incumbent on educational researchers to consider the use of multilevel statistical analyses to consider the effects of interventions on individuals and groups, to avoid misinterpretations of data, or ecological fallacy (Luke, 2004; Tacbachnick & Fidell, 2007).

Single-level statistical analyses, such as multiple regressions, are premised on the core assumption that each participant in a sample is independent of the other participants (Luke, 2004). Children, as members of classrooms within schools are not independent of each other. Their peers and community influence them and they have many shared experiences and interests. Data collected for individuals cannot be assumed to apply to the different groups of which these individuals are members. Equally, results from a class of children cannot be assumed to be representative of the individual children within that class.
Researchers risk technical difficulties when considering multilevel data using single level analyses, such as aggregation bias, misestimated standard errors, and undetected heterogeneity of regression (O'Connell & McCoach, 2008; Raudenbush & Bryk, 2002). When differences are present and have different implications for each level of analysis, aggregation bias can exist. Other problems associated with using single level analyses for multilevel data include significant effects being found when they do not exist, as the standard errors can be underestimated. This occurs because individual students in one class and one school are more highly correlated than those from another class or another school (Rowe, 2007). Multilevel modelling accounts for this by calculating a random effect for each group in the model, such as individual, class and school (Raudenbush & Bryk, 2002; Rowe, 2007).

Individual schools arrange administration, curriculum, and social aspects of a school in unique ways to accommodate the needs of children, parents, schools, and the community. This unique school environment affects teachers and children in similar ways (Hill & Rowe, 1996). Hence, students from one school will have more in common with each other than they do with students from another school. Multilevel modelling computes regression lines for individual schools, identifying variation between schools and avoiding heterogeneity of regression (Raudenbush & Bryk, 2002; Rowe, 2005).

Multilevel statistical analyses allow researchers to model the effects at all levels under consideration simultaneously and compare the variance explained by each level (Rowe, 2007). Accounting for the hierarchical structure of students within schools is necessary for any school-based research, to account for the effects of multilevel variables on individuals. This is especially helpful for intervention research, where the effect of a given intervention needs to be considered over a period of time (O'Connell & McCoach, 2008).

Multilevel modelling begins with the creation and analysis of the null-model, often referred to as the variance components model (Rasbash, Browne, Healy, Cameron, & Charlton, 2005). This model is used to determine the variance attributed to each of the hierarchical levels of the null model (e.g., time, individual, school). Multilevel models have two components: fixed effects and random effects. The variance of the outcome variable (e.g., reading achievement) that can be attributed to each of the hierarchical
levels is measured by the Wald statistic, $z = \frac{\text{estimate}}{\text{standard error}}$, which when greater than 1.96 represents significance at the .05 level (Goldstein, 1995). The percentage of variance explained by each level is then calculated by adding the parameters of each level, dividing each parameter by this total, and multiplying by 100 (see Chapter 6). The variance components model can then be extended to form subsequent models with additional explanatory variables. The Wald statistic assesses the degree to which these additional explanatory variables (e.g., experimental or control group) significantly predict the outcome variable (e.g., reading achievement).

The data in the present investigation were multilevel, with three levels under consideration. The first level represented time, which was then nested within the second level of individual children, and finally these individual children were nested within their schools, comprising the third level. Multilevel modelling was used to consider the impact of R4L on children’s reading achievement scores in the present investigation.

**Data preparation for multilevel modelling.** Maintaining the integrity and independence of a waitlist control group in an educational setting can be difficult (Cook & Campbell, 1979; Craven, Marsh, Debus, and Jayasinghe, 2001; Plewis & Hurry, 1998). Children in waitlist control groups can be exposed to the benefits of teachers utilising new methods or may be in receipt of compensatory assistance. This was a concern in the present investigation, as children in the control group were identified to schools and parents as falling behind their peers in reading (see Chapters 2 and 4). To compensate for this contamination somewhat, the control and experimental groups were standardised separately in relation to the averaged result across Times 1 and 2 for the control group. This standardisation process was conducted for all four reading achievement totals (phonological awareness, sight words, reading accuracy, and reading comprehension).

This was accomplished by calculating the mean and standard deviation for each of the total reading achievement variables for the control group (see Table 6.10). Each reading achievement outcome variable (e.g., total phonological awareness, total sight words, total reading accuracy, total reading comprehension) was standardised in relation to the mean and standard deviation of the control group (Marsh & Rowe, 1996). For
example, the grand mean and standard deviation for phonological awareness for the control group ($\bar{X} = 37.80, SD = 12.197$) was incorporated in an equation to calculate z-scores, dividing the mean by the standard deviation (see Appendix Q). This standardisation was conducted separately for the experimental and control groups and for each time wave. Subsequently, all files were merged.

Table 6.10.

*Grand Means and Standard Deviations: Control Group*

<table>
<thead>
<tr>
<th>Reading Achievement</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phonological Awareness (TSpat)</td>
<td>37.80</td>
<td>12.197</td>
</tr>
<tr>
<td>Sight Words (TBurt)</td>
<td>33.40</td>
<td>11.827</td>
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<tr>
<td>Reading Accuracy (TAcc)</td>
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<td>14.557</td>
</tr>
<tr>
<td>Reading Comprehension (TComp)</td>
<td>8.98</td>
<td>5.386</td>
</tr>
</tbody>
</table>

**Contrasts and models.** The present investigation consisted of three hierarchical levels: school within individual within time. Two models were developed and tested for each reaching achievement outcome: (1) a variance components (null) model; and (2) an R4L intervention effects model. Model 1 was developed to identify how much of the total variance could be attributed to the variance components associated with the three levels of school, individual and time.

Model 2 extended the variance components model, with the inclusion of three new terms: (1) control versus experimental group ($CV_{Exp}$), (2) Time 1 versus Time 2 ($T1v T2$), and (3) the interaction effect of group and time ($CV_{E} * T1v T2$). The first term was the main effect of group, comparing the reading achievement performance of children in the experimental group (Exp) to the baseline-control (Con) group. The control group was assigned a contrast of -1 and the experimental group was assigned a contrast of +1: hence, a positive beta reflected that the experimental group performed better than the control group. The second term was a main effect of time, comparing the reading achievement results of all children, from experimental and control groups, from Time 1 (T1) to Time 2 (T2). Time 1 was assigned a contrast of -1 and Time 2 was assigned a contrast of +1. Therefore, a positive beta indicated that reading achievement was better at Time 2 than at Time 1. The third term was an interaction of the first and second main effects, calculated by cross-multiplying the group and time terms to assess
whether the experimental group varied as a function of time. The intervention effects model (Model 2) was used to determine the effect of R4L on children’s reading achievement, reflected by a statistically significant positive interaction effect for each of the four reading achievement outcomes.

Three additional models were created for any reading achievement with a statistically significant interaction effect: (a) gender effects model; (b) buddy effects model; and (c) longitudinal effects model. The gender effects model (Model 3) contained the same variables as Model 2, with the inclusion of three new terms: (1) gender (female), (2) gender by group (female*CvExp), and (3) gender by time (female*T1vT2). The first additional term was a main effect of gender, with boys being the reference category. The second additional term was an interaction effect of gender and group, assessing the impact of being a girl and a participant in the experimental group. The third additional term was an interaction effect of gender and time, considering the effect of R4L for girls as a function of time. Model 3 was designed to assess whether the R4L intervention was influenced by the gender of participants.

In Model 4, known as the buddy effects model, three new terms were added to the null model: (1) time; (2) buddy (corporate) and (2) buddy by time (corporate*T1vT2). The first additional term was a main effect of time, comparing the reading achievement results of all children, those working with buddies from companies and from the university, from Time 1 (T1) to Time 2 (T2). The second additional term was a main effect of buddy, comparing the reading achievement performance of children who worked with a buddy from the corporate program to children who worked with a buddy from the university. The third additional term was an interaction effect of buddy and time, assessing whether the reading achievement results for children who worked with a buddy from the corporate program varied as a function of time compared to those who worked with a university student. Only children in the experimental group were included in the analyses for Model 4, as the children in the control group had not yet worked with a reading buddy of any kind—hence the development of a new model.
The longitudinal effects model (Model 5) was developed for any reading achievement outcome with a statistically significant interaction effect. Model 5 contained one new term: (1) longitudinal time (T2vT3). This additional term was a main effect of time at the end of the intervention period, with Time 2 assigned a contrast of -1 and Time 3 assigned a contrast of +1, to compare the reading achievement three months after the intervention period ceased. Model 5 was designed to assess whether the gains made in the R4L intervention were maintained over time.

**Replicability analyses.** Additional quantitative analyses were conducted to consider the robustness of R4L—that is, how different groups of children responded to the intervention. This set of analyses was conducted after the waitlist control group had received the intervention using multi-level modelling, with a view to establishing no significant differences between the achievement results of the two groups (see Chapter 4).

As discussed previously in this chapter, the children in the waitlist control group received additional support during the first intervention period, and as such could not be considered a pure control group for comparison purposes. In consideration of this, the first experimental group was used as the comparison for the waitlist control group in determining whether the experience of R4L was similar for different groups of children. The waitlist control group became the new experimental group for these analyses. Their pre-test scores were obtained from their performance at Time 2 and their post-test scores were obtained from their performance at Time 4, after receiving the intervention. The first experimental group became the new control group, with their scores at Time 1 and Time 2 being utilised for comparison. Figure 6.6 summarises the transposition of data for the new analyses.
To prepare these data files for multilevel analyses, each group was standardised according to its own baseline score. As such, the new experimental group total achievement scores for Time 1 and 2 (TSpat, TBurt, TAcc, and TComp) were standardised in relation to this group’s performance at Time 1. Similarly, the new control group total achievement scores for Time 1 and 2 (TSpat, TBurt, TAcc, and TComp) were standardised in relation to this group’s performance at Time 1. Files with standardised scores were merged in SPSS for Windows, Release Version 19.0 (© SPSS, Inc., 2001, Chicago, IL, www.spss.com) and imported into MLWin (Rasbash, Browne, Healy, Cameron, & Charlton, 2005) for analysis in the same manner as described previously in this chapter.

One model was developed to test the robustness of R4L, the replicability model (Model 6). Model 4 contained three terms (1) Time 1 versus Time 2 (T1v T2); (2) control versus experimental group (CvE), and (3) the interaction effect of group and time (CvE * T1v T2). The first term was the main effect of group, comparing the reading achievement performance of children in the new experimental group (E) to the new control (C) group. The first term was a main effect of time, comparing the reading achievement results of all children, from experimental and control groups, from Time 1 (T1) to Time 2 (T2). Time 1 was assigned a contrast of -1 and Time 2 was assigned a
contrast of +1: therefore, a positive beta indicated reading achievement was better at Time 2 than at Time 1. The control group was assigned a contrast of -1 and the experimental group was assigned a contrast of +1: hence, a positive beta reflected that the new experimental group performed better than the new control group. The third term was an interaction of the first and second main effects, calculated by cross multiplying the group and time terms to assess whether the new experimental group varied as a function of time. The replicability model (Model 6) was used to determine whether the effect of R4L on children’s reading achievement was similar when repeated with different groups, reflected by a non-statistically significant interaction effect for each of the four reading achievement outcomes.

Section Summary
This section has described the rationale for utilising multilevel modelling and the processes employed to conduct the data analysis in the present investigation. The results of these analyses are presented in Chapter 7.

Study 2: Qualitative Approach

Introduction
Qualitative research methodologies enable the researcher to interact with people in their natural environments and create meaning from these observations. It is an inductive process where the researcher observes and engages in dialogue with participants to gain a deeper understanding of a phenomenon. Qualitative data collection can involve processes such as interviews, document analysis, and observation (Greene, Caracelli, & Graham, 1989; Johnston, & Onwueguzie, 2004; Patton, 2002; Tashakkori & Cresswell, 2007). Interviewing was the method employed in the present investigation. Interviewing involves a verbal dialogue between two or more people, with a goal of eliciting information and hearing the perspectives of others. Interviewing generally occurs face-to-face—however, phone interviews may also be employed. Throughout an interview, the interviewer takes an active and influential role: “the researcher is the instrument” (Patton, 2002, p. 14). The quality of the interviews is largely affected by the interviewer’s ability to build rapport with contributors, to listen enthusiastically and critically, to possess and display empathy, and remain focussed while simultaneously
being prepared to handle unexpected and difficult situations with compassion (Grbich, 1999).

**Participants**

Seven schools were identified for inclusion in Study 2, representing half of the schools involved in the total sample. Semi-structured group interviews were conducted with key stakeholders of the intervention: (a) children; (b) parents; (c) teachers; (d) volunteers from Unilever; and (e) volunteers from UWS. Semi-structured individual interviews were conducted with: (a) school principals; and (b) parents who could not attend focus groups. Thirty-six focus groups and 14 interviews were undertaken in Study 2. A total of 130 participants were included in Study 2. The breakdown of participants is summarised in Table 6.11 below:

<table>
<thead>
<tr>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children</td>
</tr>
<tr>
<td>Parents</td>
</tr>
<tr>
<td>Teachers</td>
</tr>
<tr>
<td>Principals</td>
</tr>
<tr>
<td>Corporate Volunteers</td>
</tr>
<tr>
<td>UWS Volunteers</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

**Materials**

The interview process lies somewhere on a continuum from highly structured, where each participant is asked the same questions in the same order, to completely unstructured, where the questions for each contributor evolve from a natural dialogue with the contributor about the phenomenon being studied (Minichello, Aroni, Timewell, & Alexander, 1995). Researchers make decisions about the degree of structure in an interview, in consideration of the outcomes expected from the process. In the present investigation the interview process was designed to provide participants with an opportunity to share their perceptions and experiences of R4L. Thus, the researcher wanted a degree of flexibility to allow unexpected ideas to be raised and explored during the interviews. In developing the interview schedules, the researcher sought to find an appropriate balance between requiring a consistent approach to questioning for multiple
interviewers to increase the generalisability across the interviews, and the need to allow interviewers freedom to explore ideas raised by participants. A semi-structured interview schedule was established, a compromise between these competing needs. As Patton (2002) states, “the interviewer remains free to build a conversation within a particular subject area, to word questions spontaneously, and to establish a conversational style but with the focus on a particular subject that has been predetermined” (p. 343).

Interview schedules were prepared to explore the R4L experience with participants, focussing on the behaviours observed in participating children to learn more about how R4L is perceived, why it affects change, how it is experienced, and in what ways it could be improved (see Appendix R). The research questions (see Chapter 4) were listed at the top of the interview schedule to orient the interviewers to the purpose of the interviews being conducted. Under each research question, one or two core questions were listed, with prompts to elicit greater detail from participants. Interviewers, the researcher and project manager, were able to deviate from the interview schedule to explore ideas raised by participants at any time. They would return to the schedule after this further questioning. The interview schedule was revised slightly to accommodate some of the issues highlighted by the first interviews (i.e., knowledge and management of the program; see Appendix S).

**Procedures**

**Interviews.** Semi-structured group and individual interviews were conducted with direct (children and reading buddies) and indirect (teachers, principals, and parents) stakeholders of R4L in familiar surroundings for participants; school grounds (children, teachers, parents, principals); place of employment (corporate volunteers), and University (UWS volunteers). Each interview was recorded on two digital recorders, to ensure that the thoughtful reflections of contributors were recorded. At no time did the first digital recorder fail; the second recorder was a security measure only. Interview participants were made aware that the interviews were being recorded, with an assurance that only the research team would hear the actual recording. Prior to the interviews with the children, they each were provided with the opportunity of introducing themselves and saying something into the recorder. This was played back to the children
so they could hear their voices before beginning, as this was a novel piece of equipment for them.

The researcher also maintained a digital reflexive journal throughout the qualitative study, spending time before and after each day of interviewing, reflecting on her perceptions of involvement, concerns about the data collected, and processes. The reflexive journal is a tool used by many qualitative researchers, to recognise their own role in the process of collecting and analysing data and to give credence to the nuances gleaned from observing the natural surroundings and the behaviours of interview contributors (Lincoln & Guba, 1985; Patton, 2002). The second interviewer during the first phase of the interviews was invited to make some notes at the end of each interview in respect of body language, impressions of the mood of interviewees. This reflexive journal was revisited on a regular basis throughout the analysis process, helping the researcher re-familiarise herself with the context of the schools on the day of the interviews.

At the commencement of each interview, a brief introduction about the purpose of the interview was given to the participants. Although permission to participate had already been sought, participants were reminded that participation in the interviews was voluntary and they could notify if they did not wish to participate, at the start of the interview. There was only one instance of this at the commencement of the interviews—a teacher who explained she was new to the school and did not have knowledge of the program. Issues of anonymity and confidentiality were also discussed with participants.

Data analysis. The researcher then began the process of data reduction, content and thematic analysis, and validation. The process employed is explained later in this chapter. The researcher employed a range of qualitative analysis tools to deconstruct the interviews, to understand the perspectives of participants and identify common and recurring themes about R4L. These data analysis tools were both deductive and inductive, from the beginning of the first interview throughout the remainder of the present investigation.
Analytic induction is one of the processes that qualitative researchers employ when applying deductive logic in their analysis of qualitative data. Analytic induction involves searching for categories or themes from the data from an initial set of cases, considering the relationships amongst these categories or themes, creating a series of hypotheses from these cases, and then making modifications and refinements to these assumptions, informed by subsequent cases (Berg, 2004; Denzin, 1989; LeCompte & Preissle, 1993). Identification of negative cases is a fundamental component of data analysis in analytic induction, and these cases are used to further adapt and explain the hypothesised categories and relationships being proposed (Berg, 2004). Negative cases are comments that differ significantly from the general consensus of the overall sample—for example, one or two people who disagree that a program has been useful, in stark contrast to remaining participants who agree it was useful. These negative cases are highly valued in qualitative data analysis, as they inform the development of themes and challenge the researcher to fully justify the themes established, in light of these negative cases (Patton, 2002).

Grounded theory is one of the most popular methodologies utilised by qualitative researchers. It is an inductive process where a priori assumptions are not formed by the researcher. Facts, ideas, and perspectives from the data are observed by the researcher and themes emerge directly from the qualitative data itself, rather than from any previously formed hypotheses (Lincoln & Guba, 1985; Strauss & Corbin, 1998). Grounded theory was not the overarching data analysis methodology in the present investigation. However, the researcher remained open to new emerging perspectives and themes throughout the analysis. The use of a second coder or critical friend, discussed further in this section, ensured that integrity of the data was maintained, and that a priori assumptions did not constrain the analysis.

Teddle and Tashakkori (2009) succinctly describe the interaction of inductive and deductive logic informing data analysis in research:

This **inductive-deductive research cycle** may be seen as moving from grounded results (observations, facts) through inductive inference to general inferences, then from those general inferences (or theory, conceptual framework, model)
through deductive inferences to predictions to the particular (a priori hypothesis). (p. 26, bold emphasis in original).

**Locating the researcher.** In traditional quantitative research, distance from the research is a goal, remaining objective at all phases of the research. The collection and statistical analysis of the data is conducted impartially, to obtain neutral findings. Qualitative research, in contrast, attaches importance to the insights of the researcher, acknowledging his/her influence during all phases of the research. Patton (2002) writes that distance in research, “does not guarantee objectivity, it merely guarantees distance” (p. 575), thereby recognising the presence of the researcher in all research. The researcher, often referred to as an “instrument” (Greene, 2007; Patton, 2002) of the research, is required to locate “one’s self in one’s work” (Greene, 2007, p.27) and fully disclose his/her relationship to the qualitative study.

The researcher has worked closely with this population of children for over 15 years as a special needs teacher and manager with industry partner, Learning Links. She developed the R4L pilot program during her employment at Learning Links. Since its inception, the researcher has been actively involved in all aspects of the R4L program: securing funding for programs, approaching schools for involvement, training reading buddies, assessing children in schools, coordinating programs across Australia, and supporting the programs at schools and corporations.

The researcher also brought knowledge about schools and the practice of teaching reading to the analysis of the interviews. Interpretations made during the content and thematic analysis were discussed with non-teaching colleagues to maintain constant due diligence, to verify that the prior experience and knowledge of the researcher was enhancing, not directing, the understanding drawn from contributors. Unique insights from the researcher throughout the study have intensified the depth of analysis undertaken on all aspects of R4L. As Greene (2007) states, “subjectivity is not bias, it intrinsically defines the very character of human understanding” (p. 40). The researcher remained aware of her experience with the R4L program during the data analysis process and engaged in a constant dialogue with a second coder to test assumptions made.
Second coder. A special education teacher working for the NSW Department of Education evaluating Science and Technology projects in schools, served as a second coder during this phase of data analysis. She reviewed the transcripts of the first two schools analysed, identified important issues, perspectives, and recurring views from participants, and suggested themes. The researcher and second coder then compared their themes and came to a conditional consensus. This conditional consensus was formed as there was a negative case in the first two schools, discussed further in this chapter, which prompted a revision of the interview schedule and a pause in analysis until the second phase of interviews. The second coder repeated this process of reviewing the transcripts and suggesting codes and themes for the second phase, and agreement was finally reached. This checking process served to test the validity and reasonableness of the themes identified by the researcher and provided an alternate perspective for the generation of new ideas (Humbert, 1995; Lincoln & Guba, 1985; Onweugbuzie & Johnson, 2006).

Data authentication. Audio recordings from each of the interviews were transcribed verbatim by a transcription service. The researcher then listened to each audio recording, following along with the transcript to verify the accuracy of the transcription. The researcher was able to correct words misinterpreted by the transcription service, such as words related to schools (i.e., STLA, reading recovery, names of reading programs, e.g., Multilit) and to listen for mumbled phrases and words. After transcripts had been authenticated, the researcher listened to each recording again and made comments along the margin of the transcripts regarding the tone of the speakers, pauses, and interactions amongst participants during the interviews. Transcripts were read several times to ensure that the researcher was familiar with the content before thematic analysis began. At this stage of analysis the researcher also reviewed the digital reflexive journal prepared on the day of each interview, to add additional comments to the transcripts about body language and any other observations from the day. Transcripts from all interviews were treated in this manner, prior to content and thematic analysis.

Thematic analysis. The qualitative study in the present investigation was conducted in two phases during the explanatory sequential research (see Figure 6.2). The process of identifying critical words, phrases and ideas, and allocating codes for
these, and thereby establishing a range of themes from the data, was conducted in the same manner throughout both phases of the qualitative study. This process, known as thematic analysis (Patton, 2002, Teddlie & Tashakkorie, 2009), occurred on a regular basis throughout the entire study.

The transcripts were initially analysed in groups by type of participant: children, teachers, parents, and buddies. The children’s interviews were the starting point, as they had direct experience of the program. The transcripts were read and notes were made in the margins to record recurring words and phrases. On the second reading of the transcripts, a unitisation process occurred whereby key words, phrases, sentences and paragraphs were highlighted. Participants’ perspectives were coded with a title identifying the main message, and commonalities were identified and grouped together. These were sorted into provisional categories, informed by similar content from the interviews. At this stage of the analysis similarities were identified on the transcripts using colour highlighting. The teachers’ interview transcripts were then treated in the same manner. Categories were modified to reflect the new perspectives of the teachers. The perspectives of reading buddies and parents were then added to the overall analyses. Table 6.12 summarises the common ideas from the interviews for the first two schools.
Table 6.12.  
*Common Trends in First Interviews*

<table>
<thead>
<tr>
<th>Theme</th>
<th>Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship with Learning Links</td>
<td>How the school and Learning Links communicated during the program.</td>
</tr>
<tr>
<td>Perception of R4L within School</td>
<td>Whether R4L had a presence in the school environment.</td>
</tr>
<tr>
<td>Support Received by Children in Study</td>
<td>Children in the experimental group receiving additional support to R4L.</td>
</tr>
<tr>
<td>Selection of Children for R4L</td>
<td>Decision-making process used by teachers in identifying suitable children.</td>
</tr>
<tr>
<td>Management of the Program</td>
<td>Perceptions of how Learning Links organised the R4L program.</td>
</tr>
<tr>
<td>Children’s Impressions of Reading Buddies</td>
<td>The relationship formed between the child and their reading buddy.</td>
</tr>
<tr>
<td>Interruption to School</td>
<td>Whether the R4L program influenced the day-to-day running of the school.</td>
</tr>
<tr>
<td>Children’s Response to the Program</td>
<td>How children approached the R4L program and reacted to being included.</td>
</tr>
<tr>
<td>Perceptions of Change</td>
<td>Identification of any differences in the children during the R4L program.</td>
</tr>
<tr>
<td>Successful Elements of the Program</td>
<td>Aspects of the program participants enjoyed or considered effective.</td>
</tr>
<tr>
<td>Program Fidelity</td>
<td>How R4L was being implemented.</td>
</tr>
<tr>
<td>Involvement of Parents</td>
<td>Completion of home reading and communication book by parents.</td>
</tr>
<tr>
<td>Improvements to the Program</td>
<td>Identified aspects of the program that are not working or could be managed differently.</td>
</tr>
<tr>
<td>Frequency of the Program</td>
<td>Perceptions of weekly and bi-weekly practice.</td>
</tr>
<tr>
<td>Future of the Program</td>
<td>Willingness to participate in R4L in an ongoing manner.</td>
</tr>
</tbody>
</table>
The two schools involved in the first phase of interviewing, revealed some persistent differences in the interviews with classroom teachers, as a negative case emerged. In one school, the classroom teachers reported difficulties understanding the expectations for them in the program, could not reliably recall which children were participating in the program, and could not identify specific instances of improvement in the reading achievement or behaviours of participating children. The teachers expressed frustration at being asked to participate in an interview during their recess break. In contrast, the teachers at the second school knew about their role in supplying books for the children, had regular contact with the reading buddies working with the children in their classes, and reported several improvements in reading achievement, approach to class work, and attitudes to learning. The teachers were relaxed during the interview at recess and demonstrated genuine enthusiasm to participate.

These divergent views from classroom teachers about the R4L program posed difficulties for identifying a consensus in the themes during data analysis from the initial interviews. Further investigation was required to understand the context of each school and the reasons for these differences. In subsequent conversations with the school champion (a teacher who acts as contact for the R4L program) a plausible explanation became evident. At the school where classroom teachers had a poor impression of R4L, the school champion had not nominated herself for this role nor participated in direct conversations with the industry partner, Learning Links. As a result, the necessary information about the program, and acceptance of being involved in it, were absent. The teachers who were reluctant to participate in the interviews and had not observed changes in their students or the program in operation, had not received any of this information either. The interviews from this school contributed to the formation of recommendations for optimal implementation of the R4L program (see Chapter 8). More interviews were required at other schools, before themes for analysis could be generated. Additional questions in the teacher interview schedule were added for future interviews, regarding interruption to classes, and communication between schools and Learning Links (see Appendix S). No further analysis of the interview transcripts occurred until the second phase of interviewing had been completed.

After the second phase of interviews, involving an additional five schools and reading buddy groups, this process of data reduction and thematic analysis occurred
again. The analysed transcripts were coded once more using the themes identified in collaboration with the second coder. Frequency counts were conducted for each of the themes, to maintain a record of the magnitude of issues being identified by the contributors (Miles & Huberman, 1994; Patton, 2002). This data display provided a visual and numerical representation of the data and assisted the researcher in collapsing themes. The negative perspectives from the teachers previously described proved to be isolated cases and did not appear in any of the other interviews across the remaining six schools.

The agreed categories were reviewed several times and often were collapsed into larger or smaller themes, focussing on the children’s direct experience of R4L. The researcher continued to revisit the digital reflexive journal, whole transcripts, and digital recordings on a regular basis throughout the data analysis process, to ensure that the voices of the participants were being accurately reported. The researcher worked in and out of the interview data, discovering ideas and patterns and then verifying these with other interviews, quantitative findings, the reflexive journal, and the research literature. This process of moving between induction and deduction is an essential aspect of all research, known as the constant comparative method (Glaser & Straus, 1967; Lincoln & Guba, 1985; Patton, 2002).

No further interviews were undertaken beyond the point at which no new information was being raised in interviews. This “point of redundancy” (Lincoln & Guba, 1985, p. 202) was the criterion for determining the sample size for the qualitative study. The seven schools and associated reading buddy interviews provided sufficient perspectives of the R4L experience and, during the analysis of the sixth and seventh school, no new information was being raised.

Section Summary
Focus group interviews were scheduled at two schools at the completion of Time 2 data collection. After Time 4 data collection an additional five schools, three from the corporate sample and two from the LCS sample, were involved in interviews.
Chapter Summary

This chapter has systematically described the theoretical rationale and logic underpinning the mixed methods approach employed in the present investigation. A mixed methods research design was described in which qualitative and quantitative studies were conducted sequentially to answer fully the overarching purpose of the present investigation.

This chapter demonstrates that appropriate methodologies were selected to investigate the hypotheses and research questions specified in Chapter 4. This chapter has described the instrumentation, sample, process of data collection, and data analysis for both the quantitative and qualitative studies that comprise the sequential explanatory mixed methods research design of the present investigation. The next chapter presents the results from Study 1.
CHAPTER 7

RESULTS STUDY 1: IMPACT OF THE READING FOR LIFE INTERVENTION ON READING ACHIEVEMENT

Introduction

This chapter presents the results for Study 1 of the present investigation, designed to ascertain whether there were improvements in the reading achievement of children participating in the Reading for Life (R4L) intervention. An overview of the analyses conducted is presented first, followed by the results for each of the hypotheses and research questions posed in Chapter 5. The quantitative evaluation of R4L involved examining the trends in children’s reading achievement scores on sight words, phonological awareness, reading accuracy, and reading comprehension using standardised reading achievement measures (see Chapter 6). Additionally, variance across schools is examined, as are the moderating effects of buddy type and gender.

Overview of Analyses

Six multilevel models were tested in Study 1, to fully evaluate the effects of the R4L intervention on reading achievement. The multilevel structure of each model comprised three levels: time was nested within students, who were nested within schools. Hence, the first level was time, with the second being individual students, and the third level being school. Each lower level was nested within the higher levels (see Chapter 6). The MLwiN (v2.02) software package was used to test the effectiveness of R4L on the children’s outcomes for: (1) phonological awareness; (2) sight words; (3) reading accuracy; and (4) reading comprehension. Each of these models is described in the following section.
**Models Tested**

**Model 1: Null model.** Model 1, the variance components (null) model was created to establish how much variance there was to be explained at the different levels of school, individual children, and time, for reading achievement. Model 1 was tested for each area of reading achievement examined: (a) phonological awareness; (b) sight words; (c) reading accuracy; and (d) reading comprehension. For example, the null model for the first outcome variable, phonological awareness, is demonstrated below.

\[
ZT_{SPAT} = \beta_{0ijk} + v_{0k} + u_{0jk} + e_{0ijk}
\]

Where \(ZT_{SPAT}\) = the total Sutherland Phonological Awareness Test (SPAT) score, standardised in relation to the control group (see Chapter 6)

- \(\beta_{0ijk}\) = constant
- \(v_{0k}\) = main effect of school
- \(u_{0jk}\) = main effect of individual
- \(e_{0ijk}\) = main effect of time

Using the variance components of this model, the proportion of total variance in the outcome variable (e.g., phonological awareness) that can be explained by differences between level 1 or level 2 variables, can be calculated. This was calculated by summing the parameters for each level, then dividing the specific level parameter (e.g., school, individual, or time) by the sum of the parameters for each level (e.g., school, individual, and time), and multiplying this by 100 (e.g., from Table 7.1 the school level equation for total variance explained for phonological awareness is \(0.123/\left(0.123+.553+.387\right)\times100\)). When new predictor variables were added to the null model, tests were conducted to ascertain whether or not the addition of that predictor or set of predictors was worthwhile.

**Model 2: Intervention model.** The R4L intervention was evaluated using Model 2, an extension of Model 1 using contrasts and multilevel modelling, providing an accurate and powerful analysis method for an experimental research design (see Chapter 6). Three contrasts were created: (a) condition—control (-1) versus experimental group (+1), examining the effect of being in the experimental group
compared to the control group; (b) time—Time 1 (-1) versus Time 2 (+1); and (c) the cross product of condition X time, which was the test of the effect of the intervention. The model tested for the first outcome variable, phonological awareness, is demonstrated below.

\[ ZTSpat = \beta_{0ijk} + \text{CvExp}_{jk} + T1v T2_{jk} + \text{CvE} * T1v T2_{jk} \]

Where \( ZTSpat \) = total Sutherland Phonological Awareness Test (SPAT) score, standardised in relation to the control group (see Chapter 6).

\( \beta_{0ijk} = \text{constant} \)

\( \text{CvExp}_{jk} = \text{contrast of the control versus experimental group} \)

\( T1v T2_{jk} = \text{contrast of Time 1 versus Time 2} \)

\( \text{CvE} * T1v T2_{jk} = \text{the interaction effect of condition X time} \)

**Model 3: Gender effects model.** Model 3, an extension of Model 2, was designed to evaluate the effect of gender on reading achievement measures. This model was the gender effects model. Model 3 included three new terms: gender (female\(_{jk}\)), gender X condition (female\(*\text{CvExp}_{jk}\)), and gender X time (female\(* T1v T2_{jk}\)). Boys were used as the reference group in this model; hence, analyses provided information regarding any advantage gained by being a girl and participating in R4L. Model 3 was run in cases where the interaction effect of condition and time in Model 2 (CvE * T1v T2\(_{jk}\)) yielded a significant result. For example, the model tested for the first outcome variable, phonological awareness, is demonstrated below.

\[ ZTSpat_{jk} = \beta_{0jk} + \text{CvExp}_{jk} + T1v T2_{jk} + \text{CvE} * T1v T2_{jk} + \text{female}_{jk} + \text{female} * \text{CvExp}_{jk} + \text{female} * T1v T2_{jk} \]

Where \( ZTSpat \) = total Sutherland Phonological Awareness Test (SPAT) score, standardised in relation to the control group (see Chapter 6).

\( \beta_{0jk} = \text{constant} \)

\( \text{CvExp}_{jk} = \text{contrast of the control versus experimental group} \)

\( T1v T2_{jk} = \text{contrast of Time 1 versus Time 2} \)

\( \text{CvE} * T1v T2_{jk} = \text{the interaction effect of condition X time} \)

\( \text{female}_{jk} = \text{main effect of gender, with boys as the reference group} \)
female*CvExp\textsubscript{jk} = the interaction effect of gender X condition
female*t1vT2\textsubscript{ijk} = the interaction effect of gender X time

**Model 4: Buddy effects model.** Model 4 was designed to evaluate the effect of type of reading buddy on reading achievement measures. This model was the buddy effects model. In addition to the terms in Model 2, Model 4 included two new terms: buddy (corporate\textsubscript{k}) and buddy by time (corporate\textsubscript{*}T1vT2\textsubscript{ijk}). Within the sample for the present investigation some students (n = 34) were working with buddies from corporations (one buddy working with one child) and some students (n = 106) were working with buddies from universities (one buddy working with five children individually across the day; see Chapter 6). University buddies were used as the reference group in this model. Hence, analyses provided information regarding any advantage gained by working with a reading buddy from a company. Only children in the experimental group were included in the analyses for Model 4, as the children in the control group had not yet worked with a reading buddy of any kind. Model 4 was conducted in cases where the interaction effect of condition and time in Model 2 (CvE * T1v T2\textsubscript{ijk}) yielded a significant result. For example, the model tested for the first outcome variable, phonological awareness, is demonstrated below.

\[
ZT\text{Spat}\textsubscript{ijk} = \beta_0\textsubscript{ijk} + T1v T2\textsubscript{ijk} + \text{corporate}_{k} + \text{corporate}\textsubscript{*}T1vT2\textsubscript{ijk}
\]

Where ZT\text{Spat} = total Sutherland Phonological Awareness Test (SPAT) score, standardised in relation to the control group (see Chapter 6).

\begin{align*}
\beta_0\textsubscript{ijk} & = \text{constant} \\
T1v T2\textsubscript{ijk} & = \text{contrast of Time 1 versus Time 2} \\
\text{corporate}_{k} & = \text{main effect of buddy} \\
\text{corporate}\textsubscript{*}T1vT2\textsubscript{ijk} & = \text{the interaction effect of buddy X time}
\end{align*}

**Model 5: Long-term effects model.** Model 5 was designed to evaluate the long-term effect of R4L on reading achievement measures. Model 5 included one term, longitudinal time (T2vT3\textsubscript{ijk}). This term was the main effect of the difference between Time 2 and Time 3 for the experimental group only (i.e., comparing achievement at the end of the intervention and three months later). Time 2 was assigned a contrast of -1 and Time 3 was assigned a contrast of +1. Model 5 was designed to assess whether the
gains made in the R4L intervention were maintained over time. It was conducted for all reading achievement measures to consider the long-term effects of R4L, irrespective of an initial interaction effect. For example, the model tested for the first outcome variable, phonological awareness, is demonstrated below.

\[ ZTSpat_{ijk} = \beta_{0ijk} + T2 v T3_{ijk} \]

Where \( ZTSpat \) = total Sutherland Phonological Awareness Test (SPAT) score, standardised in relation to the control group (see Chapter 6).

\( \beta_{0ijk} \) = constant

\( T2 v T3_{ijk} \) = contrast of the reading achievement after the intervention and three months later

**Model 6: Replicability model.** A final model, Model 6, was developed as an extension of Model 2, to demonstrate the robustness of the R4L intervention using a second experimental group. In the final part of Study 1, the waitlist control group received the intervention and became the second experimental group. The reading achievement performance of the new experimental group was compared to the performance of the first experimental group (hence becoming the new control group). In this series of analyses, no significant differences were hypothesised between the groups, as it was expected that the experience of R4L would be similar for multiple groups of participating children. Model 6 was a replication of Model 2. However, the original experimental group became the new control group in this model, and the waitlist control group became the new experimental group. Hence, the original experimental group’s scores for Times 1 and 2 were used as the results for the new control group and the waitlist control’s scores for Times 2 and 4 were used as the results for the new experimental group. The new experimental group and Time 1 (pre-test) were allocated a contrast of -1. The model tested for the first outcome variable, phonological awareness for the replicability study is demonstrated below.

\[ ZTSpat = \beta_{0ijk} + CvExp_{jk} + T1v T2_{ijk} + CvE * T1v T2_{ijk} \]

Where \( ZTSpat \) = total Sutherland Phonological Awareness Test (SPAT) score, standardised in relation to the baseline scores for each group (see Chapter 6).
$\beta_{ijk} = \text{constant}$

$\text{CvExp}_{jk} = \text{contrast of the new control versus new experimental group}$

$T_1v T_2_{ijk} = \text{contrast of Time 1 (pre-test) versus Time 2 (post-test)}$

$\text{CvE} \times T_1v T_2_{ijk} = \text{the interaction effect of condition X time}$

**Significance Levels**

For the results, alpha levels of .001, .01, and .05 are shown. This was measured with the Wald statistic $z = (\text{estimate}/\text{standard error})$ which, when greater than 3.291 represents significance at the .001 level; greater than 2.576 represents significance at the .01 level, and greater than 1.96 represents significance at the .05 level (Goldstein, 1995).

**Interpretation of Main and Interaction Effects**

A positive beta for any of the conditions would indicate that children in the experimental group scored higher in the target reading area than students in the control group. Conversely, a negative beta for any of the conditions would indicate that students in the experimental group scored lower in the target reading area than students in the control group.

**Effect Sizes**

An effect size was calculated for all significant interaction results using the following equation, based on the work of Marsh et al. (2009):

$$D = 2* B \times \text{SD}_{\text{predictor}} / s_e$$

where $B = \text{the unstandardised regression coefficient in the multilevel model}$;

$\text{SD}_{\text{predictor}} = \text{the standard deviation of the predictor variable}$; and

$s_e = \text{the raw score SD of the dependent variable}$.

Effect sizes consider the overall effect of the intervention using a comparable measure. Using guidelines supplied by Cohen (1988), effect sizes are considered large at .80, moderate at .50 and small at .20. Effect sizes of between .33 and .67 are considerable in special education (Lloyd, Forness, & Kavale, 1998), as this population of children face many challenges in remediation efforts.
Results

Aim 1: Reliability of Instruments

Overview of analyses. The first four Hypotheses (1.1.1 to 1.1.4) were designed to assess the reliability of the three reading achievement measures: (a) the Sutherland Phonological Awareness Test (Neilson, 2003); (b) the Burt Word Reading Test (Gilmore et al., 1981); and (c) the Neale Analysis of Reading Ability—Revised (Neale, 1999) for the sample of children with reading difficulties in the present investigation.

Results for Hypothesis 1.1.1: Reliability of Sutherland Phonological Awareness Test—Revised (SPAT-R). This hypothesis predicted that the SPAT-R (Neilson, 2003) would be a reliable measure of phonological awareness skills for the sample of children with reading difficulties in the present investigation. Cronbach’s alpha for the SPAT-R was .95, demonstrating strong internal consistency for this test. Hence Hypothesis 1.1.1 is accepted, with reliability results consistent with predictions.

Results for Hypothesis 1.1.2: Reliability of Burt Word Reading Test (Burt). This hypothesis predicted that the Burt (Gilmore et al., 1981) would be a reliable measure of sight word recognition for the sample of children with reading difficulties in the present investigation. Cronbach’s alpha for the Burt was .97, demonstrating strong internal consistency for this test. Hypothesis 1.1.2 is accepted, with reliability results consistent with predictions.

Results for Hypothesis 1.1.3: Reliability of Neale Analysis of Reading Ability—Revised (Neale-R)—Accuracy. This hypothesis predicted that the Neale-R (Neale, 1989) would be a reliable measure of reading accuracy for the sample of children with reading difficulties in the present investigation. Cronbach’s alpha for the Neale-R for accuracy was .55, demonstrating low internal consistency for the current sample. Hypothesis 1.1.3 is rejected, with reliability results inconsistent with predictions. Hence, results relating to reading accuracy are to be interpreted with caution.
Results for Hypothesis 1.1.4: Reliability of Neale Analysis of Reading Ability—Revised (Neale-R)—Comprehension. This hypothesis predicted that the Neale-R (Neale, 1989) would be a reliable measure of reading comprehension for the sample of children with reading difficulties in the present investigation. Cronbach’s alpha for the Neale-R for comprehension was .88, demonstrating high consistency for comprehension in the current sample. Hence, Hypothesis 1.1.4 is accepted, with reliability results consistent with predictions.

Summary of Hypotheses 1.1.1–1.1.4. Hypotheses 1.1.1, 1.1.2, and 1.1.4 were supported. The SPAT-R, Burt, and Neale-R were reliable measures of phonological awareness, sight word recognition, and reading comprehension, demonstrated by appropriate Cronbach’s alpha scores for the sample in the present investigation. Hypothesis 1.1.3 however was not supported. The Neale-R was not a reliable measure of reading accuracy for the current sample, and as such results related to reading accuracy must be viewed with caution.

Aims 2–5: Impact of R4L and Moderating Effects of Gender and Buddy

Overview of analyses. Four Hypotheses (1.2.1 to 1.2.4) were designed to evaluate the impact of R4L on phonological awareness, sight words, reading accuracy, and reading comprehension, as indicated by scores on corresponding reading achievement tests for an experimental group of students compared to a control group. Each reading achievement skill was considered in a separate hypothesis. Additional analyses considering the effect of gender and buddy type were conducted for reading achievement skills where a significant interaction effect was achieved. Analyses considering the longitudinal trends for children after participating in R4L were conducted for all four reading achievement measures. Four Research Questions (1.3.1–1.3.4) were designed to consider the impact of gender and R4L, four Research Questions (1.4.1–1.4.4) were designed to consider the impact of buddy type and R4L, and four Research Questions (1.5.1–1.5.4) were designed to consider the longitudinal effect of R4L. The results are presented below, to address each reading achievement skill in its entirety. For example, in considering the impact of R4L, gender, buddy type, and longitudinal time on phonological awareness, Hypothesis 1.2.1 and Research Questions 1.3.1, 1.4.1, and 1.5.1 are presented together.
Phonological awareness.

Results for Hypothesis 1.2.1: Impact of R4L on reading achievement skill, phonological awareness. This hypothesis predicted that across time children from the experimental group would score significantly higher on reading achievement tests of phonological awareness, as measured by the SPAT-R (Neilson, 2003), than children from the control group. One multilevel model was designed to evaluate the experimental versus control groups on phonological awareness. This model, the R4L intervention effects model (Model 2) was compared with the variance components (null) model (Model 1).

Model 1: Variance components (null) model. The variance components (null) model was created to establish how much variance there was to be explained at the different levels of school, individual children, and time, for sight word recognition. The results for Model 1 are presented in Table 7.1.
### Table 7.1.
**Phonological Awareness Results by Model**

<table>
<thead>
<tr>
<th></th>
<th>Model 1 (Null)</th>
<th>Model 2 (Intervention)</th>
<th>Model 3 (Gender)</th>
<th>Model 4 (Volunteer)</th>
<th>Model 5 (Long-term)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fixed Effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Main Effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant ($\beta_{0ijk}$)</td>
<td>.109 (.110)</td>
<td>.099 (.108)</td>
<td>.129 (.117)</td>
<td>.183 (.131)</td>
<td>.594 (.079) ***</td>
</tr>
<tr>
<td>Condition ($CvExp_{ik}$)</td>
<td>.064 (.056)</td>
<td>.059 (.071)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time ($T1vT2_{ik}$)</td>
<td>.290 (.020) ***</td>
<td>.321 (.026) ***</td>
<td>.352 (.032) ***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buddy (corporate)</td>
<td></td>
<td></td>
<td></td>
<td>-.018 (.252)</td>
<td></td>
</tr>
<tr>
<td>Gender (female)</td>
<td>-.077 (.114)</td>
<td></td>
<td>-.022 (.065)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Longitudinal Time ($T2vT3_{ik}$)</td>
<td></td>
<td></td>
<td></td>
<td>.074 (.022) ***</td>
<td></td>
</tr>
<tr>
<td><strong>Interactions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condition by Time ($CvE*T1vT2_{ik}$)</td>
<td>.056 (.020) **</td>
<td>.058 (.020) *</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buddy by Time (corporate*T1vT2_{ik})</td>
<td></td>
<td></td>
<td>-.022 (.065)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender by Condition ($female*CvExp_{ik}$)</td>
<td>.014 (.113)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender by Time ($female*T1vT2_{ik}$)</td>
<td></td>
<td></td>
<td>-.081 (.041) *</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Random Effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School ($\delta_{i}$)</td>
<td>.123 (.063)</td>
<td>.115 (.060) **</td>
<td>.116 (.061)</td>
<td>.096 (.066)</td>
<td>.021 (.033)</td>
</tr>
<tr>
<td>Student ($\delta_{j}$)</td>
<td>.553 (.070) ***</td>
<td>.642 (.069) ***</td>
<td>.642 (.068) ***</td>
<td>.637 (.095) ***</td>
<td>.575 (.081) ***</td>
</tr>
<tr>
<td>Time ($\delta_{t}$)</td>
<td>.387 (.034) ***</td>
<td>.205 (.018) ***</td>
<td>.202 (.018) ***</td>
<td>.218 (.026) ***</td>
<td>.138 (.016) ***</td>
</tr>
<tr>
<td>-2*loglikelihood</td>
<td>1315.605</td>
<td>1154.014</td>
<td>1149.691</td>
<td>649.053</td>
<td>556.244</td>
</tr>
</tbody>
</table>

*Note: Standard errors are given in parentheses. * $p < .05$, ** $p < .01$, *** $p < .001$. Equation parameters ($\beta_{0ijk}$) are presented for reference purposes in subsequent paragraphs. In Model 3, boys are the reference group and in Model 4 university students are the reference group.*
Variation in the phonological awareness skills of children did not differ statistically significantly between schools ($\delta^2_v = .123, SE = .063$), suggesting that the school a child attended did not affect the reading achievement results in phonological awareness. There was statistically significant individual variation in phonological awareness skills ($\delta^2_u = .553, SE = .070, p < .001$) and variation across time waves ($\delta^2_e = .387, SE = .034, p < .001$). This suggests that individual children and time waves have intercepts that vary significantly from the total group intercept. Hence, phonological awareness varies across individuals and across time. The percentage of total variance in phonological awareness that can be explained by differences between individual students and time is $66.74\% \left(\frac{.642}{.115+.642+.205}\right) \times 100$ and $21.31\% \left(\frac{.201}{.115+.642+.205}\right) \times 100$ respectively.

**Model 2: R4L intervention model of phonological awareness.** Model 2 was used to determine the extent to which the phonological awareness scores of children in the experimental group changed after participating in R4L, in comparison to those children in the control group (see Table 7.1). Children in the experimental group improved on phonological awareness tasks after participating in R4L, with an average Time 1 score of 31.36 ($SD = 12.472$) and a Time 2 score of 39.56 ($SD = 10.542$). Three new terms were included in Model 2: (1) condition ($C_{vExp}$); (2) time ($T_{1vT2}$); and (3) the interaction between condition and time ($C_{vE}*T_{1vT2}$).

The main effect of condition was not statistically significant for phonological awareness ($\beta = .064, SE = .056$; see Table 7.1). The main effect of time was a statistically significant positive predictor of phonological awareness ($\beta = .290, SE = .020, p < .001$). As this was in a positive direction, these results suggest that phonological awareness skills at Time 2 were statistically higher than at Time 1 for both the experimental and control groups. The interaction of Condition by Time was also a statistically significant positive predictor of phonological awareness ($\beta = .056, SE = .020, p < .05$). This result suggests that phonological awareness scores for children in the experimental group at the end of the intervention (Time 2) were higher than for children in the control group at the end of the intervention. As displayed in Figure 7.1, phonological awareness performance was significantly higher for the children in the experimental group than those in the control group.
Effect Size. The effect size of the R4L intervention was calculated for phonological awareness as there was a statistically significant interaction effect. The effect size was small, $ES = 0.016$.

Summary. Hypothesis 1.2.1 was supported. R4L was shown to be effective in increasing phonological awareness for children in the experimental group, as observed by the statistically significant Condition by Time interaction, although the effect size was small.

Results for Research Question 1.3.1: Impact of gender on effects of R4L on reading achievement skill, phonological awareness. In Research Question 1.3.1, a question was posed to consider whether there were any statistically significant differences in the phonological awareness skills of children participating, in relation to gender (see Chapter 5). As a significant interaction result was achieved for phonological awareness, the effect of gender was considered (Model 3). The results for the gender effects model are presented in Table 7.1. The discussion below focuses on the results that are different to those of Model 2.

R4L was equally effective in increasing phonological awareness achievement scores for girls and boys. That is, the main effect of gender was not statistically significant ($female_{\beta} = -0.077$, SE = .114; boys were the reference category). The interaction effect of Condition by Time was statistically significant, a result similar to the
previous model (CvE.T1vT2_{ijk} = .058, SE = .020, \( p < .05 \)). The interaction effect of gender by time was significant, (gender*T1vT2_{ijk} = -.088, SE = .041, \( p < .05 \)) and in a negative direction. Hence, across time boys performed better on phonological awareness tasks than girls. This interaction result is displayed in Figure 7.2. There was not a statistically significant result for gender by condition (female*CvE_{jk} = .014, SE = .113). Taken together, these results suggest there were differences in the phonological awareness achievement of girls and boys across time, but not across condition.

![Chart](chart.png)

**Figure 7.2.** Mean standardised Phonological Awareness scores for Gender

**Summary.** Research Question 1.3.1 was considered for phonological awareness. R4L was shown to be more effective in increasing phonological awareness for boys, as evidenced by the significant gender by time interaction effect.

**Results for Research Question 1.4.1: Impact of type of buddy on effects of R4L on reading achievement skill, phonological awareness.** Research Question 1.4.1 was posed to consider whether there were any statistically significant differences in the phonological awareness of children participating in R4L, depending on the type of buddy they were working with (see Chapter 5). Only children in the experimental group were included in these analyses, as they were the only children who had worked with a reading buddy. One multilevel model, the buddy effects model (Model 4), was established to consider whether the type of reading buddy a child worked with had any effect on achievement in phonological awareness. Model 4 included two new terms: buddy (corporate, university students were the reference category) and buddy by time (corporate*T1vT2_{ijk}). The results for Model 4 are presented in Table 7.1.
The main effect of reading buddy was not statistically significant (corporate $\beta = -.018$, SE = .252) for phonological awareness. The interaction effect of buddy by time (corporate* T1vT2 $\beta = -.022$, SE = .065) also was not statistically significant. These results indicate that there is no advantage, in terms of performance on phonological awareness tasks, in working with a buddy from the corporate sector in comparison with a university student.

**Summary.** No statistically significant differences were present for working with a buddy from a company compared to working with university students. This result also held across time, as demonstrated by the non-significant results for the interaction effect of buddy by time.

**Results for Research Question 1.5.1: Long-term effects of R4L on reading achievement skill, phonological awareness.** Research Question 1.5.1 was posed to consider whether there were any statistically significant differences in the phonological awareness of children after the R4L intervention period had ceased (see Chapter 5). Model 5, the longitudinal effects model, was established to consider whether there were any differences in reading achievement scores in phonological awareness from Time 2 (post) to Time 3 (longitudinal, 3 months later). Model 5 comprised one term, longitudinal time (T2vT3 $\beta$). The results for Model 5 are presented in Table 7.1. Only the experimental group was included in these analyses, as there were no parallel Time 3 data available for the control group.

The main effect of Time 2 versus Time 3 was statistically significant (T2vT3 $\beta = .074$, SE = .022, $p < .001$) for phonological awareness. As this result is in a positive direction, it suggests that children in the experimental group maintained and improved their phonological awareness in the three months after the intervention. Figure 7.3 summarises the results of the longitudinal analyses for phonological awareness.
Research Question 1.5.1 considered the longitudinal effects for phonological awareness. After participating in R4L, children maintained their improved skills, demonstrated by the significant results for the main effect of Time 2 compared with Time 3.

**Summary: phonological awareness.**

In the present investigation R4L was effective in improving phonological awareness for children in the experimental group. There were no significant differences between the performances of boys and girls in the area of phonological awareness. Likewise, no significant differences were found for children working with university students or a corporate employee. Hence, R4L was equally effective across gender and buddy type for children in the experimental group. Additionally, children in the experimental group maintained and continued to improve their phonological awareness after the R4L intervention period had ceased.

**Sight Words**

**Results for Hypothesis 1.2.2: Impact of R4L on Sight Words.** In Hypothesis 1.2.2 it was proposed that across time, children from the experimental group would score significantly higher on reading achievement tests of sight word recognition, as measured by the Burt–R (Gilmore et al., 1981), than children from the
control group. One multilevel model was designed to evaluate the experimental versus control groups on sight words. This model, the R4L intervention effects model (Model 2) was compared with the variance components (null) model.

**Model 1: Variance components (null) model.** The variance components (null) model was created to establish how much variance there was to be explained at the different levels of school, individual children, and time, for sight word recognition. The results for Model 1 are presented in Table 7.2.
Table 7.2.  
*Sight Word Results by Model*

<table>
<thead>
<tr>
<th></th>
<th>Model 1 (Null)</th>
<th>Model 2 (Intervention)</th>
<th>Model 5 (Long-term)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fixed Effects</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Main Effects</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant ( (\beta_{0ijk}) )</td>
<td>.016 (.092)</td>
<td>.013 (.092)</td>
<td>.421 (.133) **</td>
</tr>
<tr>
<td>Condition ( (C_{VExp}) )</td>
<td></td>
<td>.025 (.059)</td>
<td></td>
</tr>
<tr>
<td>Time ( (T_{1vT2}) )</td>
<td></td>
<td>.213 (.022) ***</td>
<td></td>
</tr>
<tr>
<td>Buddy (corporate)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (female)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Longitudinal Time ( (T_{2vT3}) )</td>
<td></td>
<td>.135 (.025) ***</td>
<td></td>
</tr>
<tr>
<td><strong>Interactions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condition by Time ( (C_{VExp}*T_{1vT2}) )</td>
<td></td>
<td>.032 (.022)</td>
<td></td>
</tr>
<tr>
<td>Buddy by Time ( (corporate*T_{1vT2}) )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender by Condition ( (female*C_{VExp}) )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender by Time ( (female* T_{1vT2}) )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Random Effects</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School ( (\delta^2_i) )</td>
<td>.069 (.044)</td>
<td>.068 (.044)</td>
<td>.132 (.093)</td>
</tr>
<tr>
<td>Student ( (\delta^2_u) )</td>
<td>.646 (.076) ***</td>
<td>.694 (.075) ***</td>
<td>.983 (.135) ***</td>
</tr>
<tr>
<td>Time ( (\delta^2_e) )</td>
<td>.332 (.030) ***</td>
<td>.236 (.021) ***</td>
<td>.180 (.022) ***</td>
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<tr>
<td>-2*loglikelihood</td>
<td>1292.517</td>
<td>1205.801</td>
<td>672.769</td>
</tr>
</tbody>
</table>

*Note:* Standard errors are given in parentheses.  *p < .05, **p < .01, ***p < .001.  Equation parameters \( (\beta_{0ijk}) \) are presented for reference purposes in subsequent paragraphs.
The variance components (null) model considers how much each of the levels in the model, school, individual, and time, varies from the total group intercept ($\beta_{ijk}$). Variation in the sight word recognition skills of children did not differ significantly between schools ($\delta^2_v = 0.069, SE = 0.044$), suggesting that the school a child attended did not affect sight word achievement. There was statistically significant individual variation in sight word recognition skills ($\delta^2_u = 0.646, SE = 0.076, p < .001$) and variation across time waves ($\delta^2_e = 0.332, SE = 0.030, p < .001$). This suggests that individual children and time waves have intercepts that vary significantly from the total group intercept. Hence, sight word recognition varies across individuals and across time. The percentages of total variance in sight word recognition that can be explained by differences between individual students and time are 61.70% and 31.71% respectively.

**Model 2: R4L intervention model of sight word recognition.** Model 2 was used to determine the extent to which the sight word recognition scores of children in the experimental group changed after participating in R4L, in comparison to those children in the control group (see Table 7.2). Children in the experimental group improved on sight word recognition tasks after participating in R4L, with an average Time 1 score of 35.46 ($SD = 11.012$) and a Time 2 score of 41.457 ($SD = 13.610$). Three new terms were included in Model 2: (1) condition ($CvExp_{jk}$), (2) time ($T1vT2_{ijk}$), and (3) the interaction between condition and time ($CvE*T1vT2T3$).

The main effect of condition was not statistically significant for sight words ($\beta = 0.025, SE = 0.059$; see Table 7.2). The main effect of time was a statistically significant positive predictor of phonological awareness ($\beta = 0.213, SE = 0.022, p < .001$). As this was in a positive direction, this result suggests that sight word recognition skills at Time 2 were statistically higher than at Time 1 for both the experimental and control groups. However, the interaction of Condition by Time was not statistically significant for sight words ($\beta = 0.032, SE = 0.022$). This suggests that although children’s scores on sight word recognition tasks were higher at the end of the intervention, they were higher for both the experimental and the control groups.

**Summary.** Hypothesis 1.2.2 was not supported. R4L was not shown to be effective in increasing sight word recognition skills for children in the experimental
group in comparison with the children in the control group, as observed by the non-statistically significant Condition by Time interaction.

**Results for Research Question 1.3.2: Impact of gender on effects of R4L on reading achievement skill, sight words.** This research question was posed to consider, if the R4L intervention was successful in improving sight word recognition skills for participating children, what was the effect for boys compared to girls. Given R4L was not found to be successful in statistically significantly improving sight word recognition, analyses for Research Question 1.3.2 were not conducted.

**Results for Research Question 1.4.2: Impact of type of buddy on effects of R4L on reading achievement skill, sight words.** This research question was posed to consider, if the R4L intervention was successful in improving sight word recognition skills for participating children, what is the effect for children working with reading buddies who are university students, compared to those who are employees from a corporation. R4L was not found to be statistically significantly successful in improving sight word recognition; hence, analyses for Research Question 1.4.2 were not conducted.

**Summary.** As the hypothesised improvement in sight word recognition was not supported, Models 3 (gender) and 4 (buddy) were not tested. As such, analyses for Research Questions 1.3.2 and 1.4.2 were not conducted.

**Results for Research Question 1.5.2: Long-term effects of R4L on reading achievement skill, sight words.** Research Question 1.5.2 was posed to consider whether there were any statistically significant differences in the sight word recognition skills of children after the R4L intervention period had ceased (see Chapter 5). The longitudinal effects model (Model 5) was established to consider whether there were any differences in sight word recognition from Time 2 (post) to Time 3 (longitudinal, 3 months later). Model 5 included one term, longitudinal time (T2vT3ijd). Only the experimental group was included in this analysis, as there was no parallel Time 3 data available for the control group. The results for Model 5 are presented in Table 7.2.

The main effect of longitudinal time (Time 2 versus Time 3) was statistically significant ($T2vT3ijd = .135, SE = .025, p < .001$) for sight words. As this result was in a
positive direction, the results suggest that children in the experimental group improved in relation to sight word recognition in the three months after the intervention, as indicated by higher sight word scores at Time 3. Figure 7.4 summarises the results of the longitudinal analysis for sight words.

![Image of Figure 7.4. Mean standardised Sight Word scores for Experimental group longitudinally](image)

**Summary.** After participating in R4L children continued to make gains in sight word recognition, as demonstrated in significant results for the main effect of longitudinal time.

**Summary: sight word recognition.** In the present investigation children, after participating in R4L, improved in their ability to read a greater number of sight words. Whilst gains were present, these gains were not statistically significant for sight word recognition. As such, further analyses concerning the effects of gender or buddy type were not conducted. Children in the experimental group continued to make gains in sight word recognition after the R4L intervention period had ceased.
**Reading Accuracy**

**Results for Hypothesis 1.2.3: Impact of R4L on reading accuracy.** In Hypothesis 1.2.3 it was proposed that across time, children from the experimental group would score significantly higher on reading achievement tests of reading accuracy, as measured by the Neale-R (Neale, 1999), than children from the control group. One multilevel model was designed to evaluate the experimental versus control groups on reading accuracy. This model, the R4L intervention effects model (Model 2) was compared with the variance components (null) model (Model 1). The results obtained for reading accuracy need to be interpreted alongside the poor reliability of the Neale-R (Neale, 1989) for the sample of children in the present investigation.

**Model 1: Variance components (null) model.** The variance components (null) model was created to establish how much variance there was to be explained at the different levels of school, individual children, and time, for reading accuracy. The results for Model 1 are presented in Table 7.3.

The variance components (null) model considers how much each of the levels in the model—school, individual, and time—vary from the total group intercept ($\beta_{0ij}$. There was statistically significant variation in reading accuracy skills across individual variation ($\delta^2_u = .658, SE = .071, p < .001$) and variation across time waves ($\delta^2_e = .229, SE = .020, p < .001$). This suggests that individual children and time waves had intercepts that varied significantly from the total group intercept. Hence, reading accuracy varies across individuals and across time. The variation in reading accuracy across schools was not significant ($\delta^2_s = .133, SE = .068, p < .05$). The percentages of total variance in reading accuracy that can be explained by differences between schools, individual students, and time are 13.04%, 64.51% and 22.45% respectively.
Table 7.3.  
Reading Accuracy Results by Model

<table>
<thead>
<tr>
<th>Fixed Effects</th>
<th>Model 1 (Null)</th>
<th>Model 2 (Intervention)</th>
<th>Model 5 (Long-term)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main Effects</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant ($\beta_{0ijk}$)</td>
<td>.027 (.114)</td>
<td>.021 (.114)</td>
<td>.470 (.137) ***</td>
</tr>
<tr>
<td>Condition (CvExp)</td>
<td></td>
<td>.041 (.058)</td>
<td></td>
</tr>
<tr>
<td>Time (T1vT2)</td>
<td></td>
<td>.229 (.016) ***</td>
<td></td>
</tr>
<tr>
<td>Buddy (corporate)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (female)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Longitudinal Time (T2vT3)</td>
<td></td>
<td></td>
<td>.157 (.018) ***</td>
</tr>
<tr>
<td><strong>Interactions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condition by Time (CvE*T1vT2)</td>
<td></td>
<td>.012 (.016)</td>
<td></td>
</tr>
<tr>
<td>Buddy by Time (corporate*T1vT2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender by Condition (female*cvExp)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender by Time (female* T1vT2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Random Effects</strong></td>
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</tr>
<tr>
<td>School ($\delta^2_i$)</td>
<td>.133 (.068)</td>
<td>.132 (.068)</td>
<td>.166 (.098)</td>
</tr>
<tr>
<td>Student ($\delta^2_u$)</td>
<td>.658 (.071) ***</td>
<td>.710 (.071) ***</td>
<td>.842 (.112) ***</td>
</tr>
<tr>
<td>Time ($\delta^2_e$)</td>
<td>.229 (.020) ***</td>
<td>.123 (.011) ***</td>
<td>.092 (.011) ***</td>
</tr>
<tr>
<td>2*loglikelihood</td>
<td>1191.921</td>
<td>1033.929</td>
<td>555.056</td>
</tr>
</tbody>
</table>

*Note: Standard errors are given in parentheses. * $p < .05$, ** $p < .01$, *** $p < .001$. Equation parameters ($\beta_{0ijk}$) are presented for reference purposes in subsequent paragraphs.*
**Model 2: R4L intervention model of reading accuracy.** Model 2 was used to determine the extent to which the reading accuracy scores of children in the experimental group changed after participating in R4L, in comparison to those children in the control group (see Table 7.3). Children in the experimental group improved on reading accuracy tasks after participating in R4L with an average Time 1 score of 23.04 (SD = 13.718) and a Time 2 score of 30.05 (SD = 14.969). Three new terms were included in Model 2: (1) condition (CvExpijk), (2) time (T1vT2ijk), and (3) the interaction between condition and time (CvE*T1vT2T3).

The main effect of condition was not statistically significant for reading accuracy ($\beta = .041, SE = .058$; see Table 7.3). The main effect of time was a statistically significant positive predictor of reading accuracy ($\beta = .229, SE = .016, p < .001$). As this was in a positive direction, these results suggest that reading accuracy skills at Time 2 were statistically higher than at Time 1 for both the experimental and control groups. The interaction of Condition by Time was not statistically significant for reading accuracy ($\beta = .012, SE = .016$), which indicates that being in the experimental group at Time 2 did not result in improved reading accuracy skills.

**Summary.** Hypothesis 1.2.3 was not supported. After participating in R4L children demonstrated improved reading accuracy skills. However, whilst gains were present these gains were not statistically significant for the experimental group.

**Results for Research Question 1.3.3: Impact of gender on effects of R4L on reading achievement skill, reading accuracy.** This research question was posed to consider, if the R4L intervention was successful in improving reading accuracy skills for participating children, what was the effect for boys compared to girls. R4L was not found to be successful in statistically significantly improving reading accuracy: hence, analyses for Research Question 1.2.3 were not conducted.

**Results for Research Question 1.4.3: Impact of type of buddy on effects of R4L on reading achievement skill, reading accuracy.** This research question was posed to consider, if the R4L intervention was successful in improving reading accuracy skills for participating children, what was the effect for children working with reading
buddies who were university students compared to those who were employees from a corporation. R4L was not found to be successful in statistically significantly improving reading accuracy; hence, analyses for Research Question 1.4.3 were not conducted.

Summary. As the hypothesised improvement in sight word recognition was not supported, Models 3 (gender) and 4 (buddy) were not tested. As such, the analyses for Research Questions 1.3.3 and 1.4.3. were not conducted.

Results for Research Question 1.5.3: Long-term effects of R4L on reading achievement skill and reading accuracy. Research Question 1.5.3 was posed to consider whether there were any statistically significant differences in the reading accuracy skills of children after the R4L intervention period had ceased (see Chapter 5). One multilevel model, the longitudinal effects model, was established to consider whether there were any differences in reading achievement scores from Time 2 (post) to Time 3 (longitudinal, 3 months later). Model 5 included one term, longitudinal time (T2vT3). The results for Model 5 are presented in 7.3.

The main effect of longitudinal time was a statistically significant predictor of reading accuracy (T2vT3 = .157, SE = .018, p < .001). As this result is in a positive direction, it suggests that children in the experimental group demonstrated improved performance in reading accuracy three months after the intervention, as demonstrated by higher scores at Time 3. Figure 7.5 summarises the results of the longitudinal analyses for reading accuracy.
Summary. After participating in R4L children continued to make gains in reading accuracy, demonstrated with significant results for the main effect of longitudinal time.

Reading accuracy summary. Children in the experimental group improved in reading accuracy after participating in R4L. However, these gains were not statistically significant in the Condition by Time interaction. As the hypothesised improvement in reading accuracy was not supported, Models 3 (gender) and 4 (buddy) were not tested. Children in the experimental group made gains in reading accuracy three months after the R4L intervention period. It is necessary to consider these results alongside the low reliability of the Neale-R (Neale, 1989) instrument in measuring reading accuracy for the sample of children with reading difficulties in the present investigation.

Reading Comprehension

Results for Hypothesis 1.2.4: Impact of R4L on Reading Comprehension. In Hypothesis 1.2.4 it was proposed that across time, children from the experimental group would score significantly higher on reading achievement tests of reading comprehension, as measured by the Neale-R (Neale, 1999), than children from the control group. One multilevel model was designed to evaluate the experimental versus control groups on reading comprehension. This model, the R4L intervention effects model (Model 2) was compared with the variance components (null) model (Model 1).
**Model 1: Variance components (null) model.** The variance components (null) model was created to establish how much variance there was to be explained at the different levels of school, individual children, and time, for reading comprehension. The results for Model 1 are presented in Table 7.4.

The variance components (null) model considered how much each of the levels in the model—school, individual, and time—varied from the total group intercept \( \beta_{ijk} \). The variation in reading comprehension skills across schools was not significant \( (\delta^2_u = .129, SE = .068) \), suggesting that children achieved in similar ways in all schools in reading comprehension. There was a significant variation in reading comprehension achievement scores between individuals \( (\delta^2_u = .655, SE = .077, p < .001) \), and across time waves \( (\delta^2_e = .328, SE = .029, p < .001) \). These results suggest that individual children and time waves have intercepts that vary significantly from the total group intercept. Hence, reading comprehension varies across individuals and across time. The percentage of total variance in reading comprehension that can be explained by differences between individual students and time is 59.27% and 29.23% respectively.

**Model 2: R4L intervention model of reading comprehension.** Model 2 was used to determine the extent to which the reading comprehension scores of children in the experimental group changed after participating in R4L, in comparison to those children in the control group (see Table 7.4). Children in the experimental group improved on reading comprehension tasks after participating in R4L with an average Time 1 score of 8.10 \( (SD = 5.305) \) and a Time 2 score of 10.82 \( (SD = 6.227) \). Three new terms were included in Model 2: (1) condition \( (CvExp) \), (2) time \( (T1vT2) \), and (3) the interaction between condition and time \( (CvE*T1vT2) \).

The main effect of condition was not statistically significant for reading comprehension \( (\beta = .036, SE = .060; \text{ see Table 7.4}) \). The main effect of time was a statistically significant positive predictor of reading comprehension \( (\beta = .241, SE = .021, p < .001) \). As this was in a positive direction, these results suggest that reading comprehension skills at Time 2 were statistically higher than at Time 1 for both the experimental and control groups. The interaction of Condition by Time was not statistically significant for reading accuracy \( (\beta = .012, SE = .021) \).
Table 7.4.
Reading Comprehension Results by Model

<table>
<thead>
<tr>
<th></th>
<th>Model 1 (Null)</th>
<th>Model 2 (Intervention)</th>
<th>Model 5 (Long-term)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fixed Effects</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Main Effects</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant (β₀ijk)</td>
<td>.034 (.114)</td>
<td>.029 (.113)</td>
<td>.492 (.133) ***</td>
</tr>
<tr>
<td>Condition (CvExpₖ)</td>
<td></td>
<td>.036 (.060)</td>
<td></td>
</tr>
<tr>
<td>Time (T₁vT₂ₖ)</td>
<td></td>
<td>.241 (.021) ***</td>
<td></td>
</tr>
<tr>
<td>Buddy (corporateₖ)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Gender (femaleₖ)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Longitudinal Time (T₂vT₃ₖ)</td>
<td></td>
<td>.161 (.025) ***</td>
<td></td>
</tr>
<tr>
<td><strong>Interactions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condition by Time (CvE*T₁vT₂ₖ)</td>
<td></td>
<td>.012 (.021)</td>
<td></td>
</tr>
<tr>
<td>Buddy by Time (corporate*T₁vT₂ₖ)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender by Condition (female*cvExpₖ)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender by Time (female* T₁vT₂ₖ)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Random Effects</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School (δᵥ)</td>
<td>.129 (.068)</td>
<td>.127 (.067)</td>
<td>.129 (.093)</td>
</tr>
<tr>
<td>Student (δᵤ)</td>
<td>.665 (.077) ***</td>
<td>.723 (.076) ***</td>
<td>1.036 (.142) ***</td>
</tr>
<tr>
<td>Time (δₑ)</td>
<td>.328 (.029) ***</td>
<td>.210 (.019) ***</td>
<td>.180 (.021) ***</td>
</tr>
<tr>
<td>-2*loglikelihood</td>
<td>1299.581</td>
<td>1187.096</td>
<td>678.021</td>
</tr>
</tbody>
</table>

Note: Standard errors are given in parentheses. * p < .05, ** p < .01, *** p < .001. Equation parameters (β₀ijk) are presented for reference purposes in subsequent paragraphs.
Summary. Hypothesis 1.2.4 was not supported. Children in the experimental group improved in their reading comprehension after participating in R4L, but this improvement was not statistically significant, as observed by the non-statistically significant Condition by Time interaction.

Results for Research Question 1.3.4: Impact of gender on effects of R4L on reading achievement skill, reading comprehension. This research question was posed to consider, if the R4L intervention was successful in improving reading comprehension skills for participating children, what was the effect for boys compared to girls. R4L was not found to be successful in statistically significantly improving sight word recognition; hence, analyses for Research Question 1.3.4 were not conducted.

Results for Research Question 1.4.4: Impact of type of buddy on effects of R4L on reading achievement skill, reading comprehension. This research question was posed to consider, if the R4L intervention was successful in improving reading comprehension skills for participating children, what was the effect for children working with reading buddies who were university students compared to those who were employees from a corporation. R4L was not found to be successful in statistically significantly improving reading comprehension; hence, analyses for Research Question 1.4.2 were not conducted.

Summary. As the hypothesised improvement in reading comprehension was not supported, Models 3 (gender) and 4 (buddy) were not tested. As such, the analyses for Research Questions 1.3.4 and 1.4.4 were not conducted.

Results for Research Question 1.5.4: Long-term effects of R4L on reading achievement skill, reading comprehension. Research Question 1.5.4 was posed to consider whether there were any statistically significant differences in the reading comprehension skills of children after the R4L intervention period had ceased (see Chapter 5). One multilevel model, the longitudinal effects model, was established to consider whether there were any differences in reading achievement scores from Time 2 (post) to Time 3 (longitudinal, 3 months later). Model 5 included one term—longitudinal time ($T2vT3_{ijkl}$). The results for Model 5 are presented in Table 7.4.
The main effect of longitudinal time was a statistically significant (T2vT3 \( b_k \) = .161, SE = .025, \( p < .001 \)) predictor of reading comprehension. As this result is in a positive direction, it suggests that children in the experimental group demonstrated improved performance in reading comprehension three months after the intervention, as demonstrated by higher scores at Time 3. Figure 7.6 summarises the results of the longitudinal analyses for reading comprehension for the experimental group.

![Figure 7.6](image-url)

*Figure 7.6.* Mean standardised Reading Comprehension scores for Experimental group longitudinally

**Summary.** After participating in R4L, children continued to make statistically significant gains in reading comprehension, demonstrated by the results for the main effect of longitudinal time.

**Summary: reading comprehension.** R4L was not shown to be effective in increasing reading comprehension for children in the experimental group, as observed by the non-statistically significant Condition by Time interaction. As the hypothesised improvement in reading comprehension was not supported, Models 3 (gender) and 4 (buddy) were not tested. Children in the experimental group made gains in reading comprehension in the three months after the R4L intervention period ceased.
Aims 6 and 7: Replicability of Results

Results for Hypotheses 1.6.1–1.6.4: Consistent Impact of R4L on Reading Achievement Measures. In Hypotheses 1.6.1–1.6.4 it was proposed that the R4L intervention was robust: that is, that there would be no significant differences in reading achievement for a second group of children participating in R4L. In this set of analyses, the original waitlist control group became the new experimental group, and participated in R4L. The original experimental group became the new control group, to establish a comparison of two groups of children experiencing the same intervention. Model 2 was used again to evaluate the new experimental versus new control groups on all four reading achievement measures: (a) phonological awareness, (b) sight words, (c) reading accuracy, and (d) reading comprehension. The results for Model 6 are presented in Table 7.5.
Table 7.5.

*Replicability Model (Model 6)*

<table>
<thead>
<tr>
<th>Fixed Effects</th>
<th>Phonological Awareness</th>
<th>Sight Words</th>
<th>Reading Accuracy</th>
<th>Reading Comprehension</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main Effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant ($\beta_{0ijk}$)</td>
<td>.341 (.085)**</td>
<td>.292 (.104)**</td>
<td>.297 (.115)**</td>
<td>.321 (.110)** **</td>
</tr>
<tr>
<td>Condition ($C_{vExp_{jk}}$)</td>
<td>.018 (.062)</td>
<td>.028 (.075)</td>
<td>.072 (.071)</td>
<td>.079 (.073)</td>
</tr>
<tr>
<td>Time ($T_{1vT2_{ijk}}$)</td>
<td>.330 (.023)***</td>
<td>.292 (.026)***</td>
<td>.306 (.017)***</td>
<td>.312 (.025)***</td>
</tr>
<tr>
<td><strong>Interactions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condition by Time ($C_{vE*T1vT2_{ijk}}$)</td>
<td>.002 (.023)</td>
<td>.019 (.026)***</td>
<td>.050 (.017)***</td>
<td>.055 (.025) *</td>
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<tr>
<td><strong>Random Effects</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School ($\delta_2^{2}$)</td>
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<td>.067 (.052)</td>
<td>.109 (.066)</td>
<td>.091 (.060)</td>
</tr>
<tr>
<td>Student ($\delta_3^{2}$)</td>
<td>.613 (.071)***</td>
<td>.921 (.105)***</td>
<td>.856 (.091)***</td>
<td>.830 (.095)***</td>
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<tr>
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<td>.268 (.026)***</td>
<td>.123 (.012)***</td>
<td>.262 (.025)***</td>
</tr>
<tr>
<td><strong>-2*loglikelihood</strong></td>
<td>995.280</td>
<td>1132.462</td>
<td>935.617</td>
<td>1109.907</td>
</tr>
</tbody>
</table>

*Note:* Standard errors are given in parentheses. *p < .05, **p < .01, ***p < .001.

Equation parameters ($\beta_{0ijk}$) are presented for reference purposes in subsequent paragraphs.
Model 6: Replicability of R4L intervention. Model 6 was used to determine the extent to which the reading achievement scores of children in the new experimental group (original control group) changed after participating in R4L, in comparison to those children in the new control group (original experimental group) (see Table 7.5). Three terms were included in Model 2: (1) condition (CvExp), (2) time (T1vT2), and (3) interaction between condition and time (CvE*T1vT2T3).

Results for Hypothesis 1.6.1: Consistent effects of R4L on phonological awareness. The main effect of condition was not statistically significant for phonological awareness ($\beta = .018, SE = .062$; see Table 7.5). The main effect of time was a statistically significant positive predictor of phonological awareness ($\beta = .330, SE = .023$, $p < .001$). As this was in a positive direction, these results suggest that phonological awareness skills at Time 2 were statistically higher than at Time 1 for both the new experimental and new control groups. The interaction of Condition by Time was not statistically significant for phonological awareness ($\beta = .002, SE = .023$). This result suggests that there was no statistically significant difference in the performance on phonological awareness tasks after participating in R4L between the new experimental and new control groups. As described previously in this chapter, the new control group between Time 1 and Time 2 significantly improved in phonological awareness when they were treated as the experimental group. Hence, as the new control group had demonstrated improvements in phonological awareness (see previous section in this chapter), the new experimental group achieved similar success. That is, the new experimental group, like the previous experimental group, had demonstrated improved phonological awareness, but these results were not statistically significant for this group. Figure 7.7 summarises the results of the replicability analyses for phonological awareness: these lines are sitting on top of one another, indicating the similarity in the performance of each group.
Results for Hypothesis 1.6.2: Consistent effects of R4L on sight words.

The main effect of condition was not statistically significant for sight words ($\beta = .028$, $SE = .075$; see Table 7.5). The main effect of time was a statistically significant positive predictor of sight words ($\beta = .292$, $SE = .026$, $p < .001$). As this was in a positive direction, these results suggest that sight word recognition skills at Time 2 were statistically higher than at Time 1 for both the new experimental and new control groups. The interaction of Condition by Time was not statistically significant for sight words ($\beta = .019$, $SE = .026$). This result suggests that there was no statistically significant difference in the performance on sight word recognition tasks after participating in R4L between the original and new experimental groups. Hence, as the original experimental group improved in sight word recognition, so has the new experimental group. However, the improvements in sight word recognition for the original experimental group were not statistically significant. Figure 7.8 summarises the results of the replicability analyses for sight words, illustrating similarity in the performance of each group.
Results for Hypothesis 1.6.3: Consistent effects of R4L on reading accuracy. The main effect of condition was not statistically significant for reading accuracy ($\beta = .072, SE = .071$; see Table 7.5). The main effect of time was a statistically significant positive predictor of sight words ($\beta = .306, SE = .017, p < .001$). As this was in a positive direction, these results suggest that reading accuracy skills at Time 2 were statistically higher than at Time 1 for both the new experimental and new control groups. The interaction of Condition by Time was statistically significant for reading accuracy ($\beta = .050, SE = .017, p < .001$). This result suggests that there was a statistically significant difference in the performance on reading accuracy tasks after participating in R4L between the new experimental and new control groups. As this was in a positive direction, the result suggests that the new experimental group made gains that the original experimental group did not. Figure 7.9 illustrates the comparison between the new experimental and new control group for reading accuracy. It can be seen from Figure 7.9 that the new experimental group made further gains in reading accuracy during the intervention period.
Figure 7.9. Reading Accuracy Replicability

Results for Hypothesis 1.6.4: Consistent effects of R4L on reading comprehension. The main effect of condition was not statistically significant for reading comprehension ($\beta = .079, SE = .073$; see Table 7.5). The main effect of time was a statistically significant positive predictor of reading comprehension ($\beta = .312, SE = .025, p < .001$). As this was in a positive direction, this result suggests that reading comprehension skills at Time 2 were statistically higher than at Time 1 for both the new experimental and new control groups. The interaction of Condition by Time was statistically significant for reading comprehension ($\beta = .055, SE = .025, p < .01$). This result suggests that there were statistically significant differences in performance on reading comprehension tasks after participating in R4L, between the new experimental and new control groups. As this was in a positive direction, the result suggests that the new experimental group made gains that the original experimental group did not. Figure 7.10 illustrates the comparison between the new experimental and new control group for reading comprehension. It can be seen from Figure 7.10 that the new experimental group made further gains in reading comprehension during the intervention period.
Summary. Hypotheses 1.6.1 and 1.6.2 were supported. R4L was shown to be as effective in increasing phonological awareness for children in the new experimental group as for children in the original experimental group (new control group), observed by the non-statistically significant Condition by Time interaction. Children in the new experimental group, like the original experimental group, did not demonstrate statistically significant sight word recognition improvements, as observed by the non-statistically significant Condition by Time interaction. Hypotheses 1.6.3 and 1.6.4 were partially supported. Children in the new experimental group improved in reading accuracy and comprehension, as did the original experimental group. However, the new experimental group scored higher on reading accuracy and comprehension measures than the original experimental group, as observed by the statistically significant Condition by Time interaction.

Results for Research Questions 1.7.1–1.7.4: Consistent Long-term Impact of R4L on Reading Achievement Measures. In Research Questions 1.7.1–1.7.4 the long-term impact of the R4L intervention was considered for a second group of children, the new experimental group. This was a replication of the analyses for Research Questions 1.5.1–1.5.4 with the original experimental group. One multilevel model, the longitudinal effects model, was established to consider whether there were any differences in reading achievement scores from Time 2 (post) to Time 3 (longitudinal, 3 months later) for the new experimental group only. Model 7 included one term, longitudinal time (T2vT3_δ). The results for Model 7 are presented in Table 7.6.
Table 7.6.  
*Longitudinal Effects: New Experimental Group (Model 7)*

<table>
<thead>
<tr>
<th></th>
<th>Phonological Awareness</th>
<th>Sight Words</th>
<th>Reading Accuracy</th>
<th>Reading Comprehension</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fixed Effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Main Effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant ($\beta_{0ijk}$)</td>
<td>0.673 (.093) ***</td>
<td>0.696</td>
<td>0.742 (.106)</td>
<td>0.868 (.125)</td>
</tr>
<tr>
<td>Longitudinal Time ($T_2vT_2$)</td>
<td>0.012 (.028) *</td>
<td>0.075</td>
<td>0.031 (.028)</td>
<td>0.136 (.049) **</td>
</tr>
<tr>
<td><strong>Random Effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School ($\delta^2_s$)</td>
<td>0.000 (.000)</td>
<td>0.000</td>
<td>0.000 (.000)</td>
<td>0.000 (.000)</td>
</tr>
<tr>
<td>Student ($\delta^2_u$)</td>
<td>0.626 (.110) ***</td>
<td>1.327</td>
<td>0.838 (.143)</td>
<td>1.050 (.199) ***</td>
</tr>
<tr>
<td>Time ($\delta^2_e$)</td>
<td>0.127 (.020) ***</td>
<td>0.218</td>
<td>0.128 (.020)</td>
<td>0.389 (.061) ***</td>
</tr>
<tr>
<td>-2*loglikelihood</td>
<td>315.012</td>
<td>416.809</td>
<td>336.731</td>
<td>451.382</td>
</tr>
</tbody>
</table>

*Note:* Standard errors are given in parentheses.  *p < .05, **p < .01, ***p < .001.  Equation parameters ($\beta_{0ijk}$) are presented for reference purposes in subsequent paragraphs.
**Results for Research Question 1.7.1: Consistent long-term effects of R4L on phonological awareness.** The main effect of longitudinal time was not a statistically significant predictor of phonological awareness ($T2vT3_{ijk} = .012, \ SE = .028$). Children’s scores on phonological awareness at Time 3, four months after the R4L intervention ceased, were not statistically different to those at Time 2 at the completion of the R4L intervention. The main effect was in a positive direction: hence, children’s scores did not decrease during this four-month period. However, they are not statistically different from those at Time 2. The children maintained their gains in phonological awareness from the end of the R4L intervention, but did not improve on this.

**Results for Research Question 1.7.2: Consistent long-term effects of R4L on sight words.** The main effect of longitudinal time was a statistically significant predictor of sight words ($T2vT3_{ijk} = .075, \ SE = .037, p < .05$). Children’s scores on sight word recognition at Time 3, four months after the R4L intervention ceased, were statistically different to those at Time 2 at the completion of the R4L intervention. The main effect was in a positive direction; hence, children’s scores increased during this four-month period. Figure 7.11 demonstrates the gains made by the new experimental group longitudinally from Time 2 to Time 3.

![Figure 7.11. Consistent long-term effects of R4L on sight words](image_url)
Results for Hypothesis 1.7.3: Consistent long-term effects of R4L on reading accuracy. The main effect of longitudinal time was not a statistically significant predictor of reading accuracy (T2vT3ijk = .031, SE = .028). Children’s scores on reading accuracy measured at Time 3, four months after the R4L intervention ceased, were not statistically different to those at Time 2 at the completion of the R4L intervention. The main effect is in a positive direction, hence children’s scores have not decreased during this four-month period. However, they are not statistically different from those at Time 2. The children have maintained their gains in reading accuracy from the end of the R4L intervention, but have not improved on this. These results need to be interpreted with caution, in consideration of the low reliability of the Neale-R (Neale, 1989) in measuring reading accuracy for this sample.

Results for Hypothesis 1.7.4: Consistent long-term effects of R4L on reading comprehension. The main effect of longitudinal time was a statistically significant predictor of reading comprehension (T2vT3ijk = .136, SE = .049, p < .01). Children’s reading comprehension scores at Time 3, four months after the R4L intervention ceased, were statistically different to those at Time 2 at the completion of the R4L intervention. The main effect is in a positive direction, hence children’s scores have increased during this four month period. Figure 7.12 demonstrates the gains made by the new experimental group longitudinally from Time 2 to Time 3.

Figure 7.12. Consistent Long-term effects of R4L on reading comprehension
**Summary.** R4L was shown to be as effective in increasing sight word recognition and reading comprehension longitudinally for children in the new experimental group as for those in the original experimental group (new control group), as observed by the statistically significant longitudinal time main effect. These longitudinal effects are similar to the original experimental group. However, children in the new experimental group maintained, but did not demonstrate statistically significant improvements in phonological awareness or reading accuracy longitudinally, as observed by the positive non-statistically significant longitudinal time main effects. These results are different to the original experimental group, where positive statistically significant main effects were present for the longitudinal analyses.

**Chapter Summary**

This chapter has evaluated the impact of R4L on the reading achievement skills of sight words, phonological awareness, reading accuracy, and reading comprehension, on two groups of children. This chapter has presented the variance components (null) model (Model 1), the R4L intervention effects model (Model 2), and the Replicability model (Model 6) for each reading achievement variable. A statistically significant result was obtained for phonological awareness for the interaction effect between condition and time and hence, additional analyses were conducted using the gender effects model (Model 3), the buddy effects model (Model 4) and the long-term effects model (Model 5). R4L was found to improve phonological awareness skills for children in the experimental group, considered to be the greatest predictor of reading skills (see Chapters 2 and 3). Boys were found to achieve higher phonological awareness scores than girls in the experimental group. No differences according to buddy type were found for phonological awareness. Children in the experimental group improved on measures of sight words, reading accuracy, and reading comprehension. However, these improvements were not statistically significant. Children in the experimental group maintained and continued to make gains in the three months after the intervention, and these longitudinal results were statistically significant.

R4L was found to impact on a second group of students in a similar way, in the area of phonological awareness. There were also statistically significant differences in the performance of the second group in the area of reading accuracy and
comprehension. Longitudinally, children in the second group continued to make gains in the areas of sight word recognition and reading comprehension, four months after completing the R4L intervention. The next chapter presents the results for Study 2, which examined the experience of R4L from the perspectives of all stakeholders: children, parents, teachers, and reading buddies.
CHAPTER 8

RESULTS STUDY 2: CHILDREN’S JOURNEY TO READ FOR LIFE

Introduction

This chapter presents the results for Study 2 of the present investigation. The purpose of Study 2 was to qualitatively elucidate the impact of Reading for Life (R4L) on children’s reading outcomes and to consider additional implications of the intervention from the perspectives of all participants (see Chapter 5). Children, parents, classroom teachers, and the reading buddies working with the children were included in this range of interviews. Seven schools (four schools involved in the university Learning through Community Service program, hereafter referred to as LCS, and three schools involved in the corporate program) participated in a range of focus groups and individual interviews (see Chapter 6). Results corresponding to each of the research questions posed in Chapter 5 are presented.

Study 2 was concerned with answering five research questions, relating to the experience of R4L from the perspective of multiple stakeholders. Two Research Questions (2.1.1–2.1.2) were posed in Chapter 5, to examine the impact of R4L on children’s reading skills and to consider whether the control group had been contaminated throughout the intervention period. Two Research Questions (2.2.1–2.2.2) were posed to consider the impact of the R4L intervention on psychosocial outcomes, such as reading self-concept and home reading behaviours. A final Research Question (2.3.1) was designed to evaluate the aspects of the intervention that effect change in children. The current chapter addresses these research questions relating to R4L, and additional findings that emerged through the interview process.
Results Overview

Participants spoke about a range of issues concerning the R4L experience throughout the interviews. Table 8.1 below summarises these, with the most frequent themes appearing first in the table. Operational considerations, such as the physical R4L pack, were spoken about most by the whole sample participants, with 83% of the participants discussing this (see Table 8.1). Participants directly involved, and those who observed R4L, cited the strong focus on games learning and incremental steps of learning as strengths. The second strongest theme discussed by 67% of interview participants (see Table 8.1) was an acknowledgement of the relationship between the children and their reading buddies over the course of R4L. Children responded in a positive way to their reading buddy and that was observed to be a contributing factor in the success of the program for children with reading difficulties.

Throughout the course of interviews with a range of participants it became apparent that home reading practice of the R4L materials did not take place on a regular basis. Over half of the interview participants (55%, see Table 8.1) described the varying degrees of home participation in R4L and provided insights into some of the challenges faced by families in this participation. Almost as many interview participants (54%, see Table 8.1) observed a positive change in children’s perceptions of their abilities in reading, their reading self-concept, and noted that the children were more confident that they could read, and took greater risks in reading. It was considered that the individual attention received by the children from their buddies was a contributing factor to the program’s success. Almost half of the participants (47%, see Table 8.1) recognised the value for children with reading difficulties in working one-to-one with an adult. There were also a number of participants (38%, see Table 8.1) who observed children independently engaging in reading tasks for leisure: they were engaging in reading books and environmental texts (signs) without being directly requested to do this by an adult. After R4L, children were reading more accurately, by sounding out unfamiliar words. This improvement in decoding skills was experienced by the children and demonstrated to the adults around them when reading aloud, as described by 35% of participants (see Table 8.1). A small number of interview participants also acknowledged that children were reading more sight words (8%, see Table 8.1). Each of these areas is analysed in this chapter, with reference to the five research questions outlined in Chapter 5.
sample of direct quotations from participants is provided throughout the chapter as representations of the feedback provided.

Table 8.1.
Overview of Themes Raised by Interview Participants

<table>
<thead>
<tr>
<th>Theme</th>
<th>Overall</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials and Content of R4L</td>
<td>103</td>
<td>83%</td>
</tr>
<tr>
<td>Relationship with Buddy</td>
<td>83</td>
<td>67%</td>
</tr>
<tr>
<td>Home Practice</td>
<td>68</td>
<td>55%</td>
</tr>
<tr>
<td>Reading Self-Concept (confidence)</td>
<td>67</td>
<td>54%</td>
</tr>
<tr>
<td>Individual Attention</td>
<td>58</td>
<td>47%</td>
</tr>
<tr>
<td>Independent Reading *</td>
<td>35</td>
<td>38%</td>
</tr>
<tr>
<td>Decoding Skills</td>
<td>44</td>
<td>35%</td>
</tr>
<tr>
<td>Contamination of Control Group</td>
<td>24</td>
<td>19%</td>
</tr>
<tr>
<td>Sight Words</td>
<td>11</td>
<td>9%</td>
</tr>
<tr>
<td>Enjoyment of Reading</td>
<td>10</td>
<td>8%</td>
</tr>
</tbody>
</table>

\(N = 124, \ *\) Buddies excluded \((n = 93)\)

Results Research Question 2.1.1:
Impact of R4L on Children’s Reading Achievement

Overview

Research Question 2.1.1 was posed to explore the substantive and most commonly occurring issues and themes that emerged from multiple stakeholder perspectives regarding the impact of the intervention on children’s academic achievement. This section explores the perceptions of children, parents, teachers, and reading buddies in relation to changes in reading achievement after participating in R4L.
Table 8.2.
Frequency of Participant Responses Related to Improvements in Reading Achievement

<table>
<thead>
<tr>
<th></th>
<th>Children</th>
<th>Parents</th>
<th>Teachers</th>
<th>Buddies</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decoding Skills</td>
<td>15</td>
<td>9</td>
<td>14</td>
<td>6</td>
<td>44</td>
</tr>
<tr>
<td>Independent Reading</td>
<td>18</td>
<td>12</td>
<td>5</td>
<td>NA</td>
<td>35</td>
</tr>
<tr>
<td>Sight Words</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>11</td>
</tr>
</tbody>
</table>

Note: The frequencies of child, parent, teacher, and reading buddy focus group and interview responses across three themes related to reading achievement are displayed in Table 8.2, with the number from each participant group who spoke about the theme also being listed.

Improvements in Reading: Decoding Skills

Each activity in R4L is designed to teach children how to recognise the sounds in words and how to use these consistently to read words correctly in texts: that is, to decode words. An improvement in decoding skills was identified by children, parents, teachers, and reading buddies. This was the most significant theme related to reading skills mentioned throughout the interviews both for the LCS and corporate samples, with 44 of the 101 comments (see Table 8.2) made identifying an improvement in children’s decoding skills.

Figures 8.1 and 8.2 display the proportion of comments each participant group made, from both programs in the present investigation, expressed as a percentage of the total number of comments for this theme. Figure 8.1 summarises the representation from the LCS program and Figure 8.2 displays the corporate program. Each figure represents the breakdown of participants from each program who spoke about this theme. Children represented the largest group of participants from the LCS program reporting improvements in decoding skills, with 8 of the 25 comments regarding decoding skills being raised by children. There were small differences between the two programs, in the frequency of responses that mentioned decoding, with 25 participants from the LCS program speaking about decoding skills compared with 19 from the corporate program (see Figures 8.1 and 8.2). However, there were minimal differences in the content of the discussions surrounding decoding skills from both programs, as discussed below.
Figure 8.1. Improvements in Decoding Skills Observed by LCS Sample

Representation of the proportion of total comments from the LCS program contributed by each participant group (i.e., children, parents, teachers, and reading buddies). More children reported improvements in decoding skills than any other group, representing 32% of the comments made by participants in the LCS program (8 comments by children of the 25 comments by LCS participants, calculated as \( \frac{8}{25} \times 100 = 32\% \)).

Figure 8.2. Improvements in Decoding Skills Observed by Corporate Sample

Representation of the proportion of total comments from the Corporate program contributed by each participant group (i.e., children, parents, teachers, and reading buddies). More teachers reported improvements in decoding skills than any other group, representing 42% of the comments made by participants in the Corporate program (8 comments by teachers of the 19 comments by Corporate participants, calculated as \( \frac{8}{19} \times 100 = 42\% \)).

Children. During the group interviews, the children were asked to describe how they read or approached an unfamiliar word. Younger children found this a difficult question to answer, responding with “sound out” or “don’t know”. Older children were able to provide some insight into their decoding strategies.
I sound out the letters and do the work, I used to not sound them out.

I learnt how to break up really big words.

R4L changed my life because it's easier to read now, I sound the words out and get them right.

I stop and I sound out the letters before I read it straight away.

The predominant strategy was to sound out the word and utilise common letter-sound relationships to identify the word. Some of the children clearly stated that this strategy was new for them, and that they now experience some reading success after using these strategies. In addition to these appraisals of their reading strategies, the children also spoke about how their reading buddy had helped them develop these skills.

My reading buddy taught me how to read and sound out the words.

Thank you for making me sound out the words and reading better.

The children, 15 of the 52 children interviewed (see Table 8.2), recognised that they had improved their decoding skills in the course of their involvement in R4L. They observed a difference in their ability to read more words correctly, experienced fewer situations where they felt challenged by the words in books, and acknowledged the role their reading buddy played in teaching and supporting these strategies. The children had learnt a new strategy for reading with their buddy, and they acknowledged its success.

Parents. Parents were asked to discuss what changes, if any, they had observed in their child’s reading skills. Nine of the 13 (see Table 8.2) parents interviewed agreed with their children’s observations of being able to sound out and read more words. Their comments related to a greater willingness to attempt to read unfamiliar words, by sounding these out and achieving success by using this strategy.
She reads a lot more fluently now and she’s able to sound the word out, rather than just before she used to say, ‘I don’t know’ and I’d just tell her just try and sound it out, so she’ll get most of the words by trying to sound it out, whereas she never used to do that before. She just used to get upset, distressed, if she didn’t know the word, so now she just tries to sound it out, which is, you know, helped her a lot.

Learnt how to read better, his reading has picked up, he used to read jilted now he reads sentences, he self-corrected and read the sentences correctly.

He can break up the word and yes, try to break it up and read it from there and he’s trying, he’s learnt to pick up in the sounds.

These observations from parents demonstrate that some children had begun to apply their new decoding skills learnt during R4L, to situations outside of the program, at home with their families. Parents had not been trained to prompt decoding strategies in the way that reading buddies had been trained. Hence, this is a very positive outcome, for the children to have transferred their skills to the home reading environment. The improvement in decoding skills was noticeable for the majority of parents interviewed.

**Teachers.** Classroom teachers also recognised that some of their students had improved in their ability to decode (sound out) unfamiliar words and that they had developed a strategy to do this. Fourteen of 34 teachers (see Table 8.2) spoke about observing an increase in the incidence of decoding skills for children who participated in R4L. In most cases, brief references to these improvements were made by classroom teachers: “fluency has improved” and “they sound out now”. Some teachers provided more detailed responses.

Their word attack skills are better, they’re more willing to actually sound the words out and try to say the words.

More strategies to decode words, most of those kids from my class when they got to a difficult word, they’d just pretty much stop, they wouldn’t try anything, so seeing them have more strategies and have more confidence to try it.
They’re also able to decode words a lot better than they were previously to this program.

Classroom teachers recognised that the children who participated in R4L were reading texts with greater accuracy and fluency. Teachers had listened to their students reading aloud and had observed the children sounding words out and achieving success with this strategy. It seems that the children were using their reading skills in the classroom.

**Reading buddies.** The reading buddies’ comments about children’s reading improvements referred to the individual components of the program, as this was their direct experience. A small number of reading buddies, 7 of the 31 interviewed (see Table 8.2) mentioned how they had noticed the children they worked with, applying skills of sounding out unfamiliar words, and that this skill improved and increased as the program progressed. The buddies also noticed the children using some of the specific strategies introduced in the program.

Towards the end he’d actually go “No, no, no. I have to break that into smaller words” and he’d actually talk to himself without me even saying anything.

He was actually sounding them out . . . he stopped making up words while he was reading and he actually looked at the words that he was reading.

From the beginning you could tell that they often stumbled with some words, but during the end, they could find a word and they were like—hey look, that’s a compound, while they were reading kind of thing. That and it was just so much more fluent by the end of it.

Reading buddies reported improvements in the specific skills that would lead to improved decoding skills, such as greater knowledge of sounds and their role in words.

**Summary.** Decoding skills, or the ability to sound out and work out unknown words when reading, are the key target of R4L. Children are taught to hear and use the sounds in words to read a greater number of words correctly. The most consistent theme in the interviews, of all participants from both programs, involved improvements in the area of children’s decoding skills.
Similar numbers of children from both programs described experiencing improved word attack skills when reading. The children reported being able to read more words and having greater success when sounding new words out. This strategy of sounding out was a common observation throughout the adult participants. More parents from the LCS group, rather than the corporate group, also observed that their children were both more able and more willing to sound out unfamiliar words when reading, and reported that this was a change in their children’s behaviour after participating in R4L. More teachers from the corporate program observed the children in the classes reading more accurately and sounding out unfamiliar words after participating in R4L than those from the LCS program. The only comments made by the reading buddies from the LCS program in the area of reading achievement related to the children displaying greater skills in reading accuracy and sounding out words, towards the end of the program. Two reading buddies from the corporate program also mentioned that the children they worked with had improved in their ability to sound out words when reading, and consequently were reading more accurately. Despite these differences in the frequency of responses, there was consistency in the recognition of improved decoding skills in children. Interview participants across both programs noticed an improvement in the decoding, or sounding out, strategies used by children when reading in a variety of settings. These results support the efficacy of R4L’s primary goal of teaching children how to read. The children learnt to sound out unfamiliar words during R4L and demonstrated these skills in the classroom and at home.

**Improvements in Reading: Increased frequency of autonomous reading**

R4L focuses on teaching children how to read and supporting their efforts with individual support from a reading buddy. The primary goal is for children to improve in their ability to read unfamiliar words. It is anticipated that as children become more skilled in the area of reading, they will participate in reading on a more regular basis and read more autonomously, choosing to read for leisure. Interview participants recognised improvements in this area for the children who had participated in R4L. One of the long-term goals of R4L, after the weekly sessions with a reading buddy are complete, is for children to take an active interest in reading and to participate in reading activities on a more regular basis. Children, parents, and teachers noticed an increase in the frequency of autonomous reading. The reading buddies were not able to
comment on this area, as they were only exposed to the children during the R4L sessions when the reading activities were directed; hence, there were no opportunities for children to read independently during the session.

There were minimal differences in the frequency of the responses in the interviews from the two programs, regarding increased frequency of autonomous reading. Nineteen participants from the LCS program mentioned greater independent reading, compared with 16 from the corporate program. Figures 8.3 (LCS) and 8.4 (corporate) display the proportion of comments made by each participant group from both programs in the investigation, expressed as a percentage of the total number of comments for this theme. Reading buddies were not asked about children’s reading behaviours outside of the R4L sessions and thus were excluded from analyses in this section. Sixteen participants from the corporate program spoke about children reading more: 10 were children (62% of the total 16 participants who spoke about greater independent reading).

Figure 8.3. Increased Frequency of Autonomous Reading Observed by LCS Sample

Representation of the proportion of total comments from the LCS program contributed by each participant group (i.e., children, parents, and teachers). More parents reported an increase in the frequency of autonomous reading than any other group, representing 42% of the comments made by participants in the LCS program (8 comments by parents of the 19 comments by LCS participants, calculated as 8/19 * 100 = 42%).
Figure 8.4. Increased Frequency of Autonomous Reading Observed by Corporate Sample

Representation of the proportion of total comments from the Corporate program contributed by each participant group (i.e., children, parents, and teachers). More children reported an increase in the frequency of autonomous reading than any other group, representing 62% of the comments made by participants in the Corporate program (10 comments by children of the 16 comments by Corporate participants, calculated as $\frac{10}{16} \times 100 = 62\%$).

**Children.** Children were asked to describe their reading behaviours at home and whether these were different after R4L. The children reported reading more at home, and reading in their leisure time. Many of them also made a clear distinction, that they did this after the R4L experience. The younger children reported that they were reading more, after being involved in R4L.

*I read lots of books in the classroom.*

*Sometimes at home I go and read four chapter books.*

*I read more now every night, because before I used to read once a week.*

*Cause I read in my spare time, practise every night.*

The older children spoke about reading longer and more challenging books. They provided specific examples of increased reading opportunities.

*I read every night at home on my own and before I didn’t read as much, but now since I’ve been with my reading buddy, I’ve read a lot more.*
I read chapter books.

I used to just buy comics and just look at the pictures instead of reading it.

Many of the children also acknowledged the role their reading buddy had played in this change in reading behaviour.

Because they taught us how to read books.

You can learn reading . . . you get better.

You learn more and it’s a bit easy.

The children were proud to report that they could read, and so they read more now. They recognised that reading was easier for them and because of this they were reading more regularly at home and were reading more challenging books. The children mentioned this aspect of reading more than any other aspect during the interviews, with 18 of the 52 reporting that they read more after R4L (see Table 8.2).

Parents. Almost every parent interviewed across both programs, (12 out of 13, see Table 8.2) had noticed their child reading independently without being asked, indicating that this had become an enjoyable activity for these children. They specifically mentioned that their child participated in spontaneous reading both of books and of real-life texts in the course of their daily lives. The parents expressed their pleasure at seeing their children read as a leisure activity, and that the change had been important in the homes of these families.

I find them reading instructions and the directions in newspapers, or reading from the backs of packs and things . . . which I find fantastic.

Like I can actually see the improvement and I can also see that when we’re out in the street, she’ll look at signs now and tell me what’s on there as well, whereas before, she wouldn’t do that. She was too afraid in case she made a mistake, but now she does.
He has an unquenchable thirst to read now.

She never used to like reading, she used to hate it and every time we used to look for a book, she'd try and look for the easiest one, whereas now she doesn't, just picks a book, she doesn't care which one it is and even in her classroom, she's gone up a few levels, so she's sort of telling me every day that she's reached so and so level and things like that, so she'll just pick up a book and try, whereas before, she just, she just chose the easiest book in the pile.

But just the other day, like he's into that Power, like whether it's beyond him, I'm not quite sure, but he seems to be always reading it in the car, whether or not he reads it or not and the other day he was saying he went to the book shop and my husband bought him two more of them and he seems to be more confident.

Parents appeared pleased, regarding this change in their children after R4L. The interviews suggest that the long-term goal of R4L, for children to read independently and spontaneously, is beginning to be achieved in the medium term, at the completion of the program. These comments also indicate that changes in reading behaviours were extending beyond the R4L session and the classroom, and were present in home and leisure activities.

Teachers. An increase in the frequency of autonomous reading was also recognised in the school environment by a small number of teachers. This was not a strong theme for the teachers, with only 5 of the 28 teachers interviewed (see Table 8.2) observing a change. The teachers reported small changes in the reading behaviours of some of the children in their class.

She's even started bringing books in for us to share in class and showing me what she's reading at home.

Some of the boys we're concerned about have actually started to read [and] participate in reading activities in class.
They’re more willing to read individually without assistance from the teacher or you know, with extra assistance from their peers.

These comments suggest that an increase in autonomous reading occurred for some of the children involved in R4L in their classroom environment. This finding was reported much less by teachers than by parents, who have the opportunity to observe their children over a greater range of leisure time than their classroom teachers.

**Summary.** Increased frequency of autonomous reading, or independent reading, was one of the most consistently mentioned changes in children’s reading behaviour in both programs, representing 35% of the overall comments pertaining to reading achievement (35 comments of the 101, see Table 8.2). Similar numbers of children, from both university and corporate programs, spoke about reading more at home and reading in their spare time (n = 8 from the LCS and n = 10 from corporate: see Figures 8.3 and 8.4). The children attributed this change in their reading behaviour to reading being an easier task for them, and more enjoyable after experiencing the R4L intervention. Of the 13 parents interviewed, 12 (see Table 8.2) observed a noticeable difference in the frequency of autonomous reading by their children. This change was important to the parents, as their child was completing reading without needing to be asked to read by their parents, thus reducing the need for parents to direct the after-school activities of their children. Parents spoke about changes in both the reading of books and in reading in real-life situations, such as street signs, and were happy with this outcome of R4L. These comments suggest that the children from both programs were beginning to transfer their newfound reading skills to situations outside of the school. Similar numbers of teachers from both programs (n = 3 from LCS, n = 2 from corporate, see Figures 8.3 and 8.4) noticed a change in the frequency of autonomous reading of children who had participated in R4L. Reading buddies were not able to comment on reading outside of the R4L session. Overall, the participants provided a strong indication that the children read more, and independently, after being involved in R4L.

**Improvements in Reading Skill: Sight Word Recognition**

R4L addresses a range of skills that are considered prerequisites for reading, and sight word recognition is one of these skills. The Warm Up section of the R4L program is
concerned with improving the automatic recall of frequently occurring or exception words, through a variety of rehearsal games using flash cards. Improvements in the number of sight words a child can read will help improve their reading fluency and lower the cognitive demand when reading as they recognise more words automatically: hence, cognitive efforts can be redirected to more difficult and complex words. Only 11 participants from the interviews spoke about sight words (see Table 8.2). Although not mentioned as frequently as specific decoding skills, improvements in sight word recognition were mentioned across a variety of schools and participant groups.

There were minimal differences in the frequency of the responses concerning sight words in the interviews from the two programs. Six participants from the LCS program mentioned improved sight words compared with 5 from the corporate program. Figures 8.5 (LCS) and 8.6 (corporate) display the proportion of comments each participant group made from both programs in the present investigation, expressed as a percentage of the total number of comments for this theme.

![Figure 8.5. Increased Sight Word Recognition Observed by LCS Sample](image)

Representation of the proportion of total comments from the LCS program contributed by each participant group (i.e., children and parents). More children reported an increase in sight word recognition than any other group, representing 83% of the comments made by participants in the LCS program (13 comments by children of the 16 comments by LCS participants, calculated as 13/16 * 100 = 83%).
Figure 8.6. Increased Sight Word Recognition Observed by Corporate Sample

Representation of the proportion of total comments from the Corporate program contributed by each participant group (i.e., teachers, and reading buddies). More reading buddies reported an increase in sight word recognition than any other group, representing 60% of the comments made by participants in the Corporate program (3 comments by parents of the 5 comments by Corporate participants, calculated as $3/5 \times 100 = 60\%$).

**Children.** Children from both programs were asked to talk about what changes, if any, they had noticed in their reading after participating in R4L. Children from the LCS program commented on being able to read a greater number of sight words. These children were focussed on their newfound ability to read more sight words than before, with 19% of the children interviewed (5 of the 27 children, see Figure 8.5) from the LCS program specifically mentioning sight words as an area they were more successful with. The children acknowledged that R4L had helped them read more sight words than before. No children from the corporate program identified sight words as an area of improvement.

*I learned that you can’t sound out some words, some you just have to know.*

*When I done the R4L, I used to skip words and now I don’t . . . they might be interesting words, I have to learn them ones.*

*It helped me with words, lots and lots of words.*

The sight word component of the program involves children collecting an increasing number of white cards comprising words they have learned to read. It is a tangible aspect of the program that the children noticed improvements in being able to read
more sight words. Hence, R4L has been successful for a number of children who participated in the LCS program, in this reading sub-skill.

**Parents and teachers.** An improvement in sight word recognition was not a significant theme of the interviews with parents or teachers. Only one parent from the corporate program identified “better word recognition” with her child when completing home reading. One teacher from the corporate program worked with a child in her class who could “recognise sight words more easily now”, and one teacher from the LCS program also attributed R4L to assisting children reading sight words: “it helped my kids with their sight words”. Teachers and parents were more focussed on the outcome of overall reading fluency and the decoding skills that children were demonstrating. That parents and teachers did not recognise a change in sight word recognition, a specific aspect of the program, could be accounted for by home practice of the program components, such as sight words, not occurring on a regular basis (see parent involvement section later in this chapter).

**Reading buddies.** Three of the 26 reading buddies interviewed in the corporate program (see Table 8.2), reported some improvements in sight word recognition. These buddies identified a change in the children’s performance in sections of R4L. The buddies explained:

*She started off very badly with sight words first and then she improved.*

*The sight words in particular . . . he was able to get through most of them.*

*Towards the end she’d be stopping herself and getting the right word.*

The buddies’ comments about the children’s progress reflected the structure of the program, which is an expected outcome, as this was the boundary of experience the reading buddies had to draw upon during their group interviews. At the end of each session, reading buddies completed the Communication Book with the children and commented on their performance in each of the sections of the program, so they were closely monitoring sight word improvements each week. No buddies from the LCS program mentioned a change in the sight words of the children with whom they worked.
Summary. Sight word recognition was not so strong a theme in either program, with only 11 participants in total mentioning this skill (see Table 8.2). There were differences in the participants who identified this as an area of improvement. In the LCS program it was mainly the children who had noticed an improvement in their ability to read sight words. Most of these children came from lower grades, Years 1 and 2, where sight word lists were still being used in their classrooms. In the corporate program it was the reading buddies who reported most of the changes in sight word recognition. The reading buddies in the corporate program spoke of the components of the program and their specific buddy’s performance much more than those buddies in the LCS program, who specifically referred to a growth in sight word knowledge. Overall, only 11 comments were made from both programs relating to improvements in sight words, representing a small proportion (see Table 8.2) of the total perceptions of reading achievement.

Overall Summary
Children who participated in R4L were observed to develop skills in sounding out unfamiliar words and to experience success in reading texts more accurately. This outcome, of improved decoding skills, supports the quantitative analyses in Chapter 7: children do in fact improve in their ability to read more accurately. R4L has achieved its aim, to teach children how to read. As a consequence of the success children have experienced with their reading, there is also convincing evidence across both programs that the children are reading more than they were before R4L and are choosing to read at school and at home of their own volition. This increase in autonomous reading should provide the children with the necessary practice to consolidate their improvements in reading and to facilitate additional gains. These are the significant changes in reading skills experienced by the children and observed by the adults around them.
Research Question 2.1.2.
Possible Threats to Control Condition

Overview
Research Question 2.1.2 was posed to consider whether the control condition had been compromised during the first phase of the quantitative study whilst the experimental group received the R4L intervention. The waitlist control condition was explained to school principals and school champions, whereby half of the children (i.e., experimental condition) would receive the R4L intervention in the first half of the year and their results would be compared to the control group who had not received R4L. This control group would then participate in R4L in the second half of the year. In the LCS program there was an additional element requiring explanation. As this study involved reading buddies from the University of Western Sydney enrolled in an academic unit (LCS), principals were made aware that every effort would be taken to ensure that all the children in the control group would be seen. However, this was reliant on enrolments in the university subject. Ethically, the research team had a duty to disclose this uncertainty: however, it may have significantly compromised the control group. This uncertainty was not the case for the corporate group, as each corporation had undertaken to commit to the required number of volunteers for the duration of the present investigation. This section describes and analyses the issues reported by children, parents, and teachers in relation to the control group receiving any specialist attention during the first phase of the study. Reading buddies were not asked questions about this, as they were not privy to the support provided to children outside of their R4L session. Twenty-four participants from the interviews spoke about possible contamination of the control group, and these were all from the LCS program. Figure 8.7 displays the proportion of comments each participant group made from the LCS program in the present investigation, expressed as a percentage of the total number of comments for this area.
Children from the control group were asked to talk about what support, if any, they had received during the year in addition to R4L. This question did not appear in the interview schedule for the experimental group. A total of 8 children from the control group reported working with a tutor during the year before beginning Reading for Life in response to the two questions, “Do you have any other reading help out of school? Tell me about this.” and “Tell me about the help you get at school for reading?” No children from the corporate program reported working with a tutor during their interviews.

Out of school I get help by learning.

I got help from outside the school from everyone.

With the tutor they will give me special words from my books that I got stuck on and I couldn’t find a piece of paper for practising and I was getting 2 books to read for like a week and I’d go every Saturday morning.

I used to get tutor and it was, not really good and then I got to tutor with my reading buddy.

I get tutored sometimes, but I’m going to stop soon.
I do, I go with Mrs Sheppard and I’m a blue folder person with Mr Williams.

The children responded confidently to this question and understood what was intended, as evidenced by no children asking for clarification about what “extra help” implied. These are children who required additional assistance and were receiving this.

**Teachers.** Classroom teachers were asked about the kinds of support children in the control condition were receiving during the first phase of the present investigation. It became apparent that at three of the four schools in the LCS program that were interviewed in the present investigation, significant support was being provided to the children in the control condition, with eight of the 28 teachers interviewed (29%) being able to identify instances of this. The rationale for this is aptly summarised by the comments below.

I just wanted to check the control group didn’t miss out, because initially I thought from the first reading that the control group may not have got any intervention and as you said before, like the ethics of it didn’t seem right, but once we knew that both lots were going to be on, it was still going to be run as Learning Links, had run it, like with the integrity of the way the program was set up, then it was an easy decision to make. It was something that had been an important part of our school life and we wanted to continue that through. Once I knew they would be included in some way later in the year I reorganised my support to support those children in the first half of the year. Parents were happy for this additional help.

I found at the beginning of the program though, when it was all beginning, I wasn’t really clear on what was happening and a lot of parents were asking me, cause I know they went, they went through a group of children tested and then a lot of parents were asking me, if my child’s in, what’s happening? When’s this happening and I couldn’t give them any information, cause I didn’t have it, have any and even for the children who didn’t go on till the 2nd half of the year, all I knew was, your child might be on in the 2nd half of the year; I don’t know when that’s going to start, I don’t know what it’s going to look like, I can’t guarantee that it’s definitely your child, because some of them didn’t make it in the end and yeah, that wasn’t clear I think, throughout the year, until we finally got everyone in, in the 2nd half of the year. Many parents worked hard with their children in case they didn’t get a go and asked for extra reading help at school, or to be involved in the parent reader program. I know some of the mums in my class found tutors and
Once the 2nd half started, well this is how it’s going to run, cause this is what happened in the first half, but yes, there was a lot of and I think the parents here like, wanted to be really up to date and so there was a lot of questions right from the beginning, that I felt I couldn’t answer cause I didn’t have enough information.

So he didn’t get chosen in the first half and she wanted to know why he didn’t get chosen in the first half, but she does that with every subject and it’s no different from everything else and that’s just her personality so. Her son now has a tutor so is getting the help he needed anyway.

The uncertainty of the reading buddies being available for all of the children in the control condition made school teachers nervous and possibly led to the redeployment of resources to counter this potential imbalance. Other teachers considered the R4L intervention with the experimental condition as an opportunity to redistribute limited resources to children requiring assistance—these were the children assigned to the control condition in the present investigation.

As the teachers, it’s, it’s immeasurable you know, we just don’t have enough time to get through with every child and there’s so many in need of extra support and I suppose especially here, where you don’t have as many children that can have that outside tutoring, that don’t, you know for whatever reasons, they can’t get that extra support at home and they can’t get it from outside agencies, so having this, it’s fantastic for the teachers to see them get the 1 to 1 and it’s done so professionally and it’s so well set up, we love it. It means I get to spend time with the other children who need help while Reading for Life is happening.

We have other reading programs, we have a kick-start program in kindergarten, and I don’t know if anyone’s mentioned that but Kathy takes a group in the afternoons, which kind of supports some of the struggling readers, we targeted the children from the pre-tests from Learning Links who had to wait their turn. We have, the Catholic Education office in Lidcombe provides us with what’s called “Targeted Intervention” and some of that funding we give over to working with children, particularly children who struggle say as a result (also the basic skills test) we target those children for reading and writing. The children in Reading for Life now would be eligible for Targeted Intervention but we held off while they were with their buddies and the other children got more time. They’re more individualised programs than general programs. Being a small school you can do that.
For children from year 2 to 6, we run a Multilit program and we also, I mean all the teachers, oh not all the teachers, I take that back, we even start a program the government offers for children who don’t reach the benchmark in literacy and numeracy. Our teachers take that on as tutors, so they tutor them after school in that area. Some of our children waiting were able to have that time with teachers in the even start program.

The other thing is, by having that control group that you trialled, I suppose that’s going to give you more clear indication whether there’s been improvements or not, because maybe if the class teacher is busy in any way, trying to monitor all her children, so she probably hasn’t thought about it. We’ve been able to help those children more this year while they waited for their program.

Classroom teachers described differential treatment provided to children in the control group during the first phase of the intervention. The extent of this contamination cannot be measured. However, clearly the control group had been contaminated; this is not surprising given that, once schools, teachers, and parents were aware of reading difficulties, based on the results from the suite of standardised measures, ethically they felt obliged to implement interventions to address children’s needs.

**Parents.** Parents in the control group also described involving additional support for their child outside of the school environment before the R4L program began. Eight of the thirteen parents interviewed (62%) spoke about additional support after receiving the report from Learning Links about involvement in R4L.

*We were probably doing some other things at the same time as Learning Links, which has impacted on his behaviour as well . . . I did some neurofeedback . . . I think there were a number of things that had, have contributed to more positive behaviour.*

*He gets, Mrs Lee takes him for maths and sometimes the teachers just give them that extra small group reading program, yeah, so he does get that extra support. Before his turn with Learning Links program he had extra help from Mrs Lee, more than he got ever before.*
Well he goes up into small groups, where they take him into that, the small group. I've also got him at the Learning Centre, he's going once a week and from the feedback from the teacher, they've been also working on lots of other things, so they've been really concentrating on things this semester, so I think it's a combination of a lot of things and he's taken a great deal more interest in reading. The report at the beginning of the year jolted me into action as I was told Jonathon would not get a turn until later in the year. I am so glad I got extra help.

Because we go to a Catholic School and the fees are so high, we want a tutor, but don’t want to pay. But I begged the school for extra help until Matthew was chosen and given extra help.

The parents interviewed from both control and experimental conditions recognised the need for the child to receive extra help, and many sought additional support for their child, often in the form of after school tutoring, during the first phase of the intervention.

**Summary.** The children involved in the sample for the present investigation were children who had been identified by the school as having reading difficulties. They were also children whose parents were made aware of these difficulties by reports provided to parents in relation to pre-test scores. R4L is intended to supplement existing school support programs. However, the nature of school support may have been influenced by the existence of the study itself. That is, some parents sought the assistance of tutors during the first half of the year while their child was a member of the control group waiting for the program. In addition, some schools provided learning support to the control group during the first half of the year and not to the experimental group: consequently, the control group was contaminated. These are children who require additional support, and any help is desirable for them. However, the contamination of the control group is problematic for the analysis of quantitative data and as such is likely to lead to underestimation of the number of significant effects and the effect sizes thereof.
Research Question 2.2.1.
Impact of R4L on Children’s Reading Self-Concept

Overview
Research Question 2.2.1 was concerned with understanding the impact of the intervention on children’s reading self-concept from the perspectives of multiple stakeholders of R4L. This section will describe and analyse the themes and issues discussed by children, parents, teachers, and reading buddies in relation to changes in reading self-concept. During the course of the interviews there were two significant themes consistently raised: (a) the effect of the relationship between the buddies and students, and (b) improvements in reading self-concept. Another theme raised by interview participants was an improvement in the enjoyment of and persistence in reading. Each theme is presented in order of frequency, with the most frequently occurring theme appearing first in the analyses. The frequencies of child, parent, teacher, and reading buddy group interview responses across three themes related to reading self-concept are displayed in Table 8.3.

Table 8.3.
Frequencies of Participant Responses Related to Improvements in Reading Self-Concept

<table>
<thead>
<tr>
<th></th>
<th>Children</th>
<th>Parents</th>
<th>Teachers</th>
<th>Buddies</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
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<td>29</td>
<td>10</td>
<td>29</td>
<td>15</td>
<td>83</td>
</tr>
<tr>
<td>Reading Self-Concept</td>
<td>22</td>
<td>5</td>
<td>22</td>
<td>18</td>
<td>67</td>
</tr>
<tr>
<td>Enjoyment of Reading</td>
<td>0</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td>10</td>
</tr>
</tbody>
</table>

Relationship with Buddy
An important aspect of R4L is the bond formed between the child and their reading buddy—that is, the way children respond to the sessions working individually with an adult. All participants were asked about this relationship, specifically how the children responded to and spoke about their reading buddies. More participants discussed the relationship of the buddies than any other aspect of the program throughout the interviews, making this the strongest theme of the study. The adults who worked closely with the children—their classroom teachers and reading buddies—consistently reported positive effects of the bond between the child and their reading buddy.
There were significant differences in the frequency and content of the interviews from the two programs, with 29 participants from the LCS program speaking about the relationship between the child and their buddy compared with 54 from the corporate program, representing 51% and 74% of each group respectively (see Figures 8.8 and 8.8). Figures 8.8 (LCS) and 8.8 (corporate) display the proportion of comments each participant group made from both programs in the present investigation, expressed as a percentage of the total number of comments for this theme.

**Figure 8.8. Relationship with Buddy Observed by LCS Sample**

Representation of the proportion of total comments from the LCS program contributed by each participant group (i.e., children, parents, teachers, and reading buddies). More teachers discussed the relationship between buddies than any other group, representing 38% of the comments made by participants in the LCS program (11 comments by teachers of the 29 comments by LCS participants, calculated as 11/29 * 100 = 62%).

**Figure 8.9. Relationship with Buddy Observed by Corporate Sample**

Representation of the proportion of total comments from the Corporate program contributed by each participant group (i.e., children, parents, teachers, and reading buddies). More children discussed the relationship between buddies than any other group, representing 37% of the comments made by participants in the Corporate program (20 comments by children of the 54 comments by Corporate participants, calculated as 20/54 * 100 = 37%).
Children. The children were asked to describe their buddy to the researcher during their group interviews. Many of the children from both programs found it difficult to articulate how they felt working with their buddy, and the majority of responses were single word descriptors, “kind”, “cool”, “fun”, “friendly”, “silly”, “nice”, and “little bit funny”. “Nice” and “kind” were the most common descriptors of the reading buddies during the interviews: 16 of the 29 children (see Table 8.3) used either word, reflecting that the children shared a positive time with their buddies.

Four of the older children were able to describe their relationship with their buddy in more detail.

She tells me “you’re a good reader” and I think she’s right.

She helped me to read and was my friend and I miss her now.

He never yelled and was really funny and he was the best person to read with me.

These comments suggest that some of the older children attributed their successes to their time with the reading buddy, not just in the sense of teaching them new skills, but in their affirmations of their skills and abilities.

Although the children experienced difficulties articulating in depth how they felt about their reading buddy, observations by the researcher during the three celebration parties provided a visual perspective of the relationship between the buddies and the students. Two of the parties were held at the corporate offices, the third at a local park. The researcher observed the children arriving at each of the parties. Children were arriving at an unfamiliar place in all instances, escorted by a teacher from school. The reading buddies were observed to be excited and preparing the party venue prior to the arrival of the children, ensuring that the food, gifts, and entertainment were all prepared for the children. Many of the buddies were checking their watches and checking the front door for the arrival of the children.

Upon arrival, children were seen to look around quickly for their buddies, run up to their buddies and give them a hug, or run up to their buddy and stand beside
them and remain there with their buddy rather than their peers from school. The children looked for their buddies first, balloons and food second, suggesting that the children were more excited to see their buddy again than to attend the party (although they certainly enjoyed this too). The children ate with their reading buddies and some spent time reading their book (a gift from each buddy) with their buddy rather than playing with the other children. The buddies and children appeared reluctant to leave each other at the end of the party, with lots of hugs and waving goodbye before the children finally left.

Girls and boys behaved similarly with their buddies; there were no observable differences in their relationship with their buddy. Although the children were not able to describe how they felt about their buddy in a detailed way during the group interviews, they demonstrated that they enjoyed their time, felt their buddy was important, and wanted this relationship to continue. Their behaviour during the party provided an insight into the special bond that formed between the children and their buddies, an insight that was difficult to conclude from the short responses during the interview. The children enjoyed the time they spent with their buddies, they felt comfortable with their buddies, and gravitated towards them as someone they wanted to spend time with.

The LCS program is structured a little differently to the corporate program, with each buddy working with five children individually across the whole school day (see Chapter 6). The children still spend time with their buddy one-to-one for 45 minutes. However, their buddy attends for the whole school day and sees other children as well. There is a significant discrepancy in the responses of the children in relation to their buddy, with 33% of the children describing their buddy (\(n = 9\) children of the sample of 27 children interviewed in the LCS program, see Figure 8.8) compared to 80% of the children in the corporate program (\(n = 20\) of the 25 children interviewed, see Figure 8.9). Some of the children in the LCS program could not recall the name of their reading buddy, and frequently referred to their buddy as a teacher rather than a friend. Six of the nine children who described their buddy prefaced their one word description with “my teacher was [descriptor]”. Although the question was phrased “Can you describe your reading buddy to me?” the children began their response with “My teacher”. In contrast to the corporate program, they regarded their reading buddy as a teacher rather
than a friend. They did speak about their buddy in a positive way, but did not consider them to be any different to a teacher at the school.

*She’s a very nice person, not one of those meany people, that go, “Do your work or you get in trouble and get out”. She was just very nice . . . She was just like a kind person.*

*My teacher was kind to me and helped me. My other teachers are too busy to help me.*

*That teacher who came she was nice and smiled a lot and I liked going to see her.*

The children enjoyed working with their buddies, but did not speak of them as much or in the same way as those children from the corporate program.

**Parents.** The parents also discussed the relationship between the child and their reading buddy. The parents interviewed had not met the reading buddies themselves, but were able to provide an insight into how the children spoke about their reading buddies to other adults in their lives. There is not a significant difference between the two programs in the comments made by the parents, with 75% of the parents from the corporate program (n = 3 of the 4 interviewed, see Figure 8.9) and 78% of parents from the LCS program (n = 7 of the 9 interviewed, see Figure 8.8) speaking about this relationship. Parents spoke of how the children enjoyed working with their buddy.

*It was a very positive relationship, he felt sort of safe and it was like a friendship but also yeah one of respect.*

*My child just loves her reading buddy.*

*She loved it, she got on really well with her teacher and she was always keen to do the work that, the cards that were given to her, and was always happy for what she’s learnt.*

The parents reported a positive feeling expressed by their children towards their reading buddy, reflecting that a constructive and enjoyable relationship had formed between the buddies and children. There were no negative comments expressed about the buddies by the parents. The final comment above, where the parents refer to the buddy as a
teacher, is from the LCS program. This is consistent with the language used by the children to refer to their buddy, as discussed in the previous section.

**Teachers.** There was also a difference between the experiences of the LCS and corporate programs in the way teachers perceived the reading buddies. Every teacher from the corporate program spoke positively about the relationship of the buddies with the students, some on more than one occasion ($n = 18$ comments from 12 teachers, see Figure 8.9). In comparison, not all of the teachers from the LCS program expressed an opinion about the relationship, with 11 of the 16 teachers (see Figure 8.8) discussing this relationship. In addition, many of these comments referred to the buddies as teachers and helpers within the school. Both the frequency and content of the comments by teachers were different across programs.

The teachers from all three schools in the corporate program spoke positively about the relationship they observed between the children and their buddies. There were no negative comments about the relationship between the children or their buddies during any of the interviews. Each of the 12 teachers was able to answer the question, “Can you describe how the children responded to their reading buddy?” Six of the teachers made additional references to the relationship throughout the interviews, with a total of 18 comments from 12 teachers in total. They described this relationship in terms of observing the enthusiasm displayed by children to leave the classroom and go to their R4L session, and the multiplier effects of improved confidence upon returning to the classroom after a successful and enjoyable time spent with their buddy. Many of the children involved in R4L left the classroom for other support programs with the school, and consequently the teachers had a range of reference points to be able to distinguish the R4L experience from other school-based support experiences.

*We’ve got lots of programs here for kids with different like problems with reading, but this is one program where the kids actually don’t mind going.*

*I could see genuine enthusiasm between the buddy and the student and happiness and friendliness, this is not always the case.*
I could tell by the look on their faces and when they went and when they came back. There was excitement, that they were going somewhere to do something different or special or that they enjoyed.

One teacher also spoke about the social difficulties faced by some children with reading difficulties, and how R4L helped these children. This teacher attributes the reading buddy as being able to supplement social interaction for the child, a child who may not have a strong friendship base.

I've seen the relationship with them and their buddy develop so I think socially it's been very helpful because I'm concerned about these slower readers maybe not having as many friends as other more faster kids, so I think that they've got their buddy, who's there every week and very interested in them, so that's been the main improvement I've seen.

Four teachers also spoke of the direct interactions they observed between the children and their buddies, providing a more solid basis for their comments about the relationship as they had themselves seen the children working with their buddy. In these observations, all teachers who mentioned this were impressed by what they had observed.

I've been on release when it's been on and just to see the relationship between the buddy and the students is just wonderful, just a positive vibe coming out of it, just amazing, they're really good teachers.

I've been working and a Learning Links lesson has been going on . . . and I have to say the rapport between the adult and the child has been one of excitement at their achievements.

It's not about conducting a program, it's about relationships, this is the sense that I have, relationship and trust and an element of nurturing which brings the child forth . . . the program is about bringing the child to a place beyond where they are now.

The teachers were asked directly about the relationship between the children and their reading buddies and did respond to this question in a positive manner during the interviews, as described above. They continued to mention the importance and nature
of the relationship throughout the interview when discussing changes they had observed in children and the benefits of the program; consequently, there are more comments related to the relationship between the buddies than there are teachers. This was the most frequently discussed aspect of R4L mentioned by the teachers across the three schools in the corporate program.

The teachers from the LCS program were able to speak about their direct observations of the children’s response to their buddy, and comments the children had made about their buddies. Classroom teachers based their assumption that children enjoyed working with their buddy on their observations of the children’s willingness to leave the classroom with their reading buddy.

*Just their eagerness when the teacher turned up to take them, it wasn’t—oh ok, it seemed they felt special to be able to leave the class.*

*When they would come to the door and ask them to come, they’d smile, get up straight away and go, so I reckon they were happy to go with their teacher.*

The teachers interpreted this eagerness to go to work with their buddies as an indication that the children enjoyed the experience and working with their buddy. In addition to observations of the children greeting their buddy, there were also reports by teachers of children being enthusiastic to show their teachers what they had been doing with their buddies upon returning to the room after the session.

*They’d show me their books and want me to sign and make a comment and they were really enthusiastic all the time and kept telling me, if they changed reading levels and things like that.*

*Absolutely loved it and to the extent that children in my class, especially the second half of the year, they would come and always keep their little cards or their games that the girls had made and during silent reading they would sit and play with a partner. It was really good and they still play now, even though it’s finished, they get their cards out and play.*

The excitement shown by the children reflects their enjoyment of working with their buddy. One of the School Champions from the LCS school had conducted
observations of some of the sessions at her school. She reported that the children were happy working on the program with their buddies.

They were very engaged and you know, like you could see the game was what they wanted to get to, so they worked through everything. They smiled and laughed with their buddies, it was lovely to watch them blossom.

In addition, one of the teachers spoke about his observations of children who had formed a strong bond with his/her buddy and the impact this had on the overall success of the program for a child.

I think the children that related to their buddies better, did better . . . I don't think there was that connection and I didn't see as much improvement in those ones, as the ones that really connected.

Both of these comments are from the LCS school ranked highest in terms of program fidelity, and they were the only instances where the reading buddies were in fact referred to as “buddies” rather than “teachers”: this reflects an understanding of both the program and the nature of the buddy role.

There was one incidence of two older girls at an LCS school who did not like being withdrawn, and these were the exception to the comments about children enjoying working with their buddy. These girls spoke about their buddies in a positive manner during their interviews (“nice”, “kind”); however, their teacher described these students as displaying reluctance to leave the room.

A couple of the girls that have gone don’t like going because they’ve told me that that’s for dumb kids. And they’re the two girls that are pulled out for lots of things, so they’re just a bit sensitive about it.

There was another child at a different school, who struggled with the change of routine. However, he had recently been diagnosed with Aspergers Syndrome, and this would be consistent with that diagnosis. With this small exception, the response from teachers
about the relationship with the buddy indicates that children enjoyed working with their buddy and that this assisted their progress through the program.

**Reading buddies.** More reading buddies from the corporate program discussed the relationship they had with their buddy, with 13 from the corporate program compared with 2 from the LCS program (see Figures 8.8 and 8.9). However, they represented similar proportions of the sample of each of the buddies interviewed, 50% and 40% respectively. Many of the reading buddies received feedback from the children, verbal and non-verbal, to reinforce that the children enjoyed coming to see them and work with them. The comments from the reading buddies also acknowledged that the children were happy to work with them and also refer to the enjoyment the reading buddies felt working with their buddy.

> Oh it sounds soppy, but it's a nice combination like when they walk in and they're smiling at you and so glad to see you . . . she looked to see where I was and then smiled and it was really sweet.

> My child was so happy each week to come and read even when it was so very hard for him.

> They'd come up to me at recess and lunch and when they'd see me, they'd just come up to me and say, when are you taking me next or can we play games now and it would be recess or lunch and they'd just be so excited and every time they'd see me or they'd refer to me as their friend and they'd want to sit with me at recess or lunch.

> On the last day of school, I had one of my students latch onto my leg and started crying, saying please don’t go. She actually, a couple of weeks before that, she bought me a tiny piece of jewellery, with her own money that her mum helped her wrap and she wrote me a card, and when she saw that I was reading it she goes, I can’t believe you actually read that, or I can’t believe you’re actually wearing that and she was so cute, so nice.

The buddies were pleased that they had formed this connection with the children. Their reports of the relationship they had with the children were supported by the comments from the classroom teachers, parents, and children. It is interesting to note that although the buddy believed the child considered her a friend, all of the children
interviewed who worked with this buddy described her as “my teacher”. This reference to “friend” was not supported by any of the remaining LCS interviews.

During the interviews the buddies were a little hesitant at first, when they were speaking about the feedback they received from their students, almost embarrassed that they had gleaned so much satisfaction and joy from a child’s response. Three of the buddies who spoke about the children’s responses felt that the child they worked with was not enthusiastic to be working with them, but had received feedback from their classroom teachers to challenge their perception. The buddies who referred to other adults reporting happiness from the children were not as hesitant mentioning this, which suggests that these adult perceptions legitimised the experience more.

His teacher told me . . . that when he sort of first found out he was in the program he wasn’t very excited about it but then as the weeks went on he’d keep saying, “Can I go to reading? My reading buddy is coming.”

I always thought that he didn’t want to be there, but then I spoke to this teacher last week and she was saying, “No, he was really excited, he was always saying when’s the reading buddy coming and you know, what time is it”, so that was really nice to hear because . . . he didn’t really show it . . . so that was nice to know that he did actually enjoy it.

The experience of working with a child was unfamiliar territory for many of the reading buddies, and their experience was closely tied to the feedback they received from the children and adults working with the children. It is positive that in cases where the children themselves may not have given the feedback, teachers were able to affirm the reading buddies in the great work they were doing. The reading buddies’ spirits were buoyed by the news that the children enjoyed working with them.

**Summary.** Children’s relationships with their reading buddy was the most frequently occurring theme throughout the entire range of interviews, with 83 of the comments about reading self-concept (see Table 8.3) relating to this relationship. It was apparent in interviews from all participants from both programs that the children enjoyed working with their buddy and that a relationship did form. It was the most common discussion in both the corporate and LCS programs, spoken about more than
any other aspect of R4L. However, there were some differences between the two programs.

A greater proportion of participants from the corporate program (74%, see Figure 8.9) spoke about the relationship between the children and their buddy than those from the LCS program (51%, see Figure 8.8). In both programs the child worked individually with their buddy each week. The difference in the programs was that the reading buddies from the corporate program were paired with one child only and came to the school each week solely to work with their reading buddy. In the LCS program the reading buddies were matched with five children and came to the school for the whole day to see each child. Although the child’s time with their reading buddy was individual in the LCS program, their buddy was not unique; they shared their time across the whole day with other children. This difference was noticeable during the interviews, as every teacher in the corporate program spoke at least once about the nature and significance of the relationship between the child and their buddy. Six spoke about this on more than one occasion. This was not as compelling in the LCS program.

The children’s responses to their buddies were also different between the two programs, as 80% of children in the corporate program ($n = 20$ of $25$, see Figure 8.9) spoke about their joy in working with their buddy, compared with only 33% of children in the LCS program ($n = 9$ of $27$, see Figure 8.8). As such, the children perceived their buddy differently in the two programs. The buddies, too, perceived this relationship, with 50% of corporate buddies, compared with 40% of LCS buddies, describing their relationship with their child. The buddy was the most significant aspect of R4L for children in the corporate program; this was not the case for the children in the LCS program. The relationship with the buddies appeared to be stronger and more powerful in the corporate program, where the buddy came to the school to see just one child.

**Improvements in Reading Self-Concept**

Children who have experienced persistent reading failure will often feel less confident to approach reading tasks, as their failure has led them to believe they are not capable of reading. One of the short-term goals of R4L is to support children’s efforts when reading and to help facilitate reading success. This success is hoped to build confidence in the children, so children can have an improved perception of their reading self-concept after participating in R4L. The length of R4L is relatively short (11½ hours),
yet there are other outcomes, such as improved confidence and reading self-concept, which can foster continued improvements in the long-term, after R4L is completed. Improved confidence was a theme identified by all groups of adult interview participants when they were asked to speak about the changes (if any) they had observed in the children who participated in R4L. This was the second highest theme raised across all participants. Those who worked most closely with the children, classroom teachers and reading buddies, were those to mention and elaborate most on improved confidence in children. Figures 8.10 (LCS) and 8.11 (corporate) display the proportion of comments each participant group made from both programs in the present investigation, expressed as a percentage of the total number of comments for this theme.

Figure 8.10. Improved Reading Self-Concept Observed by LCS Sample

Representation of the proportion of total comments from the LCS program contributed by each participant group (i.e., children, parents, teachers, and reading buddies). More children discussed improvements in reading self-concept than any other group, representing 45% of the comments made by participants in the LCS program (13 comments by children of the 29 comments by LCS participants, calculated as 13/29 * 100 = 45%).
Figure 8.11. Improved Reading Self-Concept Observed by Corporate Sample

Representation of the proportion of total comments from the Corporate program contributed by each participant group (i.e., children, parents, teachers, and reading buddies). More reading buddies discussed improvements in reading self-concept than any other group, representing 42% of the comments made by participants in the Corporate program (16 comments by buddies of the 38 comments by Corporate participants, calculated as 16/38 * 100 = 42%).

Children. The children interviewed did not speak about confidence as a tangible improvement, but were able to describe how they felt about their reading after the R4L experience; they described how their reading self-concept had changed. They were asked “Is R4L a good program for children? Can you tell me why?” and “What have you learnt from R4L?” Their comments demonstrated that they felt more positive about reading, sure that their reading skills had changed, and that they could read more confidently after participating in R4L. The implied confidence in their comments presented throughout the interview phase. Confidence is a difficult concept for children to comment on, as it is not a tangible result such as reading more books or books of a higher level. Confidence and reading self-concept are feelings and perceptions about abilities in reading. Twenty-two of the 52 children interviewed (42%, see Table 8.3) expressed that they felt better about reading and felt they were more able to approach reading tasks.

The responses from younger children across both programs included many one word descriptors: “great”, “fantastic”, “spectacular”, when asked to describe what reading was like for them after R4L. Some of the children indicated that they felt more able after participating in R4L, with descriptors such as “smart” (n = 8), “faster” (n = 6), and “better” (n = 5) used frequently by the children. A few children used more than one descriptor in their explanation of changed feelings about reading.
It makes you really smart.

That it got me better.

It will make you feel smart and go faster at stuff.

My reading is better.

The older children were more realistic about their feelings towards reading and elaborated on this.

Because sometimes it’s hard to pronounce the word, but I feel I can do more words.

Well some books are hard but more books are not hard anymore.

I wouldn’t say good, but like nearly there . . . because the reading buddy had helped me.

The children demonstrated their self-concept had improved towards reading as they described how their feelings about reading had changed. The older children were more aware of their difficulties and how this impacted their perception of reading, but could still identify improvements. There was one exception: a child who did mention the word confidence specifically, “made more confident about reading, cause I used to hate reading”. The adult participants were more able to notice changes in confidence and to label these changes as confidence.

Parents. The parents across both programs noticed an improvement in confidence towards reading for children who participated in R4L. Five of the 13 parents interviewed (38%, see Table 8.3) had observed a change in their child’s reading self-concept.

It built their confidence . . . he was slow whilst his reading was very good and it’s given him confidence to increase his pace and know he’s not going to trip . . . I found that the Learning Links experience has given him that interest, to want to read.
She is so proud of herself on the days she does Learning Links. Her confidence has grown each week and she wants to read.

I have seen her be so much more confident, she is happy to read and wants to show me her reading a harder book, it's great.

Not all of the parents noticed a change in reading self-concept of participating children. However, those who did were pleased with this outcome of R4L.

**Teachers.** Classroom teachers from all schools spoke about the improved confidence they had observed in the children from their classes who participated in R4L. Twenty-two of the 28 teachers interviewed (79%, see Table 8.3) mentioned confidence. More teachers than any other participant group interviewed noticed improved confidence. For five of these teachers, “more confidence” was the response to the question “What changes, if any, have you observed in the children after participating in R4L?” The remaining 17 teachers provided more detailed responses to that question, indicating that the children displayed greater confidence towards reading tasks and had an improved reading self-concept.

He’s much more confident in his own abilities now . . . and he helps his peers.

More of a positive attitude towards reading and for some of those children, yes it’s been a great change and, in listening to them read in reading groups their reading and their confidence in reading has improved, so that’s noticeable in our reading groups.

They come back into the room enthusiastic and feeling they can attack that thing and give it a really good go.

There were also instances where five of the teachers who identified improvements in confidence towards specific reading tasks, also observed improvements in the extent of their confidence in other areas of school.
I could see a huge difference in their, just their general confidence in everything, not just in reading groups, but in everything . . . everything throughout their whole day.

They’re willing to put their hands up in class, give answers, that sort of thing. They’re willing to stand up in a class and have a go at reading, where previously they tended to avoid doing things like that, so the extra confidence they’ve gained in having a go at things and taking risks, have been a positive as far as I’m concerned.

One teacher also mentioned that the children were reporting improved confidence.

They actually make comments, like they can see themselves doing improvements when they’re doing their reading levels and [say] ‘I can do this now’.

The comments from teachers are very certain: they saw changes in confidence in the children they worked with, in reading activities after they returned from R4L and while working in their classrooms. The children are surer of their skills in reading, and this change is noticeable.

**Reading Buddies.** More reading buddies from the corporate program (62%, see Figure 8.11) described their observations of improved confidence, than LCS buddies (40%, see Figure 8.10). The corporate buddies were more focussed on their individual child and consequently were more likely to comment on the changes in the children. Eighteen of the 31 reading buddies (see Table 8.3) from both programs spoke of observing improved confidence in the children they worked with.

It’s rewarding to see them, you know, every week get a little bit more confident and a little bit more, you know, out there with their reading.

To see her develop and her confidence grow and see her come out as a person as well.

Particularly their self-confidence has come through, so yes we’ve got the data for how many more sight words they’re seeing, how their reading age might have improved but we’re seeing children who are very shy and won’t look people in the face, even their own friends, become far more confident as a result of being able to improve their reading skills.
He always said, “oh it’s too hard, it’s too difficult, oh this one looks boring”, but during the end he’d actually bring in his own book, his chapter book that he’d read and he was like “oh yea I want to get up to the next chapter and I want to read this book and I want to do this and I want to do that” and it was such an improvement just to see his confidence, how much more from the beginning and how much be liked at the end.

The reading buddies spoke about the progression of confidence over the course of the program, where children started out hesitant and as their skills grew, took more risks, read with a louder voice and appeared more confident during the session. The reading buddies were very focussed on reading outcomes in terms of the program’s components, but observed and valued non-tangible improvements in areas such as confidence.

It is important to note that none of the questions during the interviews specifically addressed changes in confidence or mentioned the term, reading self-concept. Comments about confidence, reflecting changes in reading self-concept, arose after participants spoke about the relationship with the buddy or after describing improvements in the reading skill of the children. This indicates that the participants of R4L acknowledged an association between the relationship of the reading buddies and fostering confidence in the children, and that this improved confidence assisted and was in turn further bolstered by the additional reading skills the children developed.

Summary. Improvement in confidence about reading was the second highest theme overall throughout the range of interviews in both programs, with 67 participants speaking about confidence (see Table 8.3). There were not significant differences in the frequency of observed changes in confidence between programs, with 50% of corporate participants ($n = 38$ of 76, see Figure 8.11) and 48% of LCS participants ($n = 29$ of 60, see Figure 8.10) describing this. In both programs, participants expressed their belief that the children were happier to read, more willing to read, and were convinced that they had improved their reading skills during and after participating in R4L. The self-concept of children, in relation to their skills and abilities in reading, had changed after participating in R4L.
Improvements: Enjoyment of Reading

A small number of parents, teachers, and reading buddies from the corporate program observed that, in addition to overall confidence, there was an enjoyment of reading that some children developed after participating in R4L. Ten interview participants of the 76 interviewed in the corporate program (see Table 8.3) observed an increase in the enjoyment of reading and children persevering as a result of this enjoyment.

*I think the attitudes change, I think it becomes not a task anymore, rather something that’s fun and can be enjoyable.*

*The big improvement is the love of reading, they enjoy going with their special person week to week and they enjoy doing the activities.*

*She seemed to embrace it more and I guess at the end of the day I can only be just as pleased with that as I could be with her, you know, improving phenomenally in terms of skill.*

*Oh he just procrastinated, he didn’t want to read, he was getting cranky. But now there’s no problem, no problem he can read, he actually wants to read and enjoys reading . . . I’ve noticed that it’s even homework, he’s happy to do himself.*

*He’s not so afraid of reading, so he’s able to read, attempt new words, sounding them out and I watch him have fun with reading. I think that comes from the extra coaching that Learning Links provided.*

This is a positive outcome of R4L; children were beginning to take pleasure from their improved reading skills and were enjoying books. In situations outside of the R4L sessions the children were demonstrating a willingness to be more patient with their reading, reflecting an improved confidence in their abilities to be successful when reading.

**Summary.** A small number of participants from the corporate program spoke about specific changes in the reading behaviours of the children who had participated in R4L. They observed that the children were enjoying reading tasks and were more likely to persevere with reading tasks. These reading behaviours are likely to foster further...
gains and improvements as the children practise reading on a more regular basis and have an opportunity to practise their decoding skills. These observations were not made by any of the participants in the LCS program. It is likely that the weekly format of the corporate program allowed the children an extended period of time to begin to use their new reading skills and develop some new reading habits. In comparison, the intensive format of the LCS program (bi-weekly sessions), may not have been as enjoyable for the children who were struggling to read, especially since the focus was on learning new skills in the program rather than on enjoying reading for its own sake.

Overall Summary
The immediate goal of R4L is to increase children’s knowledge of sounds, sight words, and decoding skills. One of the long term goals of R4L is for children to feel bolstered by their success working with their reading buddy, to begin to take a greater interest in reading and to read more regularly, thus facilitating greater improvements. There was a strong indication from the range of interviews that children felt more confident of their abilities in reading. These results suggest that R4L has been successful in changing the reading self-concept of many of the participating children.

Results for Research Question 2.2.2:
Impact of R4L on Home Reading Behaviours

Overview
Research Question 2.2.2 was posed to investigate the recurrent issues and themes raised by multiple stakeholders regarding the impact of R4L on home reading practice: that is, whether children were reading more at home and whether families were participating in more reading activities after being involved in R4L.

This section explores the themes and issues raised by interview participants (children, parents, teachers, and reading buddies) related to changes in home reading practices after R4L. Interview participants spoke about the impact of R4L on home reading practices in terms of the completion of home reading. The frequencies of child, parent, teacher, and reading buddy focus group and interview responses across three themes related to home life are displayed in Table 8.4.
Table 8.4.
Frequencies of Participant Responses to Changes in Home Reading Practice

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<th>Teachers</th>
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This section explores the themes raised by participants in relation to changes in home reading practices. Each theme is presented in order of frequency for the sample, with the most commonly appearing themes being presented first.

**Completion of Home Reading**

Throughout R4L, children were encouraged to practise reading the text they had read with their buddy two to three times during the week at home (repeated reading) and to play with the sight words included in the back of the communication book, which was sent home each week after R4L sessions. This home practice of reading sight words and books was designed both to provide an increased frequency of reading throughout the week for the children and to empower families with strategies to assist their children with home reading. This section examines the specific reading practice related to R4L that took place at home during the program.

Interview participants were asked to discuss the frequency of home reading, to facilitate understanding of the role and impact of R4L on home reading practices. Five distinct trends emerged from these discussions: (a) instances where no home reading practice occurred; (b) instances where inconsistent home reading practice occurred; (c) instances where daily reading practice occurred; (d) changes in home reading practices; and (e) challenges of home reading. Figure 8.12 summarises the range of trends from multiple stakeholders.
Figure 8.12. Frequency of Trends Related to Completion of Home Reading Across the Whole Sample

Representation of the proportion of total comments contributed by each participant group from both programs (i.e., children, parents, teachers, and reading buddies). With respect to challenges of home practice, more teachers discussed this than any other group, representing 52% of the comments made by participants (11 comments by teachers of the 21 comments by participants, calculated as \( \frac{11}{21} \times 100 = 52\% \)).

Figures 8.13 (LCS) and 8.14 (corporate) display the proportion of comments each participant group made from both programs in the present investigation, expressed as a percentage of the total number of comments for this theme. The proportion of each group speaking about home practice is generally comparable for children, parents, and teachers across both programs. It is only for the reading buddies that there is a difference in the programs, with no reading buddy from the LCS program discussing children’s home reading practice.

Figure 8.13. Completion of Home Reading Observed by LCS Sample

Representation of the proportion of total comments from the LCS program contributed by each participant group (i.e., children, parents, and teachers). More teachers discussed completion of home reading than any other group, representing 61% of the comments made by participants in the LCS program (11 comments by children of the 18 comments by LCS participants, calculated as \( \frac{11}{18} \times 100 = 61\% \)).
Figure 8.14. Completion of Home Reading Observed by Corporate Sample

Representation of the proportion of total comments from the Corporate program contributed by each participant group (i.e., children, parents, teachers, and reading buddies). More teachers discussed home practice than any other group, representing 40% of the comments made by participants in the Corporate program (19 comments by children of the 47 comments by Corporate participants, calculated as 19/47 * 100 = 40%).

**Children.** The children were asked about the kind of home practice, reading their text and playing sight word games that they completed during R4L. Ten children described completing some home practice throughout the program.

*Sometimes I read with my parents.*

*I read at home when my grandma comes over.*

*Yeah, a couple of times.*

For some of the children, they qualified their report of home practice with information about why this practice did not occur frequently. Children described the need for a parent at home to remind them to complete home practice.

*When my mum is not tired I can read but not always.*

*If my mum remembers she makes me read.*

*I read at home when someone tells me to.*
None of the children across either program reported daily reading practice or, on the other hand, no home practice. Only one child considered that her reading practices had changed after participating in R4L.

*I started to read with my mum and I’ve started to read better, cause I couldn’t really read until I got my buddy.*

Observations by the researcher during the interviews with the children indicated that the students were hesitant giving their answers about home reading, as if they did not want to be punished for stating there was no home practice. It is also reasonable to conclude that many of the children would not have known that home reading was a component of R4L, either because their classroom teachers kept the book at the school rather than sending it home, or because the students did not know about the book themselves. This aspect of home reading was not reinforced with the children. It is interesting that these perceptions of the children are in stark contrast to their responses about how they felt about reading, as previously noted. The children reported that they read more after participating in R4L. They simply did not complete the home practice component of the program; nor did they sit in a formal way and read with their families.

*Parents.* The parents who agreed to participate in a phone interview provided a different perspective to the children. Three of the 13 parents interviewed, the only participants to speak about daily reading practice, (see Figure 8.12) reported completing daily reading practice with their children.

*I try and read, well every night, 10 minutes.*

*We read each night before going to bed, we always have.*

These reports of daily practice were not supported by the interviews from other participant groups. One of these parents who stated, “We read each night before going to bed, we always have” was contradicted by her child during his group interview: “If my mum remembers she makes me read.” It is likely that parents wanted to make a good impression during their interview and that the intention was to read daily, even if this was not always possible.
The remaining four parents, who spoke about practice of the R4L materials at home, recognised that this did not occur on a daily basis.

*Just read on the weekend, but usually during the day just once a week.*

*The aim is to read each day and we really try, but with ballet and swimming and everything else that goes with raising a child it is so hard to do. I would say we read three times a week on a good week.*

*Yeah it didn’t take long you know if I couldn’t do it or if I was busy with something I used to get one of my older kids to help her once or twice in the week, so, the process wasn’t long at all, so it’s easy to do at home so yeah.*

The parents recognised that the demands placed on them are great and there is a challenge in finding time to practise daily and play the sight word games that accompany the program. Time constraints were a persistent concern for five families.

*I’m a really horrible mother, cause I’m really busy all the time and I work, so it’s, I pretty much get on with it and do what you have to do, that’s what she does.*

*I’ve got a lot on my plate and I just basically can’t remember a lot of the things that are given to me with six kids, it’s just hard trying to remember what everyone or what individual got at the time.*

*So there’s not a lot of time. Kids are very tired by the time you get home, so not much time left to do other things that you want to do. With ballet and swimming, there’s not much left.*

The parents spoke about the pressures of juggling jobs, other children, and extra activities in their daily lives. R4L was perceived as an extra burden to complete by some parents.

**Teachers.** The teachers provided a greater range of responses related to the home reading completed by participating families and spoke about the completion of home practice more than any other participant group. The teachers were asked “What
changes, if any, have you observed in the children’s participation in home reading after R4L?” The majority of responses from teachers reported that families of the R4L materials conducted no home practice. Nine of the 28 teachers interviewed (see Table 8.4 and Figure 8.14) shared this view. Teachers based their views on observation of the children’s reading skills in class, children’s transportation of the communication book between home and school, and day-to-day conversations with children and families about home reading.

The year 3 boy absolutely loved going to the program, loved being a part of the program, and he has made tremendous gains, but not in his reading at home, it’s not supported and no practice happened, so that’s a little bit sad.

There wasn’t a whole lot of involvement to begin with there and there still isn’t.

There isn’t that involvement and so that hasn’t changed and probably won’t and it’s not a judgement on my part, it’s an observation, so it just happens in some families. But they’re, that’s often the ones who end up in the reading programs actually.

Six of the 28 teachers interviewed (see Table 8.4 and Figure 8.14) reported that children in their class completed some home practice during the program, but that it was not consistent. The teachers did recognise the importance of home practice and acknowledged its role in children’s progress.

Some of the children were taking it home most weeks and they did see that their sight words, they would remember, . . . they were gaining.

Two of the girls in my class did take books home to read and were asking for new books, so the practice was happening. But this isn’t the case all the time it is just so haphazard. It’s such a part of why they struggle to read.

Absolutely, like if the parents who want to know more about what’s happening, come and check in, see how further they can help their children, those children actually progress further than the parent who forgets to sign the book most nights of the week. You could tell the weeks [child]
would practise at home and yeah, his improvement was very good, so that’s how you could tell, because obviously they are reading at school, at home.

Three classroom teachers had observed a change in the frequency of home practice of participating children during R4L. They identified that the program’s weekly format acted as an impetus for families to renew home reading and to establish a routine.

I do notice with this program, because it’s consistently weekly, that these children are bringing back the materials . . . that’s a really neat thing to see because that isn’t necessarily what we see of those children in the classroom.

Whether it’s coincidental or related, I’m not sure, but one parent who has never spoken to me about her son’s reading has engaged in conversation with me, incidentally on the playground when she’s come to pick him up, about his positiveness about reading. I think that because it was happening every week and was so intense, mum noticed that it was happening and could see some change.

The children got more willing to get the parents involved. They’d encourage the parents to help. I think also with remembering their book and things like that the parents felt it was their responsibility, which over time I think the children realised that it’s actually their book that they need to bring it, they need to take it out, they need to read it at home. So I think the parents were willing to help anyway, but I think the children took, or became, started to understand that it’s their responsibility to ask the parents to help them as well and practise at home.

There were no instances reported where a family completed daily reading practice. Classroom teachers did not report significant amounts of home practice being completed by families during R4L. Many conceded that this was the situation prior to R4L and attributed some of the difficulties the children were facing with their reading to this lack of home practice.

Although classroom teachers had the most to say about the challenges of home reading practice, they also acknowledged the challenges that families may face in completing home reading practice. Three classroom teachers interviewed, recognised the time constraints experienced by many families, supporting the families’ concerns.
Parents work, kids are in care for so much of their free time, it is so hard for these families to find time to read, even though it’s important.

Everyone’s time poor, it’s not that they don’t want to sit down with their child and read, it’s just a time issue.

Seven classroom teachers from both programs discussed their concerns that, for many of the children participating in R4L, their reading difficulty is inherited. That is, their parents also experience difficulties with language and reading and this in itself presents a barrier to completing home practice.

Sometimes the parents themselves in these particular cases have their own either language problems or reading problem.

For [child] her mother cannot read or at least I don’t think she can read well, it’s an ongoing issue we have at school where [child] is often missing excursions and special days at school because her mum can’t read the note. I try to speak with her as often as I can, but often those families stay away from the school.

When you get notes scribbled on paper with spelling mistakes from the parents you can understand why they are not reading at home and offering to help out at the school, there are so many parents out there who can’t read themselves so they can’t help their child.

These comments represent a group of parents who did not nominate themselves to participate in an interview about their child’s reading difficulties. The teachers touch on a significant issue for these children, the lack of capacity in their home environment for the vital practice of reading skills to occur.

Reading buddies. Reading buddies were asked to comment on the feedback they received from the children each week, about the amount of home practice being completed throughout the R4L program. The reading buddies, during the first component of the program (Highlights), asked the children to speak about their week and the reading practice they had completed. Only 4 reading buddies of the 31
interviewed (see Table 8.4 and Figure 8.14) spoke specifically about home practice, and all were from the corporate program. The perceptions of the reading buddies were that home practice did not occur and if it did, it was inconsistent. The reading buddies were informed by their conversations with the children and by family contributions to the communication book.

*Probably the first week his mother had written we played the games and [child] did very well.*

*She did say she played snap with her mother on several occasions.*

Some of the children told their buddies that they practised at home themselves, without parental supervision.

*He went through them himself and he was genuinely quite good with them the next time, so he must have done something.*

*She did say she read by herself at home, so I mean, let’s hope that, that at least happens.*

There was also a sense of disbelief by the buddies when the children did report home practice.

*But sometimes the kids would just tell you that they did these things.*

*[Child] said that his mother’s usually too tired when she comes home from work to play and he said, no he badn’t played the games and he’d just written that, so it’s a kind of . . . situation where he has to cover up for his mother.*

The reading buddies expressed frustration and sadness that this home practice did not occur with an adult to help or else, did not occur at all. They felt that this demonstrated a lack of commitment from the family, and was definitely disproportionate to the commitment they were demonstrating by giving up their time to work with the children.
Breaks my heart, you just want to cuddle them, just to know that you’ve got 45 minutes of undivided attention is a wonderful thing, because they’re clearly not getting it at home if their parents won’t read what we’re sending home.

You can’t help but feel if they’ve got parents reading with them every night that they mightn’t be in R4L, maybe, I don’t know.

There was no home practice, no support from home, nothing written in the book. I was so disappointed; I didn’t expect that would happen. I thought families would be so grateful their child was getting this help, but, well they weren’t, or at least they didn’t show that they were.

Each week I’d ask and each week she’d say “No”, mum was busy so no reading was done at home. I don’t know how these children are going to get better.

Although the reading buddies expressed disappointment that the reading practice did not occur and often inferred that this represented a lack of support or interest, there were a few exceptions to this, expressed by five volunteers who were themselves parents of busy families.

I find it hard to get everything done with my own children so I understand how busy life is, but my children aren’t struggling to read and don’t need the special attention and effort [Child] needs.

It’s hard for families to juggle everything and still find time to sit down quietly and read.

One buddy was able to describe a complex family situation that certainly impacted the time for home practice for a child.

She had no parent participation at all; the parents are separated and just found out that her mother has asthma, so she never read a book with her mum. Her brother was her only mentor and be used to occasionally read with her.

These comments by the buddies were the exception; more expressed a judgement that the lack of practice demonstrated a lack of care or effort.
Summary. The interviews suggest that daily home reading practice and revision of the sight words did not occur for the children in R4L. The only reference to daily reading practice came from the parents, one of whom was contradicted by their child in a later interview. There were more frequent reports of no home practice or inconsistent home practice across the range of interviews across both programs, with disappointment expressed by the teachers and buddies. R4L did not encourage or facilitate an increased frequency in home reading of school texts with parents, for the majority of participating children. It does not appear to have changed the involvement of parents in the home reading process.

Research Question 2.3.1.
Strengths and Limitations of Reading for Life

Interviews conducted throughout the present investigation provide consistent support that R4L effects change for children both in their reading skills and their confidence in reading tasks. That is, R4L appears to be a successful intervention for children with reading difficulties. Research Question 2.3.1 was posed to explore the aspects of the program that contributed to its effectiveness and its strengths, and those areas that may require attention—the limitations.

Participants were asked to identify the strengths of the program for children, and areas for improvement. These can be broadly categorised into two main categories: (a) the materials and content of the program; and (b) the relationship and presence of buddies at the school. Participants identified both strengths and limitations for each of these categories. The frequencies of child, parent, teacher and reading buddy focus group and interview responses across the two categories are displayed in Table 8.5.

Table 8.5.
Frequencies of Participant Responses Related to Strengths and Limitations of R4L

<table>
<thead>
<tr>
<th></th>
<th>Children</th>
<th>Parents</th>
<th>Teachers</th>
<th>Buddies</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials and Content of Program</td>
<td>52</td>
<td>5</td>
<td>15</td>
<td>31</td>
<td>103</td>
</tr>
<tr>
<td>Individual Attention from Buddies</td>
<td>5</td>
<td>6</td>
<td>28</td>
<td>19</td>
<td>58</td>
</tr>
</tbody>
</table>
**R4L Materials and Content**

The R4L pack given to the reading buddies included a manual for buddies to follow each week, and the game materials. Interview participants perceived the games to be a strength of the program, a key to its success in motivating and engaging the children. In three of the five components of R4L, reading games are played with the children. The children reported that the games were their favourite part of R4L. Parents, teachers, and reading buddies also considered the fun aspect of the program to be a strength, a key to its success with children.

Figures 8.15 and 8.16 display the proportion of comments each participant group made about the R4L materials and content, expressed as a percentage of the total number of comments for this theme. Figure 8.15 summarises the representations from the LCS program and Figure 8.15 displays the corporate program.

![Pie chart showing the proportion of comments by participant group](image)

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**Figure 8.15. R4L Materials and Content Observations by LCS Sample**

Representation of the proportion of total comments from the LCS program contributed by each participant group (i.e., children, parents, teachers, and reading buddies). More children discussed the R4L materials and content than any other group, representing 63% of the comments made by participants in the LCS program (27 comments by children of the 43 comments by LCS participants, calculated as 27/43 * 100 = 63%).
Figure 8.16. R4L Materials and Content Observations by Corporate Sample

Representation of the proportion of total comments from the Corporate program contributed by each participant group (i.e., children, parents, teachers, and reading buddies). More reading buddies discussed the R4L materials and content than any other group, representing 43% of the comments made by participants in the Corporate program (26 comments by reading buddies of the 60 comments by Corporate participants, calculated as 26/60 * 100 = 43%).

**Children**. The children were asked to identify what they enjoyed most from R4L and to describe why. Their responses were solely associated with the games, which were the most consistent theme across the entire qualitative study. Every child interviewed, all 52 children, named the games as their favourite aspect of R4L. For the majority of these children, 34 of the 52 interviewed (see Table 8.5), their response was simply, “the games”. Further questioning during group interviews elicited the titles of their favourite games, such as “the cards”, “spider web challenge”, and “fish”. The children mentioned each of the six board games and the sight word card games in the R4L pack during their interviews.

Some of the older children were also able to provide reasons why the games were their favourite aspect of R4L. The common aspect was “fun” and “winning”, in the children’s responses, with 15 of the 52 children elaborating on this.

*Because it’s so fun and I got lots of times winning and it’s really fun.*

*It’s really fun and now me and my friends we all play it in class.*

*Because they’re all fun and you get to learn what different words are and what compound words say.*
The experience of being successful would not be a common experience for many of these children who struggle so much with their learning. This is a positive outcome for the children, and one that they all recalled with clarity. The children’s responses reflect their enjoyment of working with the materials in R4L.

**Parents.** The parents had not seen the R4L pack and/or their children engaging with their buddies. The parents were asked to comment on anything their children had spoken about enjoying from their experience with R4L. Not all parents were able to respond to this question, with 8 of the 13 parents (see Table 8.5) reporting that their child did not speak about the program much at home. The remaining five parents agreed with the children that the games were their favourite aspect of the program.

*They made it very fun as well so he was learning without realising he was learning sometimes.*

*It was actually fun, so that makes it even better . . . she actually enjoyed it.*

*It was always “we played this and we played that”, it never sounded like work and I think that’s why he had fun and got better.*

The parents also acknowledged that the games focus of the program was a successful strategy in motivating their child to learn.

**Teachers.** Over half of the classroom teachers interviewed recognised the value of playing educational games with the children, with 15 of the 28 interviewed (see Table 8.5) acknowledging this aspect of the program.

*I think that it’s the enjoyment to start with because it’s fun, it’s motivational, they can see themselves progressing.*

*Kids don’t really realise that perhaps through the game they’re actually learning so that element of being able to teach them something through the aspect of fun is such a positive to this program.*
Five teachers did suggest adding comprehension to the program as a complement to the existing program. This was the only improvement to the content and materials of the program suggested by participants.

Most of them can physically read the book but when you ask them anything more than a literal comprehension question, they can’t cope and they’re not transferring their reading skills to anything other than story.

**Reading buddies.** The reading buddies discussed the benefit of the games being included in the program during the interviews. The reading buddies, due to their direct experience with the children, were able to comment on which activities the children enjoyed the most. They agreed with the children that the games were the most enjoyable aspect for the children. The buddies also discussed the literacy games when responding to the question, “How do you think R4L helps children to read?” Each of the buddies from both programs asserted that the children enjoyed the games the most.

The kids loved the board games, like whenever they wanted to do something it would be like, so what are we going to do today, they’d like ‘board games’ and they all were exactly the same. Also different kids, all loved the board games.

When they saw the games, it was like oh wow, it’s amazing, my kids changed dramatically.

Eight of the reading buddies spoke about the children’s and their own enjoyment of the games and acknowledged that during the games the children were able to demonstrate many of their new skills.

I think the games are a great way to learn without them even realising that they are learning.

There’s the work aspect and there’s the fun aspect and they blend together really well.

I couldn’t always see the improvement when she was reading, but each week she could read more sight words and play the games more confidently and I know she was improving.
Summary. Games are an integral component of R4L and were supported by those interviewed as a positive aspect, or strength, of the intervention. There was strong agreement from the interview participants that the inclusion of the games materials was beneficial for the children. The games were seen to influence children’s enjoyment of the program and their engagement. All of the children cited the games as their favourite aspect of the program, and their parents, teachers, and reading buddies, supported this. The adults also recognised the benefit of using games in learning for children with reading difficulties. The games were able to provide reading buddies with regular formative assessment of the children’s progress throughout the program, allowing reading buddies to monitor children’s learning.

Individual Attention from Buddies

Interview participants from all schools perceived the individual attention that children received from their reading buddy as a strength, something that was not possible in a regular classroom environment. Figures 8.17 and 8.18 display the proportion of comments made by each participant group, expressed as a percentage of the total number of comments for this theme. Figure 8.17 summarises the representation from the LCS program and Figure 8.18 displays the corporate program.

![Figure 8.17. Individual Attention from Buddies Observed by LCS Sample](image)

Representation of the proportion of total comments from the LCS program contributed by each participant group (i.e., children, parents, teachers, and reading buddies). More teachers discussed the individual attention than any other group, representing 47% of the comments made by participants in the LCS program (8 comments by teachers of the 17 comments by LCS participants, calculated as 8/17 * 100 = 47%).
Children. The children did not specifically mention individual attention as a feature of the program that they enjoyed, as their focus was more on the enjoyment of the literacy games. The children were asked to comment on whether R4L was any different to other assistance they received at school. Five of the children (see Table 8.5) valued receiving individualised help.

*It’s different because she would know all the words that I’m saying and [my teacher] sometimes he’ll be on the computer and he might not know what word we’re up to and stuff.*

*I would say you should do it [the program] because it’s one-on-one with just one person, with like a buddy and you’re not with other people where it’s harder to learn with other people, yeah so it was really fun.*

*I had the full-time of my buddy.*

In summary, the children recognised that this help was different to their regular classroom environment, and they appeared to enjoy the attention.

Parents. Although the parents had not observed any of the sessions with their child and reading buddy, they were asked to speak about how R4L could help their child.
Six parents of the 13 interviewed (see Table 8.5), made reference to the individualised nature of R4L, acknowledging that this may not be possible in their child's regular schooling.

*When they’re one-on-one it’s different to when it’s a group. When [child] is in a larger group and a larger scale, he sort of pulls away, cause he feels a bit shy and embarrassed, so having that one-on-one, gave him that confidence, so he can go back there and say “yeah I can do it.”.*

*It’s like a one-on-one help, which is what she needed.*

The parents recognised that their child needed individual help, which may not always be available at school, and that R4L had provided their child with this opportunity.

**Teachers.** Teachers spoke about the presence of the reading buddies in the school and the value of the individual, one-to-one aspect of R4L for children’s learning. Teachers considered this to be one of the key reasons that R4L was successful in helping children. Classroom teachers at all schools mentioned individual attention; however, there were some differences between the programs. In the LCS program half of the teachers (50%, see Figure 8.17) commented on the positive role the buddies took in the school and the benefit of individualised assistance. In comparison, every teacher in the corporate program mentioned the importance of the individual attention from the reading buddies for children. In total, 20 comments were made by the 12 teachers from the corporate program regarding the presence of the reading buddies in the school, with many teachers speaking about this on more than one occasion. The comments made by the teachers from both programs acknowledge the benefit to the children of the individualised attention from their reading buddy; it was only the frequency of the comments that differed, with more comments being made by the teachers from the corporate program.

Teachers from both programs recognised the value of the individualised assistance children received with their buddy, working one-on-one with an adult. This accounted for 16 of the 28 comments (see Table 8.5) by teachers relating to the presence of the buddies in schools.
I think any one-to-one form of reading, especially with these children, when they don’t have English at home, it definitely helps them.

I mean any occasion where a student’s going to get one-on-one attention, in a particular area, is always going to give positive results and I think that’s what R4L has done, with that one-on-one time, developing that rapport, same people, that routine every week, that same time.

I think it’s most effective, because it’s one-on-one and they’re away from all the distractions, there’s so few times we can do that for these children.

An additional four teachers expressed frustration that they could not work individually with these children in their own classes. They acknowledged the need for individualised assistance for children with reading difficulties and were grateful that R4L could provide this assistance.

They’re the bottom reading group and I see them more each week than I see all other groups, but still, there’s still 4 or 5 in the group and it would be great in the classroom, if I could see them every day, 20 minutes would be great, but you can’t because you’ve got 20 whatever other kids, so I think it’s just that one-on-one and building up their self-confidence.

It’s the one-on-one that we can’t provide them in the classroom for the 6 hours that they’re here. We can provide them with a minute here, a minute there, 10 minutes here, 10 minutes there. We can’t provide them with what the girls can do and that, listening to them read a whole book with no interruptions, it’s like, that one-on-one, that consistent time every week, is fantastic, that’s what I think that is, it’s just wonderful.

The teachers from the corporate program who spoke about the individualised attention from the reading buddies on more than one occasion throughout their group interview, described the positive role models provided by the reading buddies and the reaction of the children to their buddy. This was not mentioned at all by any of the participants from the LCS program. There were no questions relating to this—the teachers from the corporate program made these comments after reflecting on the relationship between the buddies and the children.
It’s an independent person who treats it as a privilege to go to it and something very special and I think that’s part of the success of the program.

I suppose basically because parents have to work and it’s giving the children an opportunity to work with like other adults and establishing relationships with other adults because quite often these children don’t you know they’re very limited in who they’re mixing with, so it’s really good.

There were some males and we purposely . . . linked up some of our boys with some of those males because they don’t see a good role model as the reader, so that’s how I see the benefits that way.

Having businesses and it’s not just the business world, it’s effectively movers and groovers in the outside world community connecting with the school community. I think it’s very positive.

Reading buddies. The reading buddies, too, spoke of the benefits of working with the children individually. Whilst they did not have the same kind of reference point as the classroom teachers, to better enable commenting on the best way for children to learn, it is nonetheless a reflection that the reading buddies had seen the children making progress and attributed their individual attention to this success. The feedback they received from the children and the special relationship they had been able to form with the child, had helped them develop a view of the benefits of individual support. Ten reading buddies, across both programs (see Table 8.5), identified this one-on-one attention as a strength of the program.

When you’re working with a child one-on-one I think the child benefits a lot because they can’t get that level of attention in the classroom.

I’ve always thought that kids just needed more one-on-one time and a program like this gives it.

The reading buddies spoke a lot about how the children felt special for being chosen. Although the children did not speak about this notion, it is a reflection of how the buddies perceived their time with the children—as special time. The reading buddies described the feedback they received from their students and theorised that this happiness and engagement was influential in the success of R4L.
It's how they're going out of the classroom and working with someone completely separate from school and like I formed friendships with my kids and so yeah I think that really motivated them to do better and to keep learning, rather than just with your normal teacher, who you spend all your day with, so yeah I think that's a strength doing that with somebody outside school.

At first I was concerned that they might take it as a bit of isolation from the rest of the students, but they are just so overwhelmed and so excited to see you every week and they just “oh pick me” and their little classmates are all sitting there looking at them, “oh why are they getting to go out?” It's such a big part of why the program works, we are seen as friends, not teachers.

These children are made to feel special, so they're taken out of class by a grown-up and that probably wouldn’t work in later years, but at this age they seem to be almost envied.

That a child felt special and privileged, is something the reading buddies mentioned several times during their interviews, with six of the 19 (see Table 8.5) comments related to the presence of buddies, reflecting this. The remaining three comments, related to the presence of the buddies at school, touched on the impact of buddies not being a teacher at the school. All of these comments were from buddies in the corporate program.

I think it’s the fact that we’re not teachers, we’re not parents, that we’re taking time out of our schedules and they’re aware of that and we share these sorts of conversations with them.

It just doesn’t necessarily become about the reading. I think that’s why it works, because you do form that friendship and you are really interested in their life and I think hopefully they see that and then they kind of let down a few barriers and start enjoying their time with you . . . the little things they don’t get at home when they’re reading to mum or dad.

You work as their buddy, not as their teachers, not as their parent, as a friend who is there to be a friend and to help along and play games and make it fun and build a relationship.

Overall, the buddies believed they made a difference because of the way they interacted with the children and had an opportunity to work with the children individually.
Summary. One of the most distinctive features of R4L is the individualised attention a child receives from the reading buddy throughout the 15 sessions. R4L is not a group program; children work individually with their reading buddy on the areas of reading they need to develop. Interview participants identified this aspect of R4L as a strength, a factor which contributes to the successful outcomes for children. Children recognised the difference in the way they worked with their reading buddy, and were appreciative of having an adult spend time with them playing games (and indirectly assisting their reading skills). Adult participants extolled the value of individualised attention for children and recognised the challenge of classroom teachers providing this on a regular basis. Working with a child on a one-to-one basis to assist their reading was considered a strength of R4L.

Section Summary
Interview participants were asked to consider whether R4L was a successful program for children, and what aspects of the program contributed to this success. Two distinctive trends emerged from these discussions: children were motivated by the inclusion of reading games in R4L and were encouraged by the individualised attention they received from their reading buddy each week. The R4L pack and the nature of the relationship between the child and their buddy were considered to be influential elements in the success of R4L for children with reading difficulties.

Chapter Summary
This chapter has presented an analysis of a range of interviews with multiple stakeholders of the R4L program. Data analysis was presented for each participant group (children, parents, teachers, and reading buddies), in relation to each of the key research questions posed. In the next chapter the findings from the two interrelated studies in the present investigation are synthesised and discussed further.
CHAPTER 9

DISCUSSION

Introduction

The present investigation was designed to evaluate the effectiveness of a newly revised version of the R4L intervention that was developed for use in primary schools to help young children with reading difficulties improve their reading achievement skills and reading self-concept. The purpose of the current chapter is to: (1) discuss the key quantitative findings (Chapter 7) and qualitative findings (Chapter 8) with respect to existing theory and research; (2) review the strengths and limitations of the investigation; and (3) consider the implications of the findings for future educational theory, practice, and research. The key findings are discussed in relation to the central areas emphasised in the R4L intervention: reading skills and reading self-concept.

Reading Skills

Introduction

Three core reading achievement skills were emphasised in the R4L intervention: (a) phonological awareness; (b) sight word recognition; (c) reading accuracy. Reading comprehension was also considered to a smaller extent. Study 1 tested the effectiveness of the R4L intervention, measuring changes in children’s reading achievement scores after participation in R4L. Study 2 explored children’s experience of R4L, and the observed changes in reading achievement were explored from the perspectives of multiple stakeholders. The key findings from both studies, in relation to each of the four reading achievement skills, are discussed below.
Phonological Awareness

**Instrument reliability.** The SPAT-R (Neilson, 2003) was found to be a reliable measure of phonological awareness for children with reading difficulties. This is consistent with the normative data of the SPAT-R (Neilson, 2003), which demonstrate the instrument to be a reliable measure of phonological awareness for primary school children of all abilities. Although the sample in the present investigation was different to the standardisation sample for the instrument, as it comprised only children with reading difficulties, rather than the normed sample of all abilities, the SPAT-R (Neilson, 2003) was nonetheless a reliable measure for the sample of children with reading difficulties in the present investigation.

**Effectiveness of R4L.** R4L was found to improve children’s performance on phonological awareness tasks, as demonstrated by the statistically significant group by time interactions in Study 2 (see Chapter 6). Children in the experimental group at Time 2 (post-intervention) scored higher on the SPAT-R, compared to children in the control group at the same time. These findings are consistent with hypothesised predictions of improvements in phonological awareness after direct phonological awareness training, as reported in international meta-analyses and reviews of reading, such as the National Reading Panel (NICHD, 2000), Report on Reading (DEST, 2005), and the Identifying and Teaching Children and Young People with Dyslexia and Literacy Difficulties Report (Rose, 2009). Children in the present investigation improved phonological awareness skills after participation in R4L.

R4L was designed to reflect developmental theories of phonological awareness, whereby children progress through stages of word awareness, rhyme, syllables, and individual phonemes (Chard & Dickson, 1999; Ehri, Nunes, Stahl, & Willows, 2001). The activities included in the phonological awareness component of R4L mirror these developmental trajectories identified by Ehri et al. (2001) and Chard and Dickson (1999). The statistically significant outcome for phonological awareness supports these theories concerning the developmental progression of phonological awareness skills, as children in the experimental group participated in activities reflecting this sequence.
The improvements in phonological awareness are also consistent with the body of research demonstrating that programs involving direct instruction are more effective than other teaching methods in improving learning outcomes (Baumann, 1998; Ellis, 2005; Hempenstall, 1997; Lloyd, Forness, & Kavale, 1999; Purdie & Ellis, 2005). Improvements in phonological awareness after direct training have also been supported by international meta-analyses and reading reviews, which recommend that phonological awareness training be introduced as early as possible and taught in an explicit manner, with many opportunities for revision and practice (DEST, 2005; NICHD, 2000; Rose, 2009). Consistent with these recommendations, R4L introduced phonological awareness training using direct instruction techniques with explicit scripts, and these young children demonstrated improved phonological awareness skills.

Alongside the direct and explicit teaching of phonological awareness according to the developmental sequence of acquisition, children in the experimental group practised phonological awareness skills using card and board games. Every child and reading buddy, the direct participants of the R4L intervention, acknowledged the motivating influence that the materials and content of the R4L intervention had on children’s enjoyment of the sessions during the interviews in Study 2. The children unanimously nominated the card and board games of the R4L intervention as their favourite aspect of the R4L experience, citing how much fun they were. The reading buddies supported the children’s reports of enjoying playing the games, and endorsed the R4L materials as effectively motivating the children to learn. The parents and teachers, relying on the feedback of the children, as most parents and teachers had not seen any of the materials, also regarded the games as an interesting and motivating aspect of the R4L program. These findings from Study 2 support the recommendations suggested by many researchers, of including motivating and engaging activities for phonological awareness instruction (Adams & Bruck, 1993; Charlton, Williams, & McLaughlin, 2005; Etess, 2004; Hay & Fielding-Barnsley, 2006; Spencer & Hay, 1998; Stone, McLaughlin, & Webber, 2002). In addition, the inclusion of these activities in the R4L program was recognised as valuable by the participants.
**Long-term effects of R4L.** As phonological awareness is considered to be both a prerequisite and predictor of future reading success (Juel & Meier, 1999; McNamara, Scissins, & Dahleu; Scarborough, 1998; Tunmer, Chapman, Ryan, & Prochnow, 1998), the significant improvements in phonological awareness have demonstrated that specifically teaching phonological awareness leads to improvements in phonological awareness skills; hence, further improvements can be expected in the area of reading achievement. As recommended by researchers Tunmer et al. (1998), children should be encouraged to focus on the sounds in the words when reading, rather than on pictorial or semantic cues, to be successful readers. Hence, the statistically significant result for higher scores in phonological awareness after participating in R4L, is promising for future reading success for these children.

Children in the experimental group maintained and continued to make improvements in phonological awareness three months after the intervention period ceased. This is contrary to many intervention studies, which show that promising short-term results fade in the long term (Borman & D’Agostino, 2001; Lee, Brooks-Gunn, & Schnur, 1988; White, 1985). It is plausible, given the evidence of the predictive power of phonological awareness, discussed previously in this chapter, that the short-term gains the children made after participating in R4L facilitated further learning in phonological awareness. However, there was no control group comparison for the longitudinal data in the present investigation and as such, it cannot be concluded that R4L is solely responsible for this continued growth. This finding of continued improvement is promising, and warrants further investigation in future studies.

**Gender effects of R4L.** Across time, boys in the experimental group achieved higher scores on phonological awareness tasks than girls in the experimental group. This suggests that R4L was more effective in improving phonological awareness for boys than girls. Research related to gender bias and reading difficulties is inconclusive in regard to gender biases. Some researchers report a bias toward boys experiencing reading delays (Hawke, Wadsworth, Olson, & DeFries, 2007; Ruttner, Fergusson, Horwood, Goodman, Maughan, Moffit, Meltzer, & Carroll, 2004), while other researchers report the distribution of reading difficulties to be even amongst the sexes (Flynn & Rahbar, 1994; Hyde, 2005; Nass, 1993; Shaywitz & Shaywitz, 1988; 2003; Siegal & Smythe, 2005). There is also research evidence to suggest that children should
select their own reading material to cater for individual interest, which may be influenced by gender (Brozo, 2002; Coles & Hall; Probst, 2003; Sullivan, 2004) and this has been included in the development of the R4L program. In consideration of recommendations made by researchers to counter possible gender differences in learning, and in particular boys’ preferences for activities involving movement (Cresswell, Rowe, & Withers, 2002; Cuttance et al., 2006; Lingard et al., 2002), the card and board games included in the phonological awareness component are engaging and represent activities that children from both sexes relate to (basketball, balloons, rockets). Hence, the R4L intervention was designed to cater for both sexes, including provision for children to select books of interest to them personally, and the inclusion of interactive and motivating activities, the board and card games, to ensure that both sexes were engaged during the learning process. The increased performance of boys in phonological awareness suggests that perhaps the use of these games may be even more salient for boys than girls.

**Buddy effects of R4L.** R4L was found to be equally effective, in terms of phonological awareness, for children working with buddies from corporates and universities. There were no significant differences in the performance of children dependent upon the type of reading buddy they worked with. This is consistent with the findings from the most recent meta-analysis considering the effectiveness of tutoring programs. Ritter and colleagues (2009) reported no difference in the outcomes of children working with different kinds of tutors. An earlier meta-analysis conducted by Elbaum et al. (2000) found an advantage for children working with college students, although moderate results were also found for community volunteers when provided with adequate training. The organisational arrangements for R4L intervention incorporated the suggestions from Wasik (1998) and Elbaum et al. (2000), ensuring that the tutors were reliable, adequately trained in the intervention, used a structured intervention, and were supported by well-trained professionals. It appears that the systems in place for buddies, such as training and support sessions and a structured program manual and materials, protected the R4L intervention from being affected by the type of buddy implementing the intervention; this is consistent with Ritter et al. (2009). As the effectiveness of R4L was similar for both types of buddies, this result provides further support for the inclusion of direct instruction scripts, as both types of buddy utilised the same program.
Replicability of intervention effects. The children from the waitlist control group received the R4L intervention themselves, once the first intervention period ceased. R4L was also found to improve performance on phonological awareness tasks for this second group of children in the short- and long-term. The improvements in phonological awareness for the waitlist control group were similar to those of the experimental group. The results demonstrate the replicability of R4L for phonological awareness, and support research that suggests that employing explicit instruction in phonological awareness, progressing through a developmental sequence, supported by opportunities for revision and practice, is an effective method of phonological awareness instruction (Chard & Dickson, 1999; DEST, 2005; Lloyd, Ehri, Nunes, Stahl, & Willows, 2001; Forness, & Kavale, 1999; NICHD, 2000; Purdie & Ellis, 2005; Rose, 2009). The period of time between the post- and longitudinal testing (Times 2 and 3) for children in the waitlist group was one month longer than for the children in the original experimental group. Additionally, this month was comprised entirely of a school holiday period. Allington and McGill-Franzen (2003) have written about the detrimental effect on children’s academic scores of the extended summer break in the USA. They have found that disadvantaged children do not maintain their current level of reading and often perform poorly after the summer break (Allington & McGill-Franzen, 2003). The Australian school holiday periods are not as long as those in the USA. However, the school holiday period may deny children with reading difficulties, of the opportunities they require for practice and revision (Charlton, Williams, & McLaughlin, 2005; Dempster, 1987; Gredler, 2001). Despite the extended school holiday period experienced by children in the waitlist control group however, they continued to maintain and improve their performance on phonological awareness tests. These findings establish R4L as a robust intervention for improving phonological awareness for young children with reading difficulties.

Control Group Contamination. One of the goals of the present investigation was to measure the intervention’s effectiveness using a waitlist control experimental design. However, maintaining the integrity and independence of a waitlist control group in an educational setting can be difficult (Carter & Wheldall, 2008; Cook & Campbell, 1979; Craven, Marsh, Debus, and Jayasinghe, 2001; Plewis & Hurry, 1998). During each initial meeting with the school principal and school champion, the process of conducting the research was explained in person by the research team, and particularly
the details regarding the control group receiving the R4L intervention in the second half of the year. A review of the raw scores of all of the children revealed that, whilst children in the experimental group improved in all areas of reading achievement, the children in the control group also made gains, some of which were quite large (see Chapter 5). Although it was anticipated that some contamination of the control group would occur in the ecologically natural contexts of education in the school and home environments, the extent of contamination was difficult to predict.

Researchers, such as Craven et al. (2001), have described instances of diffusion effects, whereby children in the control group are exposed to aspects of the intervention, accidentally or intentionally. Other researchers, such as Cook and Campbell (1979) write about the compensatory assistance sometimes provided to children in the control group, as they are perceived to be missing out on treatment. This contamination of the control group has been found to reduce the overall effect size of an intervention and mask the true results (Craven et al., 2001; Moerbeek, 2005; Plewis & Hurry, 1998). The experience of the researcher in the present investigation was similar to that of these previous studies. Allocation to the control group led some teachers and parents to respond by devoting more time and energy to these children who were waiting for their turn at R4L; this was identified during the interviews in Study 2. Many teachers revealed that, as R4L was occurring within the school during the first half of the year, they decided to redistribute their limited literacy support resources to assist the control group while they were waiting for their turn to receive the intervention. Many children in the control group received literacy support from their school in potentially greater frequency than they would normally have, due to the increased availability of time, as the students in the experimental group were perceived to be already receiving help. This trend was confirmed upon speaking to parents from the control group during the second phase of the qualitative study. Several of these parents commented that they employed a tutor after receiving the report that indicated their child was experiencing difficulty in reading and would receive support from the R4L program later in the year. Hence, although control group participants had not received R4L during the intervention phase, many participants had received support of a different kind. This is consistent with findings of other research studies conducted in schools (Campbell & Cook, 1979; Craven et al., 2001; Kember, 2003) which show that adults may provide additional or compensatory assistance to the children in the control group, as there is a
belief they are missing out. Hence, the waitlist group itself is compromised when schools and parents are provided with information about the delay in reading scores at the commencement of the present investigation. In educational research, the control group cannot be considered as receiving no education: rather, they receive only regular education, without the addition of the new strategy or program being studied (Kember, 2003). However, in the present investigation there is evidence to suggest that children in the control group received more than regular education during the intervention period.

Although statistically significant results for the intervention were obtained throughout Study 2 for phonological awareness, the effect size for the interaction of Condition by Time was small, according to accepted guidelines from Cohen (1998) and below less stringent suggestions sometimes suggested in special education (Lloyd, Forness, & Kavale, 1998). This is consistent with findings from previous researchers utilising waitlist control designs (Craven, et al., 2001; Moerbeek, 2005; Plewis & Hurry, 1998; Wheldall & Bearman, 2000), where contamination of the control group has led to smaller effects for the experimental group (Vaughn et al., 2009). During the interviews, after the first phase of Study 1, consistent reports of schools redeploying support resources to children in the control group confirmed that the control group had in fact been contaminated. Despite standardisation being used to attempt to counter for this contamination (see Chapter 5), the effect size for phonological awareness in the present investigation was small. Given the additional support being provided to children in the control group (i.e.; control group contamination), as school resources were redeployed during the intervention phase, the positive results found for phonological awareness attest to the strength of the intervention in improving phonological awareness. The waitlist control group may also have received phonological awareness training during the first phase of the intervention. However, the children in the experimental group demonstrated greater improvement, suggesting that the R4L intervention facilitated greater improvements than the other assistance provided, within regular classroom teaching or in support provided to the waitlist control group. Hence, these results suggest that R4L is a salient intervention for enhancing phonological awareness skills in a short period.
**Section Summary.** R4L has been shown to improve the phonological awareness of children with reading difficulties. These findings offer practical solutions to educators in selecting and designing powerful interventions for phonological awareness. The efficacy of R4L in improving the phonological awareness of children with reading difficulties demonstrates the success of incorporating research-validated strategies into phonological awareness instruction. Phonological awareness interventions should reflect the developmental sequence of phonological awareness (Chard & Dickson, 1999; Ehri, 1995), utilise direct and explicit instruction in the skills of phonological awareness (DEST, 2005; Juel & Griffith, 1986; NICHD, 2000; Rose, 2006), and include opportunities for revision and practice (Charlton, Williams, & McLaughlin, 2005; Dempster, 1987; Gredler, 2001). R4L was designed to include these elements and the positive result for participating children in phonological awareness supports their inclusion for future interventions.

**Sight Word recognition**

**Instrument Reliability.** The Burt Word Reading Test ([Burt]; Gilmore, Croft, & Reid, 1981) was found to be a reliable measure of sight word recognition for children with reading difficulties. The sample in the present investigation is different to the normed sample for the Burt (Gilmore, Croft, & Reid, 1981), as it includes only children with reading difficulties, rather than children of all abilities. Nonetheless, the Burt (Gilmore, Croft, & Reid, 1981) was a reliable measure, consistent with the published normative data of the Burt (Gilmore, Croft, & Reid, 1981). As such, the results obtained from the Burt (Gilmore, Croft, & Reid, 1981) can be considered reliable for the sample of children with reading difficulties in the present investigation.

**Effectiveness of R4L.** Researchers recognise that children with reading difficulties experience difficulty in recalling common words quickly and accurately (Adams, 1990; Byrne, Freebody, & Gates, 1992; Hay, 1995; Henderson, 1982). Children’s performance on sight word recognition tasks increased after participation in R4L, although the Condition by Time interaction in Study 2 was not statistically significant (see Chapter 7). Children in the experimental group at Time 2 (post-intervention) scored higher on the Burt, by reading more words accurately. However, the children in the control group also read more words and scored higher on the Burt at
the same time. The sight word section of the R4L intervention synthesises the research recommending increased opportunities for practice and revision (Beck, Perfetti, & McKeown, 1982; Byrne, Fielding-Barnsley, & Ashley, 2000; Gredler, 2001; Hay & Fielding-Barnsley, 2006; Lerner, 2003; Nuthall, 2005; Spencer & Hay, 1998) to achieve mastery, distributed in small time allotments to facilitate memory (Dempster, 1987; Gredler, 2001). Previous research has also demonstrated that the inclusion of flashcards and games is effective in engaging children when rehearsing sight word recognition, and assists to reduce boredom where repetition and drill are required (Baker, Herman & Yeh, 1981; Charlton, Williams, & McLaughlin, 2005; Etess, 2004; Falk, Band, McLaughlin, 2003; Lepper, 1988; Stone, McLaughlin, & Webber, 2002). The R4L intervention synthesised these previous findings and recommendations to include a small number of words being introduced each session, using direct and explicit scripts to recognise these words, and revising them using flashcard games. These pedagogical strategies are similar to those included in the phonological awareness section of the R4L intervention, which have been demonstrated to be effective for improving phonological awareness. However, the findings at Time 2 are inconsistent with hypothesised predictions of improvements in sight word recognition for the experimental group after direct sight word training and practice. The research related to poor sight word recognition skills for children with reading difficulties suggests that children in the control group would continue to experience difficulty with sight words, as they were not participating in a program specifically addressing these skills (Adams, 1990; Byrne, Freebody, & Gates, 1992; Hay, 1995; Henderson, 1982). However, this was not the case, as the control group did make gains. Perhaps the comparable gains made by the control group are another indication of the extent of the compensatory assistance provided to children during the intervention phase.

Findings emerged from the analyses of interviews in Study 2 that were contradictory to Study 1. A small number of children and reading buddies reported an improvement in the number of sight words that children could recognise. Sight word recognition was an activity included at the beginning of each session, known as the Warm Up (see Chapter 3). As they were engaged in these activities on a weekly basis, the reading buddies observed changes in the children’s performance on these tasks each week. One parent and one teacher also recognised this improvement. Although not a large number of participants mentioned sight word recognition improvements, there is
an indication that for some children this occurred. These improvements were expected, given the inclusion of practice and revision activities to address delays in sight word recognition, discussed previously. These results however, were not corroborated by the quantitative analyses and therefore perhaps could be considered as isolated successes or small improvements made by a few children.

The non-significant interaction effect of Condition by Time for sight word recognition (see Chapter 7) was not predicted, as it is an area that was strengthened for the intervention in the present investigation. Possible explanations for the non-significant results for sight word recognition were considered. Further examination of the Burt Word Reading Test (Gilmore, Croft, & Reid, 1981) identified some concerns in the suitability of this test. Only 32 of the 110 words included in the Burt Word Reading Test (Gilmore, Croft, & Reid, 1981) are also contained in the Fry Instant Word List (Fry, Kress, & Fountoukidis, 2004) used in the R4L intervention. This equates to only 29% of sight words in the Fry Instant Word List, which children participating in R4L would have learnt during the course of the R4L intervention. This low correspondence between the R4L intervention and testing materials is a limitation of the research design employed, and may have contributed to the non-significant result. Perhaps the children did not have had an adequate opportunity to demonstrate their improved knowledge of sight words during the testing, as so few of the words they had learnt during R4L were included in the Burt Word Reading Test (Gilmore, Croft, & Reid, 1981). However, additional unreported analyses using only the 32 words common to both the Fry Instant Words (Fry, Kress, & Fountoukidis, 2004) and the Burt Word Reading Test (Gilmore, Croft, & Reid, 1981) were undertaken, and the result was also non-significant for the experimental group. With only 32 common words, there appears to have been little room for improvement for both groups. Hence, a significant difference between the groups was perhaps unlikely. As previously discussed in Chapter 4, the Fry Instant Word List (Fry, Kress, & Fountoukidis, 2004) was selected as the stimulus material for sight word recognition in the R4L intervention as it contained a large number of words (1000) and was the most recent sight word list developed, based on frequency counts. This meant that all children could begin at Group One, as these were the most frequent words appearing in English texts. Unfortunately, the Fry Instant Word List (Fry, Kress, & Fountoukidis, 2004) does not have an accompanying diagnostic or standardised assessment; hence the Burt Word Reading Test (Gilmore, Croft, & Reid, 1981) was
selected to provide a standardised measure of children’s sight word recognition. Sight
word recognition is a visual skill where children learn a core group of words that appear
commonly in everyday texts (Adams, 1990; Gaskins, Ehri, Cress, O’Hara, & Donnelly,
1996; Hay, 1995). To measure how well children in the experimental group had
improved their ability to recognise sight words they should perhaps be pre- and post-
tested on the words they are going to learn: that is, the Fry Instant Word List (Fry,
1980). This would not provide a standardised measure of sight word recognition, but
may have been a more accurate measure of the impact of the R4L intervention on
children’s sight word recognition skills.

Previous research has demonstrated that children with reading difficulties
require greater exposure to sounds, words, and reading strategies to achieve mastery
(Gredler, 2001; Hay & Fielding-Barnsley, 2006; Lerner, 2003; Nuthall, 2005; Spencer &
Hay, 1998). The sight words were sent home each week in the Communication Book
for practice at home, to take advantage of these recommendations. Throughout the
course of the interviews in Study 2 it became apparent that some families were not
familiar with the communication books, and therefore were not able to complete the
recommended practice. Consequently, some children were disadvantaged in not having
an opportunity to complete sight word practice at home with their families. It is
possible that this reduced home practice affected the results for children participating in
R4L and hence, contributed to the non-significant result for the effectiveness of the
intervention in respect of of sight words.

The present investigation did not include a measure of the teaching style
children were exposed to in their regular classrooms. Previous research has
demonstrated that the classroom environment can affect the impact of supplementary
reading programs. Center, Freeman, & Robertson (2001), in their research of the
Reading Recovery program found that children whose classrooms included a code-
oriented focus performed better than those children from a meaning-oriented classroom
after participating in an identical Reading Recovery Program. It is not known whether
the direct and explicit instruction techniques employed in the R4L intervention were
consistent with the experience of children in their classrooms. Hence, it is unclear
whether this may have influenced the results of the present investigation. It is possible
the language orientation of classrooms may have been different for children in the
present investigation and that this unknown variation in the sample may have provided some children with different opportunities to review this work throughout the week.

**Long-term effects of R4L.** As with phonological awareness, children in the experimental group were assessed again, three months after the intervention period ceased and scored higher on sight word measurements: this is indicative of a sleeper effect, whereby there are delayed effects of an intervention (Ellis, Marsh, & Craven, 2005; Kumkale & Albarracin, 2004; O’Mara et al., 2006). This is contrary to many intervention studies, where short-term results fade in the long term (Borman & D’Agostino, 2001; Lee, Brooks-Gunn, & Schnur, 1988; White, 1985). However, there was no control group comparison for the longitudinal data and thus, it cannot be concluded that R4L is responsible for this continued growth. As the results of the children in the control group are not known for this period, they too may have continued to improve in sight word recognition during the same time. The results for the control group during the intervention period suggest this is certainly plausible.

**Replicability of intervention effects.** After participating in R4L themselves, children in the waitlist control group performed in a similar manner in sight word recognition, to the children in the experimental group. Children in the waitlist control group were able to read more sight words after participating in R4L and continued to improve in this area during the four months following the intervention, as demonstrated by a statistically significant difference between Time 2 and 3 scores for participating children. These findings are consistent with hypothesised predictions that performance on sight word recognition tasks would be similar for different groups of children with reading difficulties participating in R4L. In the case of sight words, as the results for the experimental group were non-significant, so too were the results for the control group. As discussed previously, the results for the waitlist control group were also confounded by the poor correspondence between the Fry Instant Words (Fry, 1980) used in the R4L intervention and the Burt Word Reading Test (Gilmore, Croft, & Reid, 1981) used for measurement of sight word recognition. Despite the instrument being a reliable measure of sight word recognition, it is questionable whether this is the best measure for the sight word knowledge gained by children during their participation in R4L.
Section Summary. The findings related to the effectiveness of R4L in effecting change in the sight word recognition skills of children with reading difficulties are inconclusive. Children were able to read more sight words after participating in R4L, and read even more words, several months after the intervention period. This pattern of improvement was obtained for two groups of children after participating in R4L. However, these improvements were not strong enough to result in a statistically significant finding, were confounded by contamination of the control group and a measurement instrument that did not reflect the words being taught during the R4L intervention. R4L was designed to include strategies that have been empirically validated, such as direct and explicit instruction and over learning using motivating activities. The efficacy of R4L in improving the sight word recognition skills of children with reading difficulties requires further examination, perhaps utilising a different test to reflect the intervention.

Reading Accuracy

Instrument Reliability. The Neale-R (Neale, 1989) was found to have poor reliability for the sample of the present investigation (see Chapter 6). This result is inconsistent with previous research studies reporting moderate reliability of the Neale-R for samples of children with reading difficulties (Chapman, Tunmer, & Prochnow, 2001; Malelaine & Wheldall, 1998). It is unknown why the reliability of reading accuracy for this sample was different to the normative data of previous studies. All research assistants participated in training to learn how to implement each of the measurement instruments for the study and were provided with opportunities to practise and conduct testing under supervision. The poor reliability of the Neale-R (Neale, 1989) was not predicted and as such, the results obtained from the Neale-R for reading accuracy need to be interpreted with caution for the sample of children with reading difficulties in the present investigation.

Effectiveness of R4L. After participating in R4L, children in the experimental group displayed improved performance on reading accuracy tasks. However, these improvements were not statistically significant, as the Condition by Time interaction was non-significant. Additionally, children in the experimental group continued to improve on their post-intervention scores (Time 2) three months after the intervention
as demonstrated by a statistically significant difference between Time 2 and 3 scores. These findings suggest that there were delayed effects of the R4L intervention on reading accuracy. Hence, time was perhaps needed for children to acquire the skills fundamental to reading accuracy, resulting in a sleeper effect at Time 3 (Ellis, Marsh, & Craven, 2005; Kumkale & Albarracin, 2004; O’Mara et al., 2006).

The structure and content of the intervention were consistent with the body of research identifying the components of reading proficiency. This research states that for a child to be a successful reader they require proficient skills in phonological awareness (McNamara, Scissors, & Dahleu, 2005; Torgesen, Wagner et al., 1997), a bank of consistently recognised sight words (Fuchs, Fuchs, Hosp, & Jenkins, 2001; Stahl & Kuhn, 2002), and a variety of successful strategies to decode unfamiliar words (LeBerge & Samuels, 1974), before applying meaning to what has been read. The Reading Helper Bookmark in the R4L intervention was based on theories related to strategy instruction, which has been demonstrated to be effective for children with reading difficulties (Forness, 2001; Jitendra et al., 2004; Swanson, 2001; Swanson, Carson, & Sachse-Lee, 1996; Westwood, 2004; Zimmerman & Schunk, 1989). During the Main Event, or reading section of R4L, children were taught and supported in using a variety of reading strategies. The successful synthesis and application of these strategies was perhaps reflected in the significant gains made for Time 3 in comparison to Time 2 reading accuracy scores.

An additional consideration of the impact of R4L on reading accuracy is related to the Matthew Effect, a phenomenon in the area of reading difficulties whereby the difference between the reading skills of children with and without reading difficulties increases disproportionately to the years of schooling (Hill, Comber, Louden, Rivalland, & Reid, 1998; Rohl & Milton, 2002; Stanovich, 1986). In a series of longitudinal studies Thomson (1990) has shown that children with reading difficulties, across an entire year of schooling, gain an average of 5 months in reading ability, corresponding to less than half a month (0.4 months) improvement for each month of the year. In the present investigation, the children in the experimental group improved, on average, six months during the four-month period between pre- and post-testing (Time 1 and Time 2). This represents a gain of 1.5 months, and an opportunity perhaps for children to close the gap between their reading performance and that of their peers. Given predictions by
Thomson, an improvement of 0.8 months would have been expected for this sample of children with reading difficulties. However, these children gained 1.5 months, thus exceeding the trajectories identified by Thomson, which offers further support for the salience of the R4L intervention.

**Long-term effects of R4L.** The continued progress of children in the experimental group from Time 2 to Time 3, demonstrated by a statistically significant difference between Time 2 and 3 reading accuracy scores, suggests that the skills of reading accuracy require more time, to improve. This hypothesis is supported by theories describing the phases that children progress through to become proficient readers (Ehri, 1995; Marsh, Friedman, Welch, & Desberg, 1981; Reitsma, 1983; Tunmer & Chapman, 2004). With a strong focus on visual memory of sight words and phonological awareness, children are still functioning at an alphabetic phase (Ehri, 1995; Marsh, Friedman, Welch, & Desberg, 1981; Tunmer & Chapman, 2004), with the orthographic phase of analogy and syllabification requiring more time to develop (Reitsma, 1983). The findings suggest participating children improved skills in phonological awareness and that some children developed greater automaticity in sight word recognition. Given the short time frame of the R4L intervention period, 11¼ hours spread across 15 sessions, it is reasonable for initial gains to have been present in the skills contributory to reading. These gains were present for phonological awareness, and to a lesser extent for sight words. Previous studies have found that improving phonological awareness has not always led to an immediate or direct improvement in reading ability (Bus & van Ijzendoorn, 1999; Lovett, Steinback, & Frijters, 2000; NICHD, 2000; Torgeson, 2004). The findings from the present investigation are consistent with these previous studies.

As with phonological awareness and sight word recognition, there is no comparison for the long-term improvements of the experimental group in the present investigation and as such, R4L cannot be considered solely responsible for the result of statistically significant difference in Time 3 reading accuracy scores. Children had experienced regular school teaching and may have participated in a range of other home or school support for their reading. The demonstrated significant gains in reading accuracy suggest that R4L is a promising intervention for children with reading
difficulties and that the existence of sleeper effects (Ellis, Marsh, & Craven, 2005; Kumkale & Albarracin, 2004; O'Mara et al., 2006) may also apply to reading accuracy.

**Replicability of intervention effects.** The suggestion that reading accuracy may be a skill that takes longer to develop than other reading skills, such as phonological awareness, is further supported in the results of the waitlist control group after they participated in R4L. Statistically significant results were found for both the short-term (main effect of time between Time 1 and Time 2) and long-term (main effect of time between Time 2 and Time 3) after the waitlist control group participated in R4L (new experimental group). In this instance, children in the waitlist control group demonstrated improved performance on reading accuracy tasks after participating in R4L and four months after the intervention period ceased. Additionally, statistically significant results were found for the interaction effect of Condition by Time, indicating that children in the new experimental group at Time 2 achieved higher reading accuracy scores than children in the original experimental group at Time 2. Perhaps this result was also confounded by the contamination of the control group, whereby it seems likely these children received additional interventions. This result is also consistent with the previously discussed body of research detailing the developmental phases of reading development (Ehri, 1995; Marsh, Friedman, Welch, & Desberg, 1981; Tunmer & Chapman, 2004) and the need to have pre-existing skills in phonological awareness (McNamara, Scissors, & Dahleu, 2005; Torgesen, Wagner et al., 1997) and sight words (Fuchs, Fuchs, Hosp, & Jenkins, 2001; Stahl & Kuhn, 2002). As previously discussed, children in the waitlist control group demonstrated improved performance in both phonological awareness and sight words during Phase 1 of the intervention, while the experimental group participated in R4L. Children in the control group also received support in addition to regular classroom teaching during this time, as described by participants during interviews in Study 2. The combined effect of gains in phonological awareness and sight words during their time in the control group may have contributed to this second group of children having gained improved reading skills. These children appear to have progressed beyond the alphabetic phase (Ehri, 1995; Marsh, Friedman, Welch, & Desberg, 1981; Tunmer & Chapman, 2004) and were reading with greater accuracy. The children in the waitlist control group were also six months older when they participated in R4L and the combined developmental effect may also be a factor confounding these results.
**Qualitative findings.** During interviews in Study 2, participants spoke of improvements in reading: supporting and providing additional insights into, the experience of R4L for children. Children believed that they had learnt new strategies to sound out, or decode, unfamiliar words when reading, since participating in R4L. Parents and teachers, both of whom had directly observed children attempting to sound out the phonemes in unfamiliar words after participating in R4L, confirmed their perceptions. Reading buddies also saw a change in the reading strategies used by the children they were working with. These observations indicate that the children had been encouraged to attempt unfamiliar words when reading, and to use the sound correspondence to assist them as a first strategy. This prompt to sound out words is provided on the Reading Helper Bookmark in the intervention manual, and the consistent reports of the use of this strategy in and out of the context of the R4L sessions indicate that the reading buddies were using the intervention materials correctly, and that the intervention was successful in encouraging children to use these strategies.

These reports are consistent with the findings from Study 1, demonstrating improvements in reading accuracy. These reports are also consistent with the body of research previously described, in relation to reading accuracy interventions. After participating in R4L children were observed using strategies to read unknown words, an approach identified by researchers as effective for children with reading difficulties (Forness, 2001; Jitendra et al., 2004; Swanson, 2001; Swanson, Carson, & Sachse-Lee, 1996; Westwood, 2004; Zimmerman & Schunk, 1989). The interviews in Study 2 were conducted during the period of time between the intervention ceasing, and longitudinal testing for both the original experimental and the new experimental (formerly waitlist control) groups. For both groups, participating children had improved in phonological awareness (statistically significant results for both groups) and sight words (improvements, but non-significant for both groups). Furthermore, in the original experimental group, improvements in reading accuracy had occurred, although these were non-significant. However, they were statistically significant for the new experimental group. The combined effects of these improvements lend support to developmental theories of reading development whereby researchers have demonstrated the progression of reading achievement for children (Ehri, 1995; Marsh, Friedman, Welch, & Desberg, 1981; Reitsma, 1983; Tunmer & Chapman, 2004) and, most
importantly, to the predictive power of phonological awareness (Juel & Meier, 1999; McNamara, Scissorns, & Dahleu; Scarborough, 1998; Tunmer, Chapman, Ryan, & Prochnow, 1998). Children in both groups improved in phonological awareness and, over time, they would have begun to apply these skills to new reading situations.

**Home Reading.** Guided oral repeated reading is considered to be an effective strategy for improving reading accuracy and ultimately fluency, for younger children (Chard, Vaughn, & Tyler, 2002; Therrien, 2004) and is considered the most effective strategy by the National Reading Panel (NICHD, 2000). Repeated reading was included in the revised edition of R4L evaluated in the present investigation, with information provided in the Communication Book. Interview data from Study 2 strongly indicate that home reading did not occur on a frequent basis throughout the R4L intervention. Interviews during Study 2 indicated that children and parents, those in the best position to comment on the completion of home practice, reported inconsistent home practice occurred throughout the intervention period. Teachers and reading buddies also reported inconsistent or no home practice. However, these were opinions formed on speaking with the children, rather than by direct observation of reading in the home environment. Previous research recognises the positive influence that a positive home literacy environment can have on learning outcomes, with children’s academic outcomes improved by home reading experiences (Adams, 1990; Edwards, Dandridge, & Pleasant, 2000; Erion, 2006; Frijters et al., 2000; Jeynes 2005; Cotton & Wikelund, 2001; Rashid et al., 2005; Senechal et al., 1996). These reports of inconsistent to no home practice, indicate that the advantage expected from home reading during the R4L intervention was not made available to participating children. Hence, the reading component of the R4L intervention was not implemented in full and may have contributed to the non-significant result for the effectiveness of the R4L intervention for reading accuracy that was found for the original experimental group.

Some of the teachers suggested that a parent’s lack of English-speaking and literacy skills affected capacity for reading practice at home. This suggestion is consistent with research in the area of hereditary links to reading difficulties, which suggests that the children from families where reading difficulties occur are also likely to experience reading difficulties themselves (Petrill, Deater-Deckard, Schatsneider, & Davis, 2005; Scarborough, 1988; Shaywitz, 2003; Stevenson, Graham, Fredman, &
McLoughlin, 1987). The incidence of reading difficulties within families can be related both to genetic characteristics of reading difficulties (Stevenson, Graham, Fredman, & McLoughlin, 1987; Shaywitz, 2003) and to the environmental impact of having a parent with a reading difficulty (Petrill, Deater-Deckard, Schatsneider, & Davis, 2005; Scarborough, 1988). Although the parents themselves in Study 2 did not raise this issue, parents nominated themselves to participate in the interview process, and parents who did not have a strong grasp of English or who were concerned about their own literacy skills, may not have volunteered to be interviewed. In addition, participants during interviews also mentioned parents’ lack of time for reading with their child at home as being a result of large families and busy working schedules.

**Changed reading behaviours.** Although the data from Study 2 strongly suggest that children were not reading with their parents at home, the children were reading on their own at home. Children described an increase in the amount and kinds of reading they participated in after the R4L intervention. They were reading harder books than they had previously, they were reading comic books instead of just looking at the pictures, and they were reading environmental signs. The children credited this change in reading to their improved reading skills after working with their reading buddy. Previous research indicates that children with reading difficulties do not engage in independent reading by choice (Cox & Guthrie, 2001) and are often reluctant to read aloud or to offer to read (Stanovich 1986). The data from Study 2 suggest that after participation in R4L, a change began in these behaviours, and children were beginning to read by choice. The reports of a change in these behaviours are consistent with previous research describing low involvement in reading activities, as this had been the case for children before their participation in R4L (Cox & Guthrie, 2001). However, after participating in R4L this reluctance to read had begun to change. The observations from Study 2 concerning an increase in independent reading, suggest that it is possible to change the reading behaviours of children in a short period of time, and that children can be re-engaged in the reading process.

Parents expressed satisfaction at seeing their child select reading as a leisure activity, and reading texts in the environment (i.e., signs and posters). The conviction of the parents’ perceptions in relation to their children’s reading independently, suggests that this is a change for the children, and that they were not reading of their own
volition previously. Prior research has suggested that parent involvement in home reading can also lead to an increase in voluntary reading for children in the middle years of school (Braten, Lie, Andreasson, & Olaussen, 1999), thus establishing long-term and permanent reading habits in teenagers (Jennings, Caldwell, & Lerner, 2006; Krashen & McQuillan, 2007). The findings from Study 2 suggest that voluntary reading can be affected by children’s changed attitudes, as demonstrated in the present investigation, and is not reliant only upon parental involvement. Thus, although reading practice with parents did not occur at home during the R4L intervention, children had begun to read at home independently.

These reports also suggest that the children were generalising their reading skills to situations outside of their session with their reading buddy. They had experienced success and were more confident to use their reading skills in a number of different situations. Researchers have demonstrated that children with reading difficulties do not always generalise their learning of reading skills and transfer them to new situations (Lovet, Ransby, Hardwick, Johns, & Donaldson, 1989; Vaughn, Gerstem, & Chard, 2000). The findings from Study 2 however, suggest that after participation in R4L, children began to apply their reading skills in situations outside of the R4L session. Children’s learning during R4L sessions appears to have transferred to new settings, in the home, and resulted in small, but noticeable, behavioural changes for children.

Children were also observed by the adults around them to show more perseverance when decoding words during reading. Parents and teachers recognised a change in the reading behaviours of children after participation in R4L. It is widely recognised that children with reading difficulties often experience a phenomenon known as learned helplessness, whereby their experiences of failure lead them to believe they are incapable of performing these tasks and consequently avoid opportunities to participate in these activities (Chapman, 1988; Linnenbrink & Pintrich, 2003; Rimm-Kaufman, Kagan, & Byers, 1999; Scott, 2004). Demonstrating more perseverance in decoding words, rather than giving up or avoiding these words, is a promising outcome of the present investigation. These reports of changed behaviours in relation to reading tasks can serve both to support the results from Study 1, that children had developed strategies to read more accurately, and to suggest that the experience of success had prompted behavioural changes in participating children.
Section Summary. After participating in R4L, children were observed to read words and texts with greater accuracy, and began to persevere with decoding unfamiliar words in texts. Additionally, children were reading independently in their home environment—a marked change for many of these children. Children in the experimental group demonstrated a small improvement in reading accuracy skills after participating in R4L, but gains were non-significant. They did continue to make further gains in the area of reading accuracy three months after the intervention ceased, suggesting that reading accuracy is a skill requiring more time to develop. Demonstrating that this may be the case for reading accuracy, after participating in the R4L intervention six months after the original experimental group, the new experimental group (formerly waitlist control group) made greater gains than the original experimental group, in the short term. The quantitative results for reading accuracy were impeded by an instrument that displayed poor reliability for the sample of children with reading difficulties. Hence, conclusions made in the area of reading accuracy, from the quantitative data, must be considered with caution, as the instrument’s reliability may have affected the overall result. Children in both the experimental and waitlist control groups, after receiving the R4L intervention, demonstrated statistically significant improvements in reading accuracy skills. Similarly, analysis of qualitative data indicated that children demonstrated improved reading skills during R4L sessions, classroom reading activities, and independent and voluntary home reading.

Reading Comprehension

Instrument Reliability. The Neale-R (Neale, 1989) was found to be a reliable measure of reading comprehension for the sample of the present investigation (see Chapter 6). This result is consistent with previous research studies reporting moderate reliability of the Neale-R for samples of children with reading difficulties (Chapman, Tunmer, & Prochnow, 2001; Malelaine & Wheldall, 1998). As such, the results for reading comprehension obtained from the Neale-R (Neale, 1989) can be considered reliable for the sample of children with reading difficulties in the present investigation.

Effectiveness of R4L. The results for the final reading achievement area, reading comprehension, were similar to those for reading accuracy in Study 1. In the
quantitative analyses, children in the experimental group were able to answer more reading comprehension questions after participating in R4L. However, the effectiveness of the intervention (as demonstrated by the Condition by Time interaction) was not statistically significant in the short-term. The children in the control group demonstrated improved performance on reading comprehension tasks during the intervention period, as they did for all other reading skills. The results of small short-term improvements in comprehension skills are consistent with the body of literature concerning the development of reading comprehension skills following improvements in reading accuracy. Prior research has demonstrated that inaccurate and dysfluent reading compromises reading comprehension; hence, children must be able to read text before they can be expected to understand it (Adams, 1990; LeBerge & Samuels, 1974; Torgesen, Rashotte, & Alexander, 2001). Researchers thus recommend prioritising reading accuracy instruction and fluency practice prior to focusing on comprehension (Carreker, 2002; Chall, 1979; Nathan & Stanovich, 1991; Pressley, 2001). The R4L intervention was informed by this research, with reading comprehension comprising a small component of the R4L intervention, concentrating on children’s recall of information from the text. As discussed in the previous section, children in the experimental group demonstrated improved reading accuracy after participation in R4L, although this was non-significant when compared to the control group. Given that these skills were still developing for the children, it is reasonable for the reading comprehension skills to have produced a similar result of improved, but non-significant reading comprehension skills, immediately after the intervention period ceased. The improvements of children in the waitlist group during the intervention period may be further evidence of the contamination of the control group during the intervention period, discussed previously.

Additionally, the short time frame of the R4L intervention should be considered in relation to the impact on reading comprehension. The actual intervention period comprised of 15, 45-minute sessions totaling 11¼ hours of time where the reading buddy and child worked together. Whilst this period of time is significant for children who are not receiving other forms of assistance, it may not have been long enough for children with reading disabilities to improve in multiple areas of reading. These children require additional time to develop core skills (Pursie & Ellis, 2005; Shaywitz, 2003), and the period of the R4L intervention may not be long enough for substantive gains in the
complex skill of reading comprehension to be observed. Brooks (2007) acknowledges intervention programs lasting more than a term have a greater impact on academic outcomes than shorter programs, however the overall time of the studies examined in his work is greater than the 11¼ hours of R4L. The period of the R4L intervention is shorter than many reading fluency programs evaluated in meta-analyses (Chard, Vaughn, & Tyler, 2002; NIHCD, 2000). An extended or repeated exposure to the materials of the R4L intervention could be considered in further studies to consider this further.

**Long-term effects of R4L.** Children in the experimental group maintained and improved on their post-intervention scores (Time 2) for reading comprehension three months after the intervention (Time 3), suggesting that, as with reading accuracy, there were delayed effects on reading comprehension. This is consistent with the research discussed above and reasonable in consideration of the long-term results of the experimental group in relation to reading accuracy and children’s continued independent reading. As children were reading texts with greater accuracy, as demonstrated by continued improvements in the long term for reading accuracy, and the interview data from multiple sources attesting to changed reading behaviours, they were better able to understand the texts read. Thus the impact of inaccurate and dysfluent reading on comprehension previously demonstrated by researchers (Adams, 1990; LeBerge & Samuels, 1974; Torgesen, Rashotte, & Alexander, 2001) and present in the Time 2 data, where statistically non-significant results for reading comprehension were obtained, changed for participating children at Time 3. Hence at Time 3, children were better able to answer comprehension questions on a text they had read because they had improved skills to read the text accurately.

The National Reading Panel (NICHD, 2000) cautions that effective reading comprehension instruction requires teachers to be well-versed in strategies for comprehension. For both university students, enrolled in a subject known as Learning through Community Service (LCS), and adult reading buddies, employed in various roles within companies, both of whom administered the R4L intervention without educational training, reading comprehension was not a significant component of the R4L intervention. Reading comprehension in R4L comprised of recall questions (Who? What? When? Where?) at the end of the reading session, to encourage children to reflect briefly on the text they had read. Researchers have demonstrated the longitudinal
predictors of reading comprehension to include word reading, grammatical awareness, and vocabulary knowledge (Muter, Hulme, Snowling, & Stevenson, 2004). Word reading was included in the R4L intervention, during the phonological awareness and sight word activities. The short time frame of the R4L intervention (11¼ hours) did not include any reference to grammar or vocabulary. Hence, although reading comprehension was not specifically targeted as a key focus in the R4L intervention, participating children nonetheless demonstrated improved performance on reading comprehension tasks.

Replicability of intervention effects. Statistically significant positive results were found for both the short-term (main effect of time between Time 1 and Time 2) and long-term (main effect of time between Time 2 and Time 3) in reading comprehension for the wait list control group after participation in R4L (the new experimental group). The significant short-term result for the waitlist control group is a different result to that of the experimental group. Additionally, the interaction effect of Condition by Time was also statistically significant; hence, children in the new experimental group at Time 2 achieved higher results for reading comprehension than children in the original experimental group at Time 2. Although both groups had demonstrated improved performance in reading comprehension after participation in R4L, the waitlist control group improved more than the experimental group after participation. These results suggest that R4L may perhaps have been more effective for the waitlist control group, or that the impact of the assistance received by the children in the waitlist control group during the first phase of the intervention was more evident for the skill of reading comprehension. However, both groups maintained, and continued to improve in, reading comprehension skills at Time 3 after the intervention period ceased. These results imply that strengthening children’s reading skills can also result in improved reading comprehension.

Both the original experimental and the waitlist control groups received the same R4L intervention. As discussed previously, consistent with recommendations by the National Reading Panel (NICHD, 2000) and the focus on reading accuracy as the prerequisite skill for comprehension (Adams, 1990; LeBerge & Samuels, 1974; Torgesen, Rashotte, & Alexander, 2001), reading comprehension comprised a minor part of the entire R4L intervention, and was limited to concentrating on recall skills. As the
intervention was the same for both groups, it is reasonable to have expected both groups to perform in a similar manner. They both improved on performance in reading comprehension tasks after participation. Additionally, the waitlist control, who were six months older and who had also improved in reading comprehension during the first intervention phase, improved more than the original experimental group.

The children in the waitlist group improved in reading comprehension during the first intervention phase, before they had participated in the R4L intervention. They also improved in phonological awareness, sight word recognition, and reading accuracy skills during this time. As discussed previously, many of the children in the control group received compensatory assistance, both within and outside of school during this period, in response to being identified for inclusion in the present investigation. Consequently, the children in the waitlist control group had begun to develop skills in reading accuracy prior to their participation in R4L: skills considered essential for the development of reading comprehension (Adams, 1990; LeBerge & Samuels, 1974; Torgesen, Rashotte, & Alexander, 2001). Hence, the result of improved performance in reading comprehension, beyond that of the original experimental group is reasonable, and consistent with the previous findings, that reading accuracy improvements are required before reading comprehension instruction can be effective (Adams, 1990; LeBerge & Samuels, 1974; Torgesen, Rashotte, & Alexander, 2001). The combined effect of some compensatory assistance in the first half of the year, together with regular classroom teaching, and then participating in the R4L intervention in the second half of the school year when some developmental improvements in reading will have naturally occurred, accounts for this unexpected result and is consistent with previous research, that comprehension is a skill influenced by other reading outcomes, such as reading accuracy (which are in turn influenced by phonological awareness and sight words).

**Section Summary.** Children displayed improved abilities in understanding texts read after participating in R4L, in the short term and the long term. Those children from the waitlist control group demonstrated larger gains in the areas of reading comprehension after participating in R4L in the second half of the year. The only statistically non-significant result in the area of reading comprehension was the short-term effects for the experimental group, in comparison to the control group. All remaining results, long-term for the experimental group and short- and long-term
results for the control group, yielded a significant result. Reading comprehension is a minor inclusion in the R4L intervention, as it is a skill dependent upon improved reading accuracy skills and an area demanding the skills of a qualified teacher to teach. Small gains in reading comprehension were evident for children after participation in R4L. These gains can be attributed to the gains made by children in their phonological awareness skills, leading to gains in reading accuracy, considered the prerequisite for reading comprehension. These interpretations are supported by the statistically significant long-term results for the experimental group and the statistically significant short- and long-term results for the waitlist control group, after participating in R4L.

### Reading Self-Concept

#### Introduction

Children’s experience of R4L and the observed changes in reading self-concept were explored from the perspectives of multiple stakeholders during interviews in Study 2. The key findings in relation to reading self-concept, including individualised attention, relationship with reading buddy, and confidence in reading, are discussed below.

#### Reading Self-Concept

The children, during interviews in Study 2, described feeling smarter and more skilled in reading after participating in R4L. Thus, their self-concept of reading had changed in a positive way after participating in R4L. Parents, teachers, and reading buddies supported this change in self-concept by reporting that the children displayed confidence, a positive attitude towards reading, and that their approach to reading had changed after participating in R4L. Over half of the participants in Study 2 recognised changes in children’s confidence and attitudes towards reading. Children’s reading self-concept had improved after participation in the R4L intervention. The outcome of observable changes in the self-concept of children, displayed through greater confidence, is a desirable outcome of schooling (MCEETYA, 2008) and a strong outcome of the R4L intervention.

A positive self-concept is known to contribute to success in a range of life pursuits (Hattie, 2009; Marsh & Craven, 2006; Marsh & Yeung, 1997). Researchers agree that when children feel good about themselves and are confident in their abilities, they will persevere with tasks and approach learning in a motivated way (Chapman,
1988; Dodgson & Wood, 1988; Helmke, 1989; Helmke & van Aken, 1995; Marsh & Craven, 2006; McInerney, Roche, McInerney, & Marsh, 1997; Sommer & Baumeister, 2002). Hattie (2009) asserts that confidence is the “most powerful precursor and outcome of schooling” (Hattie, 2009, p. 47) and this is reinforced in the goals of schooling in Australia, which include aspirations for children to be confident and have a strong self-concept (MCEETYA, 2008). The findings from Study 2 indicate that after participation in R4L, children felt more confident about their skills and abilities in reading, and hence had developed a stronger reading self-concept. In consideration of the body of research linking positive self-concept to success in life, these findings from Study 2 suggest that participation in R4L creates possibilities for achieving success in life for children.

The noticeable improvement in the reading self-concept of children holds particular promise for the population of children with reading difficulties identified in the present investigation. It is commonly agreed that children with reading difficulties have lower academic self-concepts than their peers, and sometimes a negative academic self-concept, and this self-concept declines further as schooling progresses (Burden, 2008; Chapman, 1988; Chapman, Tunmer, & Prochnow, 2000; Polychroni, Koukoura, & Anagnostou, 2007; Renick & Harter, 1989; Silverman & Zigmond, 1983; Zelke, 2004). Previous research has documented children’s experience of repeated failure in classroom situations and the detrimental effect this has on their academic self-concept (Burden, 2008; Humphrey, 2002; Kavale & Forness, 2000; Licht, 1983). Although the present investigation did not include a quantitative measure of self-concept, to validate whether this was the case, there is strong support in Study 2 that there was a change, in a positive direction, in the self-concepts of children with reading difficulties. Children, and the adults around them, believed their reading had improved and that they had more skills in reading after participating in R4L. In this way, R4L has been shown to effect a positive change in the reading self-concept of children with reading difficulties, a group of children whose future promise is compromised by poorer academic self-concepts than their peers.

The R4L intervention was designed to capitalise on the benefits of a positive self-concept and included recommendations by researchers regarding effective self-concept enhancement interventions. The R4L intervention was domain and skill
specific, focusing on the skills of reading and reading self-concept for children with reading difficulties. Researchers have demonstrated that focusing on domain specific facets of self-concept most relevant to the goals of the intervention is effective (Craven et al., 2003; Chapman & Tunmer, 2003; Hay, Byrne, & Butler, 2000; Lau, Yeung, Jin, & Low, 1999; Marsh, 1993; Marsh & Craven, 1997; 2006; O’Mara et al., 2004). Reading self-concept was facilitated through the use of attributional and internally focused feedback statements, which have been demonstrated to be effective in promoting increased self-concept for children (Craven, 1999; Craven et al., 2003; Craven et al., 1991), including those with learning difficulties (Tabassam & Grainger, 2002). The internally focused and attributional feedback statements help children view their reading skills in a positive light, thus contributing to developing a stronger belief in their capabilities. The children attributed the change in reading skills and abilities to their reading buddy, acknowledging that their reading buddy had taught them new skills and helped to improve their reading. Some children also described how their reading buddy praised their reading throughout the intervention period. The findings from the children in Study 2 suggest that the use of feedback statements was influential in helping children formulate new beliefs about their reading and bolstering their reading self-concept. These findings are consistent with previous research crediting the formation of self-concept of children to the influence of feedback (Hattie, 1987; Hay, Ashman, & Van Kraayenoord, 1988; O’Mara et al., 2004). These findings are also consistent with theories that children’s self-concept is strongly influenced by the perceptions and feedback of people surrounding them (Byrne, 1984; Hattie, 2009; Marsh & Craven, 1997). As such, the positive relationship formed between the child and their reading buddy creates the environment for improved self-concept to develop. In R4L, children work with an adult who provides targeted praise and feedback about performance. The findings from Study 2 suggest that the internally focused and attributional feedback statements in the R4L intervention strengthened the reading self-concept of participating children, and thereby offer further support for the validity of the theory and research on which these are based.

Academic self-concept and achievement share a mutually reinforcing relationship, as researchers have demonstrated that improvements in one area contribute to future improvements in the other, and that these combined improvements facilitate further successes (Caslyn & Kenny, 1977; Hay, 1995; Hay, Ashman, & van
Kraayenoord, 1994, 1997; Marsh 1993; Marsh, Byrne, & Yeung, 1999; Marsh & Craven, 1997; Valentine, Du Bois, & Cooper, 2004; Wylie, 1979). Marsh & Craven (1997; 2006) refer to this relation as the reciprocal effects model (REM). In the present investigation, participating children demonstrated improvements in both reading skills and reading self-concept. Children demonstrated improved reading skills, phonological awareness in the short term, and reading accuracy and comprehension in the long term. They also exhibited increased confidence and motivation to read, a strengthened reading self-concept. This pattern of improvements is consistent with the REM (Marsh & Craven, 1997; 2006) and provides further support, based on a rare qualitative study of the REM, for the mutually reinforcing relation of reading self-concept and reading achievement.

**Individualised Attention and Relationship with Reading Buddy**

Participants recognised the value of the one-to-one working environment in which R4L was conducted. Every teacher interviewed in Study 2 expressed satisfaction with the individual working relationship, recognising how helpful this was for children with reading difficulties. Children, parents, and reading buddies shared these views throughout Study 2. This is consistent with previous research findings acknowledging the benefit that children receive from working individually with an adult (Iversen, Tunmer, & Chapman, 2005; Moody, Vaughn, & Schumm, 1997; Swanson, Carson, and Sachse-Lee, 1996; Thurlow, Ysseldyke, Wotruba, & Algozzine, 1993; Vaughn et al., 2003). Participants recognised the advantage for children with reading difficulties to have the opportunity of receiving the full attention of an adult, to help with their reading. The teachers also acknowledged how difficult it was for them to find time to listen to each child read on a weekly basis, and were grateful for the extra assistance afforded to these children. Researchers have demonstrated that schools are often limited financially in providing assistance for children with reading difficulties in the form of additional specialist staff (Elkins, 2002; Shanahan & Barr, 1995). The findings from the interviews support this research, as teachers concur that they are primary educators responsible for helping these children to read, but that there is not adequate provision of resources for them to give sufficient concentrated attention to the reading assistance required by these children. Part of the value of R4L then, was in being able to assist schools in providing individualised assistance for children with reading difficulties at no additional cost to the school.
The special one-to-one working relationship between the children and their reading buddies was explored further in Study 2, using direct questions during the interviews, supported by additional observations during sessions at schools and at celebration parties. This was the only theme where a noticeable difference was observed between the participants in the LCS (university students) and the corporate sample. The language was different during the interviews, with those children working with a corporate buddy regarding their buddy as a friend rather than a teacher, as was the case in the LCS program. These differences were consistent throughout the interviews with the adult participants, parents, and teachers. The reading buddies from the LCS program were valued, but were regarded as additional teaching support in the school. The reading buddies from the corporate program were seen as generous for giving up their time, and for forming a special bond with their one child. It is important to acknowledge that there were no negative reports regarding the relationship between the child and their reading buddy. All participants from both programs spoke of the children enjoying spending time with their buddy. This is consistent with previous research evaluating tutoring programs with children, where children consistently report feeling better about themselves after working with a tutor (Dawkins, Ritz, & Louden, 2009; Fitzgerald, 2001).

These differences in perceptions of the relationship between the children and their reading buddy may be associated with the inherent differences in the organisation of the two programs in the present investigation. Reading buddies from the corporate program leave their place of work to come to the school and see one child for the duration of the program. In contrast, reading buddies from the LCS program participated to gain course credit towards their degree and saw five children across the school day. Although each child in the present investigation worked individually with their reading buddy, the interview data suggest that children from the LCS program did not feel as special, nor recognise their buddy as a friend, as their reading buddy worked with four other children during the day. However, analyses conducted in Study 1 found no significant differences in the performance of children on phonological awareness in the corporate program, compared with children in the LCS program, suggesting that the type of buddy does not affect the development of reading skills, in terms of a child’s performance on standardised tests. Therefore, although the interview data strongly indicate that there is a difference in how the children perceive their buddies, dependent
upon who they work with, the quantitative results indicate that this difference does not influence the reading achievement of children. Hence, reading achievement outcomes after participation in R4L do not seem to be influenced by the relationship that a child forms with their reading buddy.

**Section Summary**

After participation in R4L, children felt better about their abilities in reading and displayed greater confidence, as their reading self-concept had improved after working with their reading buddy. Children felt bolstered by this experience and continued to persist, practise, and persevere with reading. Considered alongside the quantitative results from Study 1, the simultaneous attention to reading skills and reading self-concept in the R4L intervention was successful in facilitating improvements for children with reading difficulties. These findings are consistent with theories of the reciprocity between academic self-concept and academic achievement (Caslyn & Kenny, 1977; Hay, 1995; Hay, Ashman, & van Kraayenoord, 1994, 1997; Marsh 1993; Marsh & Craven, 1997; Valentine, Du Bois, & Cooper, 2004; Wylie, 1979), as children were learning new reading skills and receiving special feedback simultaneously. Hence, they began to feel better about their abilities in reading and approached reading with greater confidence, with their reading achievement continuing to grow in the long-term. Hence, the R4L intervention seems to help interrupt the cycle of failure for children by encouraging them to acknowledge and believe in their successes.

**Strengths and Limitations**

**Introduction**

The present investigation contained a number of strengths in comparison to previous educational intervention research related to the research design and findings. Alongside these strengths are several limitations for consideration when interpreting the findings of the present investigation. These are discussed in the following section.

**Strengths of the Present Investigation**

*Availability of a new empirically validated intervention.* Volunteer programs are common in schools, as they promote community participation in school environments and can provide free help to schools (Elkins, 2007). However, the
evaluation of these volunteer programs is inconsistent. Some of these volunteer programs have been empirically evaluated, enabling recommendations to be made that identify the most effective structures and inclusions (Cohen et al., 1982; Elbaum, Vaughn, Hughes, & Moody, 2000; Ritter et al., 2009; Snow, Burns, & Griffith, 1988). However, not all volunteer programs have been empirically tested or evaluated, and it is therefore unknown whether they should be used in schools or whether they are effective for children (Dawkins, Ritz, & Louden, 2009; Nye, Boyd-Zaharias, Fulton, & Wallenhorst, 1992; Wasik, 1998). When the stakes are so high for children with reading difficulties, it is imperative that any volunteer program for these children has been evaluated, and demonstrated to be effective in improving the reading outcomes of these children. R4L is a volunteer program that has now been empirically evaluated, hence, a key strength of the present investigation is in contributing a rare study to the literature that tests the efficacy of a volunteer-administered intervention. An additional strength of the study was exploration as to whether the effects varied according to the type of volunteer (corporate, university student) by employing a synergistic multi-method research design.

Additionally, the synthesis of two theoretical views in the design and implementation of the R4L intervention is a major strength of the present investigation. The theoretical perspectives of self-concept enhancement and reading research concerning the acquisition of reading skills informed the R4L intervention. Educational research has demonstrated that children require foundational skills in phonological awareness to develop competency in reading accuracy, which in turn allows for the realisation of skills in reading comprehension. Self-concept research has shown that self-concept is a multi-dimensional psychological construct that shares a mutually reinforcing and dynamic relation with achievement. Additionally, self-concept researchers have proposed that for children to receive the maximum benefit of a positive academic self-concept, interventions should include both academic skills training and self-concept enhancement simultaneously. A strength of the present investigation was the capitalising both on advances in self-concept and on reading interventions, and testing the efficacy of a novel intervention on reading outcomes for children with reading difficulties.
**Mixed methods research.** A major strength of the present investigation was the implementation of a mixed methods research design combining both quantitative and qualitative data collection and analysis techniques. There is increasing recognition in the research community that quantitative and qualitative research methods each possess their own strengths and limitations, and that by combining these methods researchers have access to a greater range of research tools to explore and understand phenomena (Berg 2001; Cresswell, Clark, Gutmann, & Hanson, 2003; Tashakkori & Teddlie, 2003, 2009). There were many advantages to the combined use of quantitative and qualitative methods in the present investigation. Firstly, the quantitative study allowed for the standardised measurement and analysis of the reading achievement variables under investigation. This measurement of the effectiveness of an educational intervention is desired in educational departments worldwide, to ensure that children have access only to the most effective interventions (Cook, 2002; MCEETYA, 2005; Raudenbush, 2005, 2008; Rowe, 2007; Slavin, 2008).

Secondly, children’s experience of R4L and the impact on their reading achievement and self-concept could also be considered from the perspectives of participants, allowing participants to explain and elaborate on the findings from the quantitative study, as well as identifying additional insights that were not measured or hypothesised (Guba & Lincoln, 1985; Patton, 2002; Teddlie and Tashakkori, 2009). The triangulation of these findings has led to a greater understanding of the R4L intervention than either the quantitative or qualitative data taken in isolation. As previously discussed in this chapter, the quantitative results include varying levels of statistical significance for the reading achievement measures, with only one strong outcome of improved phonological awareness across all time waves. The additional insights of the qualitative data provided an understanding of the issues concerning contamination of the control group and lack of home practice, as well as consistent reports of significantly improved confidence, participation in reading, perseverance when reading, and reading skills. Individually, these studies conducted in isolation may have yielded different conclusions, but would have been incomplete. Together, they provide a rich understanding of the complexities of the R4L intervention and how children experience the time with their reading buddy. Hence, the use of a mixed methods research design resulted in a multi-faceted understanding of the strengths and limitations of R4L.
**Research design: Sample.** The sample of children in the present investigation was drawn from a combination of public and Catholic schools across Sydney metropolitan and regional areas, including both boys and girls from Years 1 to 4. This is a broad representation of children with reading difficulties. The inclusive sample is a central strength of the present investigation in that results are generalisable for children with reading difficulties across schools and geographical areas, thus lending further confidence to the results.

**Research design: Measurement instruments.** Another strength of the research design was the selection of existing reliable instruments to measure changes in phonological awareness, sight words, and reading comprehension. The demonstrated reliability of these instruments for the sample of children with reading difficulties in the present investigation also offers further confidence in the results obtained in Study 2.

**Research design: Statistical analyses.** Another strength of the present investigation was the use of sophisticated statistical analyses to evaluate the effect of the R4L intervention on children’s reading achievement outcomes. Multilevel modelling was employed to analyse the results for children in the present investigation. The use of multilevel modelling is recommended for intervention studies conducted in schools so that the similarities of children within individual schools and time waves are accounted for (O’Connell & McCoach, 2008; Rowe, 2007). Multilevel modelling identifies and accounts for the variance of multilevel variables on individuals. The children in the present investigation were members of individual schools and were tested at many periods of time; hence, the data contained different levels nested within each other. It is likely that children from any one school in the present investigation were more similar to other children from that school than to children from other schools included in the sample. The use of multilevel modelling was appropriate for the data composition in the present investigation, and resulted in more accurate statistical analyses.

**Research design: Longitudinal data.** The long-term effects on children after participating in R4L were included in the analyses of the present investigation. Longitudinal testing is important for avoiding “post-group euphoria” (Marsh, Richards, & Barnes, 1986) and helps account for any inflated post-test scores. Longitudinal
testing provides data concerning the maintenance of new skills. This is a chief strength of the present investigation, as the long-term effects of interventions are not always included in published research reports (Hurry, 2004; NICHD, 2000). After participation in R4L, children from both the original experimental group and the waitlist control group demonstrated improved performance on all reading achievement tests in the months after the intervention period ceased. The inclusion of longitudinal data in the present investigation is a key strength of the research design, as it provides insights into the longevity of the gains made by the children after participation in R4L.

**Research design: Waitlist control group.** The present investigation was one of a small number of volunteer-administered reading intervention evaluations worldwide, with a waitlist control design for a specific population of children with reading difficulties (Ritter, Barnett, Denny, & Albin, 2009). A common limitation of reading intervention research is the failure to include a control group in the research design (Slavin, 2008). However, the present investigation utilised a waitlist control design, whereby a comparison group of children (i.e., control group) were measured at the same time point as the group of children receiving the intervention (i.e., experimental group) and later received that same intervention. The data at Time 1 and Time 2 from both the experimental and control groups provided an equivalent measure against which to consider the effect of R4L for the experimental group. The availability of a comparison group is a key strength of the present investigation, as the results for children in the experimental group can be attributed to their participation in R4L, as they are compared to children in the control group, who did not participate in R4L.

**Limitations of the Present Investigation**

**Research design: Sample.** Classroom teachers identified participating children for inclusion in the present investigation, using the supplied criteria of girls and boys experiencing difficulties in reading and not being eligible for other forms of disability funding within the school system. Teacher identification of children with reading difficulties was poor in the present investigation. Of the 412 children identified for testing at Time 1, 130 were ineligible, as they were performing at average to above average level on standardised reading achievement tests. Teachers were not able to consistently identify children in their classes who were struggling, proving successful
only in 68% of cases. The low identification rate by teachers of children with reading difficulties supports the call from recent reviews, for more training for classroom teachers in assessing and working with children with reading difficulties (DEST, 2005; Rohl & Milton, 2002; Rose 2006; 2009). Classroom teachers do not appear to have known the reading abilities of all of the children in their class, and identified children who were in fact reading at an age-appropriate level. It is therefore unclear whether there were children at the school who had had genuine reading difficulties but were not identified by their classroom teacher.

Secondly, it is possible that classroom teachers were asked by the researcher to identify more children with reading difficulties than were actually present in their classrooms. The most recent NAPLAN results in Australia report an average of 4% of children in Year 3 performing below the benchmark in reading assessments, with an enormous range across all of the Australian states of 1.7–28.1% (ACARA, 2010). Based on these figures, in a classroom of 30 children there could be between one to nine children with reading difficulties. The 14 schools in the present investigation were asked to identify up to 10 children per grade, and it is possible that there were not 10 children with reading difficulties enrolled at that school in those grades. Although all eligible children were below the 25th percentile for phonological awareness, this was not the case for all of the reading measures (Weiner, 2003). Only 62% of participating children were below the 25th percentile on the Neale-R for accuracy, and 66% for comprehension. The request for large numbers of children in the present investigation may have been beyond the scope of the enrolments at the schools. Consequently, there may have been children included in the sample for the present investigation who did not have significant reading difficulties—the very children whom the intervention was designed to help.

**Research design: Measurement instruments.** The present investigation employed qualitative measures to explore the effect of the R4L intervention on self-concept during interviews in Study 2. The children felt more confident about their abilities in reading and believed they were more capable of reading. All adult participants confirmed this, and spoke of observing changes in the beliefs, attitudes, and confidence of children. These consistent reports of improved confidence and attitudes towards reading, support the finding that participation in the R4L intervention has a
positive impact on reading self-concept. However, there was no quantitative measure of the reading self-concept of children. Hence, formal validation of self-concept increases could not be made. Furthermore, the REM model underpins the R4L intervention, with a dual focus on both reading skills and reading self-concept enhancement (Marsh & Craven, 2006). In the absence of a quantitative measurement of reading self-concept, it was not possible to infer objectively the operation of these relations; thus, empirical tests substantiating the REM model for children with reading difficulties could not be undertaken.

**Research design: Longitudinal data.** Although longitudinal data were included in the analyses of the present investigation, there are some limitations concerning the data available from the longitudinal testing. The experimental and control groups were both tested concurrently at Times 1 and 2. However, only the experimental group was assessed at Time 3, to provide the longitudinal data for this group. Consequently, there is no comparison for the experimental longitudinal data, and caution is required in interpreting these results, as it is not known what changes may have occurred for the control group during this time. As previously discussed throughout this chapter, children in the experimental group maintained and continued to improve their performance on reading achievement tests after participation in R4L. However, no definitive conclusions can be drawn from these data as there is no information about the performance of children in the control group.

Additionally, the longitudinal analyses were both conducted after school holiday periods, where children were not attending school. For the original experimental group, this was a period of two weeks during July. For the second experimental group (the original control group receiving the intervention) this was a period of six weeks throughout December and January. Consequently, comparisons between the longitudinal results for the two experimental groups are not equally matched for time. In both groups the children demonstrated improved performance on all reading achievement measures. However, further analysis and comparison could not be undertaken, due to these inconsistencies.

**Research design: Waitlist control group.** Although the present investigation utilised a waitlist control design, the actions of schools and parents providing
compensatory support to the control group resulted in contamination of the control group. Hence, the identification of a waitlist control group was both a strength and a limitation in the present investigation. The presence of the control group allowed for a comprehensive evaluation of the effectiveness of the R4L intervention. However, the evaluation was compromised by the control group also receiving special assistance in addition to regular classroom teaching. Subsequently, children from both groups demonstrated improved performance on reading achievement tests, and therefore conclusions made about the effectiveness of the R4L intervention are based upon a comparison with a group of children who received a different intervention rather than regular classroom instruction.

**Inconsistent home practice.** To make the most of the advantages for children participating in a rich literacy environment at home (Adams, 1990; Edwards, Dandridge, & Pleasant, 2000; Erion, 2006; Frijiters et al., 2000; Jeynes 2005; Cotton & Wikeland, 2001; Rashid et al., 2005; Senchel et al., 1996) and the demonstrated benefits of repeated reading on reading accuracy (Chard, Vaughn, & Tyler, 2002; NICHD, 2000; Therrien, 2004), repeated reading was included in the revised version of R4L. Thus, home practice in the R4L intervention was to involve parents participating in revising sight words and repeated reading. Throughout the interviews in Study 2 however it became clear that home practice did not occur consistently for the children in the present investigation. Hence, the home practice component of the R4L intervention was not completed. In consideration of the previous research supporting both repeated reading (Chard, Vaughn, & Tyler, 2002; NICHD, 2000; Therrien, 2004) and participation in home reading (Adams, 1990; Edwards, Dandridge, & Pleasant, 2000; Erion, 2006; Frijiters et al., 2000; Jeynes 2005; Cotton & Wikeland, 2001; Rashid et al., 2005; Senchel et al., 1996), it is a limitation of this study that participating children did not have an opportunity to receive the full benefit of the R4L intervention.

**Implications for Theory, Practice, and Future Research**

The present investigation capitalised on recent advances in reading and self-concept theory and research to produce an intervention that was successful in improving the reading skills of children with reading difficulties and strengthening their self-concepts
in reading. This type of intervention, where educational and psychological enhancement are emphasized concurrently, is novel in the field of reading disabilities. The results from the present investigation provide support for combining reading instruction and self-concept enhancement strategies in future interventions. The next section discusses the implications of the findings from the present investigation in relation to theory, research, and practice.

**Theory**

**Developmental theories of reading acquisition.** Findings from the present investigation support theoretical perspectives on the acquisition of reading skills for young children. Theories of the development of reading skills state that for successful reading, children require an awareness of the sounds of English (phonological awareness), visual recognition of commonly appearing sight words, and a range of strategies to decode unfamiliar words. Additionally, children develop skills in reading accuracy prior to reading comprehension. The structure and content of the R4L intervention in the present investigation were designed to reflect these developmental theories of reading acquisition.

The findings from the present investigation offer some support for these developmental theories. Children demonstrated improved performance on phonological awareness tasks in the short-term, which has potential to serve as a prerequisite for further reading acquisition. The performance of the children in the experimental group on reading accuracy tasks was significantly improved in the longitudinal testing, suggesting that the initial gains in phonological awareness may have contributed somewhat to these gains in reading accuracy. Reading comprehension skills were also significantly improved for the experimental group after the initial learning and gains during the R4L intervention period. These findings considered together, the present investigation provides support for these developmental theories.

Furthermore, the developmental theories of phonological awareness span across the first three to four years of schooling, with children expected to progress through these stages in incremental steps over an extended period of time (Chard & Dickson, 1999; Ehri, Nunes, Stahl, & Willows, 2001; Neilson, 2003). The findings from the
present investigation suggest that it is possible to remediate phonological awareness in a short period of time for young children. Thus, although the majority of children will progress through these stages at a gradual pace, children who have been delayed in developing phonological awareness may be able to redress this delay in a condensed period of time. The findings from the present investigation, in relation to improved phonological awareness after a short intervention period, offer an extension to the existing theories of development of phonological awareness for children with reading difficulties and suggest that enhancement of phonological awareness can be achieved over a short intervention period.

**Learning theories.** One of the core theoretical underpinnings of the R4L intervention comes from behavioural theorists: the promotion of explicit code-based reading instruction, involving direct instruction in the morphological and orthographical patterns in words. These approaches have been demonstrated in previous research to be effective for children with reading difficulties (Lloyd, Forness, & Kavale, 1998; Tunmer, Chapman, Ryan, & Prochnow, 1988). Direct and explicit instruction techniques were employed throughout the R4L intervention in the instruction of phonological awareness, sight words, and decoding strategies. The findings in the present investigation demonstrated that children developed improved phonological awareness and reading accuracy skills after participation in the direct and explicit instruction of the R4L intervention. The current findings for phonological awareness and reading accuracy support the behaviouralist theories of explicit code-based reading instruction. As previously discussed in this chapter, although statistically significant results were not obtained for improvements in sight word recognition, the measurement instrument employed may not have been indicative of the sight words children had learnt to read during the intervention and hence, the result is inconclusive (Gilmore, Croft, & Reid, 1981). These theories of explicit code-based reading instruction have also been expanded in their application in the R4L intervention, by their inclusion in a unique reading skill and reading self-concept enhancement intervention for young children. The findings of the present investigation have demonstrated that it is possible to combine explicit code-based reading approaches with other techniques, such as self-concept enhancement.
Self-concept theories. Research supporting the REM (Marsh & Craven, 1997; 2006; Marsh & Yeung, 1997) has established a reciprocal relation between academic self-concept and achievement, whereby increases in one area are accompanied by increases in the other and vice versa. The implication of the REM for children with reading difficulties is that academic self-concept and achievement must be developed concurrently. Hence, interventions designed for this disadvantaged group of children should include enhancement strategies for both reading self-concept and reading skills. The R4L intervention was designed to reflect these self-concept enhancement theories, with the inclusion of special feedback statements alongside reading enhancement training. The current findings offer some support for the REM for children with reading difficulties. Children improved in areas of reading achievement, demonstrated by a range of statistically significant results in phonological awareness in the short-term and these gains, as well as gains in reading accuracy and comprehension, continued longitudinally. Additionally, participants consistently reported significant changes in children’s reading self-concept, as children displayed and expressed greater confidence towards reading. Thus, there is a strong indication that children improved in both reading skills and reading self-concept and that the combination of these improvements fostered continued improvements in reading skills longitudinally. The findings of this study therefore offer further support for the REM based on a qualitative investigation of the phenomenon and extend the findings of the REM to young children with reading difficulties.

Educational Practice

Reading pedagogy. In demonstrating that R4L is effective in improving phonological awareness, reading accuracy, and comprehension, the present investigation has implications for educational practice. R4L was theoretically derived from the body of international literature over the past 30 years, from the most effective strategies identified for teaching reading to young children. Findings from the present investigation suggest that the inclusion of these reading strategies is beneficial for children with reading difficulties. Explicit instruction of phonological awareness skills, increasing in complexity, and supported with motivating games practice, has been demonstrated to be effective in improving children’s phonological awareness skills in
the present investigation. Hence, the R4L intervention has provided a model for effective teaching of phonological awareness for teachers to use when teaching children with reading difficulties. The R4L intervention could be used in classrooms as an entire program or as a model for teachers to apply in their classroom.

Additionally, the present investigation has demonstrated that reading accuracy can be improved after phonological awareness skills improve and is enhanced when children are explicitly taught to use a variety of reading strategies, in approaching words in the text they are not able to read. These improvements in reading accuracy will require more time and are reliant on children’s phonological awareness. These findings can inform the planning of effective literacy instruction, whereby the prerequisite skills of reading, such as phonological awareness, are taught before the introduction of specific reading skills.

**Cost effective and successful interventions.** Children with reading difficulties require intense support over an extended period of time, preferably in smaller group or one-to-one environments (Moody, Vaughn, & Schumm, 1997; Rose, 2009). The support available for children with reading difficulties often requires financial assistance from government and educational departments. This support is compromised in Australia, where reading difficulties are not formally recognised by education departments and only minimal funding is available (Elkins, 2007; Hiebert, 1994; Shanahan & Barr, 1995). Additionally, in Australia funding for learning support is often directed to the provision of Reading Recovery for children in Year 1. The Reading Recovery Program has been criticised for its lack of effectiveness in children with reading difficulties (Chapman, Tunmer, & Prochnow, 2001; Elbaum, Vaughn, Hughes, & Moody, 2000) due to the omission of phonological awareness instruction (Chapman, Tunmer, & Prochnow, 2001). The R4L intervention addresses the deficiencies in Reading Recovery by emphasising phonological awareness instruction and has been demonstrated to be effective in improving the short- and long-term outcomes of children in the present investigation. Multilit is another program currently employed to support children with reading difficulties in Australian classrooms throughout primary grades (MULTILIT, 2007). Multilit is consistent with the philosophy of R4L in terms of formally teaching the skills required for reading in a one-to-one environment with a trained adult (MULTILIT, 2007). However, R4L provides
additional and engaging practice of phonological awareness and sight words using card and board games, does not involve daily practice with a trained adult, and incurs no cost to the school to train the adults in the program.

The findings from the present investigation suggest that R4L offers schools a mechanism for providing the essential individualised support to children with reading difficulties without impacting on constrained school budgets. Trained reading buddies deliver the R4L intervention in a one-to-one environment, volunteering their time. Learning Links conduct all pre- and post-testing and the cost is borne by the organisation supplying the reading buddies. Schools are only required to identify a space for the R4L sessions to take place. Hence, R4L has the potential to support children with reading difficulties, alongside other programs such as Reading Recovery (Clay, 1985, 1987, 1993) or Multilit (MULTILIT, 2007) to improve reading outcomes.

**Model for new interventions.** Recommendations from researchers who have conducted evaluations of volunteer or tutor programs include clear training for volunteers, systems to ensure that volunteers are reliable, and the provision of structured programs where volunteers are supporting children in the practice of educational skills (Cohen et al, 1982; Elbaum, Vaughn, Hughes, & Moody, 2000; Ritter et al., 2009; Snow, Burns, & Griffith, 1988). The researcher incorporated these recommendations into the design and structure of the R4L intervention, and the findings from both studies in this research support the success of R4L in improving reading skills. R4L thus provides a model for educators in developing programs for volunteers to administer to children with reading difficulties. Hence, in addition to R4L being an intervention for reading, it could also potentially serve as a model for new programs to be developed for other skills required by young children, such as mathematics.

**Assessment validation for children with reading difficulties.** Existing commercial measurement instruments for reading achievement skills were shown to be suitable for children with reading difficulties. The SPAT-R (Neilson, 2003), Burt Word Reading Test (Gilmore, Croft, & Reid, 1981), and Neale-R (Neale, 1989) were found to be reliable measures of phonological awareness, sight words, and reading comprehension respectively. The Neale-R (Neale, 1989) was not found to be a reliable
measure of reading accuracy in the present investigation, and warrants further testing on a larger sample of children with reading difficulties. These instruments have been formally standardised on large samples of children with wide ranging abilities, and possess strong psychometric properties. The present investigation involved a skewed sample of children; all were behind in their reading abilities, with a limited range of reading skills. The results from the present investigation suggest that these instruments can be used on populations that differ from the normal distribution, and provide additional validation of the suitability of these instruments for children with reading difficulties. Initial and post assessment of reading skills are critical factors in considering the effectiveness of interventions, and these were conducted in the present investigation, as recommended by researchers (NICHD, 2000; Rose, 2006; 2009; Rowe, 2007). Ongoing assessment is also a critical component of the teaching and learning cycle for all children (Hattie, 2009). Children with reading difficulties require regular assessment within classrooms to monitor progress and modify teaching programs. Hence, it is important for teachers and researchers to have access to measurement instruments that have been empirically validated for special populations, such as children with reading difficulties.

**Identification of children with reading difficulties.** Although the present investigation was not designed specifically to consider identification methods or gender ratios of reading difficulties, in undertaking the Time 1 testing some trends emerged, supporting previous research and informing future educational practice. Teachers incorrectly identified 130 children, 32% of the sample, as children with reading difficulties who would benefit from additional reading assistance. It is not known whether this is a result of classroom teachers’ poor knowledge of the skills that constitute reading, or of the abilities of individual students, or indeed of the researcher’s request for a larger number of children with reading difficulties than may have been enrolled in individual classrooms. However, it would be prudent to recommend greater information and further training related to reading difficulties for classroom teachers, to assist in their identification and attention. This has been echoed in the most recent reviews on the teaching of reading to children (DEST, 2005; Rose 2009).

Many researchers have chronicled the range of terms used to describe populations of children who struggle to learn (Elkins, 2000; Ellis, 2005; Kavale,
Spaulding, & Beam, 2009; Louden et al., 2000, Rose, 2009). Although no specific terms, such as dyslexia, were employed in the present investigation, with teachers given criteria rather than a label, it is perhaps the inconsistency of these terms in the literature and educational practices that has contributed to poor identification of children eligible for inclusion in R4L. Agreement in the field about the language used to describe this population of children with reading difficulties would be an important element in improving the knowledge base of teachers.

There was also a small bias in the gender ratio of the initial teacher-selected sample for pre-testing. Despite requests for even numbers of boys and girls and grades, teachers did not or were not able to comply with this request in their individual classes. Hence, the sample was slightly biased towards boys, 59% and 41% respectively being identified for initial testing, and representing 61% and 39% respectively of the sample of eligible children. The higher incidence of boys identified with reading difficulties than girls is consistent with other studies and with prevailing beliefs about boys being more likely to experience reading difficulties (Flynn & Rahbar, 1994; Hawke, Wadsworth, Olson & DeFries, 2007; Ruttner et al., 2004; Shaywitz & Shaywitz, 1988; 2003). Whilst gender biases were not a key focus area of investigation in this study, their occurrence in the sample supports the body of literature regarding gender bias. It is important for teachers to be aware of the potential bias in identification of children with difficulties in their classrooms and for teachers to be encouraged to develop skills to accurately identify children with reading difficulties so that teaching strategies can be developed tailored to individual student’s needs.

**Policies for children with reading difficulties.** Australian policy and provisions for children with reading difficulties are inconsistent with other Western governments. After the release of the Report on Teaching Reading in 2005, there have been no policy amendments for children with reading difficulties (Bond et al., 2010). Children with reading difficulties are acknowledged and supported in other countries, such as the USA, with its No Child Left Behind Act (2001) and the United Kingdom’s new Primary National Strategy framework (Department of Education and Skills, 2006). Reading competence is identified by the Australian government as a goal of schooling and the foundational skill for other learning (DEST, 2005; MCEETYA, 2008). However, there are few provisions to help children who are experiencing difficulty in
achieving this competence. Reading difficulties are not formally recognised within Australia and as a result, financial assistance to schools to support these children is negligible. The present investigation demonstrated that children with reading difficulties can improve their reading skills and reading self-concept after participation in a short intervention administered by trained reading buddies, thus improving their opportunities for success in education, employment possibilities, and happiness in life. The evaluation of R4L has shown that improvements are possible for children with reading difficulties. It is imperative for the educational policies within Australia to acknowledge the existence and needs of these children, to provide the necessary assistance, and to help all children read. In the present investigation, implementation of the parent component of the intervention was poor. Further research needs to be undertaken to identify successful parent-administered reading interventions that breed success.

**Future Research**

The findings of the present investigation were strengthened in the availability of both quantitative and qualitative data. The mixed methods research design provided an opportunity to counter some of the challenges in conducting experimental research in educational settings, such as the contamination of the control group for the quantitative study. The onus is on researchers to find ways to conduct this research in challenging educational settings, and mixed methods is a way forward to address this by considering multiple perspectives. Utilisation of mixed methods research designs provides a rich and multi-faceted understanding of educational interventions in classrooms. Future research of educational interventions would benefit from considering employing mixed methods approaches.

The present investigation was the first empirical evaluation of the R4L intervention utilising a waitlist control group. Replication studies of the R4L intervention should be undertaken to develop a stronger research base on the efficacy of R4L. These replication studies should address some of the limitations described in this chapter, such as the provision of a control group for the longitudinal data, an alternative instrument to measure sight words, further investigation of the reliability of the Neale-R (Neale, 1989) as a reliable instrument for reading accuracy, and the formal measurement of self-concept. Further research could employ larger sample sizes or control groups in
different schools to help minimise control group contamination (Moerbeek, 2005; Wheldall, 2009). Such replication studies could also further explore how gender, home reading, classroom reading instruction methods, and the length of time of the intervention mediate or moderate the outcomes of R4L.

The multidimensional and domain specific structure of self-concept has been well validated in many populations (Byrne, 1996; Hay & Ashman, 2003; Marsh, Byrne, & Shavelson, 1988; Marsh, Craven, & McInerney, 2003; Marsh & Craven, 2006; Marsh & Hattie, 1996; Marsh & Yeung, 1999; Valentine, DuBois, and Cooper, 2004). However, findings from studies examining the self-concept of children with reading difficulties are hampered by inconsistent definitions of learning difficulties and by a lack of clear distinction between general and academic self-concept (Byrne, 1996; Durrant, Cunningham, & Voelker, 1990; Polychroni, Koukoura, & Anagnostou, 2007; Zelke, 2004). The scope of the present investigation did not include a comparison of the self-concept of children with and without reading difficulties or measure self-concept using a formal measurement instrument. Given the widely known benefits of a positive self-concept for life possibilities (Chapman, 1988; Hattie, 2009; Marsh & Craven, 2006; Marsh & Yeung, 1997), it is vital for self-concept to be further understood for the population of children who are disadvantaged by their reading difficulties and the detrimental impact this has on their formation of academic self-concept. This is an area for future researchers to consider exploring further: the impact of the R4L intervention on reading self-concept for children with reading difficulties.

The measurement of sight word recognition in the present investigation was potentially obstructed by the low incidence of common words between the sight words taught to children during R4L sessions, from the Fry Instant Word List (Fry, 1980), and the measurement instrument, Burt (Gilmore, Croft, & Reid, 1981). As a consequence, children were potentially restricted in demonstrating the full extent of their improvement in sight word recognition, with so few words they had learnt being contained in the Burt list (29%). As sight word recognition is a visual skill, there is a need for the availability of corresponding sight word lists and assessments, to ensure that the visual memory learning assessed, corresponds to what was taught. Furthermore, both of these materials are 30 years old, and may no longer be indicative of the most commonly sighted words encountered by children. Future researchers could consider
the development of a new sight word list and corresponding assessment, with standardised norms from large populations, encompassing the words most frequently occurring in everyday and digital texts, to provide more accurate measures of sight word recognition.

Additionally, the positive long-term reading achievement results of participating children and the consistent reports of improved reading self-concept and confidence from both studies, provide some support for the REM (Marsh & Craven, 2006). It would be useful, however, for these relations to be investigated causally, utilising a quantitative self-concept measure alongside reading achievement measures.

The reports during the interviews in Study 2, of children reading more, reading harder texts, and reading independently, were explored in terms of printed books and environmental print on billboards. There was no mention of reading undertaken in digital form, either on the computer or other electronic devices. Technological advancements and the increase in availability of electronic devices are increasing the demands on reading skills (Hagood, 2000; Luke, 2000; Palfrey & Gasser, 2008; Prensky, 2010; Unsworth, 2002). Further research could investigate how children are reading digital materials and the pressure this places on children with reading difficulties. R4L currently utilises printed books and materials. However, the inclusion of digital materials may need to be considered in the future, and could be a possibility for providing the required home support for these children.

The R4L intervention is entirely focussed on the area of reading and has been demonstrated to be effective in improving phonological awareness for participating children. There is research stating that phonological awareness training has also been shown to improve spelling in the long term (Bus & van Ijzendoorn, 1999; Bradley & Bryant, 1985; Byrne et al., 2000; Lundberg, Frost, & Petersen, 1988). Spelling skills were not included in the present investigation and as such it is not possible to comment on the effect of the improved phonological awareness of children on spelling skills. Further research could include spelling assessments within the battery of reading assessments, to consider additional multiplier effects of phonological awareness training interventions.
As previously discussed throughout this chapter, classroom teachers were not accurate and reliable in identifying children with reading difficulties in their classes. Unfortunately, the scope of the present investigation did not allow for additional testing of whole classes to test whether some children with reading difficulties had not been identified by their classroom teacher. Future research could consider assessing entire classes to identify accurately the children who were struggling with reading. It would also be helpful for further research to consider the extent to which teachers can accurately identify and intervene in reading difficulties.

**Chapter Summary**

This chapter has summarised and discussed the significant findings from the mixed methods study comprising the present investigation. The R4L intervention, synthesising educational and psychological research by simultaneously focussing on reading skills and reading self-concept, has yielded promising results in the present investigation. Children improved in reading skills, and particularly in phonological awareness, maintained these improvements over time, and felt more competent and confident of their abilities in reading, prompting further behavioural changes in independent reading. Therefore, R4L could be a useful complement to teacher-implemented programs and serve to help children with reading difficulties. Additionally, a model for volunteers working with children, including training and the provision of a structured program, provides educators with a model to devise additional programs for children. Results from the two interrelated studies were synthesised, and the strengths and limitations of the present investigation were presented. Suggestions for educational theory, future research, and pedagogy also were presented. The key findings of the present investigation are summarised in the next chapter.
CHAPTER 9

DISCUSSION

Introduction

The present investigation was designed to evaluate the effectiveness of a newly revised version of the R4L intervention that was developed for use in primary schools to help young children with reading difficulties improve their reading achievement skills and reading self-concept. The purpose of the current chapter is to: (1) discuss the key quantitative findings (Chapter 7) and qualitative findings (Chapter 8) with respect to existing theory and research; (2) review the strengths and limitations of the investigation; and (3) consider the implications of the findings for future educational theory, practice, and research. The key findings are discussed in relation to the central areas emphasised in the R4L intervention: reading skills and reading self-concept.

Reading Skills

Introduction

Three core reading achievement skills were emphasised in the R4L intervention: (a) phonological awareness; (b) sight word recognition; (c) reading accuracy. Reading comprehension was also considered to a smaller extent. Study 1 tested the effectiveness of the R4L intervention, measuring changes in children’s reading achievement scores after participation in R4L. Study 2 explored children’s experience of R4L, and the observed changes in reading achievement were explored from the perspectives of multiple stakeholders. The key findings from both studies, in relation to each of the four reading achievement skills, are discussed below.
**Phonological Awareness**

**Instrument reliability.** The SPAT-R (Neilson, 2003) was found to be a reliable measure of phonological awareness for children with reading difficulties. This is consistent with the normative data of the SPAT-R (Neilson, 2003), which demonstrate the instrument to be a reliable measure of phonological awareness for primary school children of all abilities. Although the sample in the present investigation was different to the standardisation sample for the instrument, as it comprised only children with reading difficulties, rather than the normed sample of all abilities, the SPAT-R (Neilson, 2003) was nonetheless a reliable measure for the sample of children with reading difficulties in the present investigation.

**Effectiveness of R4L.** R4L was found to improve children’s performance on phonological awareness tasks, as demonstrated by the statistically significant group by time interactions in Study 2 (see Chapter 6). Children in the experimental group at Time 2 (post-intervention) scored higher on the SPAT-R, compared to children in the control group at the same time. These findings are consistent with hypothesised predictions of improvements in phonological awareness after direct phonological awareness training, as reported in international meta-analyses and reviews of reading, such as the National Reading Panel (NICHD, 2000), Report on Reading (DEST, 2005), and the Identifying and Teaching Children and Young People with Dyslexia and Literacy Difficulties Report (Rose, 2009). Children in the present investigation improved phonological awareness skills after participation in R4L.

R4L was designed to reflect developmental theories of phonological awareness, whereby children progress through stages of word awareness, rhyme, syllables, and individual phonemes (Chard & Dickson, 1999; Ehri, Nunes, Stahl, & Willows, 2001). The activities included in the phonological awareness component of R4L mirror these developmental trajectories identified by Ehri et al. (2001) and Chard and Dickson (1999). The statistically significant outcome for phonological awareness supports these theories concerning the developmental progression of phonological awareness skills, as children in the experimental group participated in activities reflecting this sequence.
The improvements in phonological awareness are also consistent with the body of research demonstrating that programs involving direct instruction are more effective than other teaching methods in improving learning outcomes (Baumann, 1998; Ellis, 2005; Hempenstall, 1997; Lloyd, Forness, & Kavale, 1999; Purdie & Ellis, 2005). Improvements in phonological awareness after direct training have also been supported by international meta-analyses and reading reviews, which recommend that phonological awareness training be introduced as early as possible and taught in an explicit manner, with many opportunities for revision and practice (DEST, 2005; NICHD, 2000; Rose, 2009). Consistent with these recommendations, R4L introduced phonological awareness training using direct instruction techniques with explicit scripts, and these young children demonstrated improved phonological awareness skills.

Alongside the direct and explicit teaching of phonological awareness according to the developmental sequence of acquisition, children in the experimental group practised phonological awareness skills using card and board games. Every child and reading buddy, the direct participants of the R4L intervention, acknowledged the motivating influence that the materials and content of the R4L intervention had on children’s enjoyment of the sessions during the interviews in Study 2. The children unanimously nominated the card and board games of the R4L intervention as their favourite aspect of the R4L experience, citing how much fun they were. The reading buddies supported the children’s reports of enjoying playing the games, and endorsed the R4L materials as effectively motivating the children to learn. The parents and teachers, relying on the feedback of the children, as most parents and teachers had not seen any of the materials, also regarded the games as an interesting and motivating aspect of the R4L program. These findings from Study 2 support the recommendations suggested by many researchers, of including motivating and engaging activities for phonological awareness instruction (Adams & Bruck, 1993; Charlton, Williams, & McLaughlin, 2005; Etess, 2004; Hay & Fielding-Barnsley, 2006; Spencer & Hay, 1998; Stone, McLaughlin, & Webber, 2002). In addition, the inclusion of these activities in the R4L program was recognised as valuable by the participants.
**Long-term effects of R4L.** As phonological awareness is considered to be both a prerequisite and predictor of future reading success (Juel & Meier, 1999; McNamara, Scissans, & Dahle; Scarborough, 1998; Tunmer, Chapman, Ryan, & Prochnow, 1998), the significant improvements in phonological awareness have demonstrated that specifically teaching phonological awareness leads to improvements in phonological awareness skills; hence, further improvements can be expected in the area of reading achievement. As recommended by researchers Tunmer et al. (1998), children should be encouraged to focus on the sounds in the words when reading, rather than on pictorial or semantic cues, to be successful readers. Hence, the statistically significant result for higher scores in phonological awareness after participating in R4L, is promising for future reading success for these children.

Children in the experimental group maintained and continued to make improvements in phonological awareness three months after the intervention period ceased. This is contrary to many intervention studies, which show that promising short-term results fade in the long term (Borman & D’Agostino, 2001; Lee, Brooks-Gunn, & Schnur, 1988; White, 1985). It is plausible, given the evidence of the predictive power of phonological awareness, discussed previously in this chapter, that the short-term gains the children made after participating in R4L facilitated further learning in phonological awareness. However, there was no control group comparison for the longitudinal data in the present investigation and as such, it cannot be concluded that R4L is solely responsible for this continued growth. This finding of continued improvement is promising, and warrants further investigation in future studies.

**Gender effects of R4L.** Across time, boys in the experimental group achieved higher scores on phonological awareness tasks than girls in the experimental group. This suggests that R4L was more effective in improving phonological awareness for boys than girls. Research related to gender bias and reading difficulties is inconclusive in regard to gender biases. Some researchers report a bias toward boys experiencing reading delays (Hawke, Wadsworth, Olson, & DeFries, 2007; Ruttner, Fergusson, Horwood, Goodman, Maughan, Moffit, Meltzer, & Carroll, 2004), while other researchers report the distribution of reading difficulties to be even amongst the sexes (Flynn & Rahbar, 1994; Hyde, 2005; Nass, 1993; Shaywitz & Shaywitz, 1988; 2003; Siegal & Smythe, 2005). There is also research evidence to suggest that children should
select their own reading material to cater for individual interest, which may be influenced by gender (Brozo, 2002; Coles & Hall; Probst, 2003; Sullivan, 2004) and this has been included in the development of the R4L program. In consideration of recommendations made by researchers to counter possible gender differences in learning, and in particular boys’ preferences for activities involving movement (Cresswell, Rowe, & Withers, 2002; Cuttance et al., 2006; Lingard et al., 2002), the card and board games included in the phonological awareness component are engaging and represent activities that children from both sexes relate to (basketball, balloons, rockets). Hence, the R4L intervention was designed to cater for both sexes, including provision for children to select books of interest to them personally, and the inclusion of interactive and motivating activities, the board and card games, to ensure that both sexes were engaged during the learning process. The increased performance of boys in phonological awareness suggests that perhaps the use of these games may be even more salient for boys than girls.

**Buddy effects of R4L.** R4L was found to be equally effective, in terms of phonological awareness, for children working with buddies from corporates and universities. There were no significant differences in the performance of children dependent upon the type of reading buddy they worked with. This is consistent with the findings from the most recent meta-analysis considering the effectiveness of tutoring programs. Ritter and colleagues (2009) reported no difference in the outcomes of children working with different kinds of tutors. An earlier meta-analysis conducted by Elbaum et al. (2000) found an advantage for children working with college students, although moderate results were also found for community volunteers when provided with adequate training. The organisational arrangements for R4L intervention incorporated the suggestions from Wasik (1998) and Elbaum et al. (2000), ensuring that the tutors were reliable, adequately trained in the intervention, used a structured intervention, and were supported by well-trained professionals. It appears that the systems in place for buddies, such as training and support sessions and a structured program manual and materials, protected the R4L intervention from being affected by the type of buddy implementing the intervention; this is consistent with Ritter et al. (2009). As the effectiveness of R4L was similar for both types of buddies, this result provides further support for the inclusion of direct instruction scripts, as both types of buddy utilised the same program.
Replicability of intervention effects. The children from the waitlist control group received the R4L intervention themselves, once the first intervention period ceased. R4L was also found to improve performance on phonological awareness tasks for this second group of children in the short- and long-term. The improvements in phonological awareness for the waitlist control group were similar to those of the experimental group. The results demonstrate the replicability of R4L for phonological awareness, and support research that suggests that employing explicit instruction in phonological awareness, progressing through a developmental sequence, supported by opportunities for revision and practice, is an effective method of phonological awareness instruction (Chard & Dickson, 1999; DEST, 2005; Lloyd, Ehri, Nunes, Stahl, & Willows, 2001; Forness, & Kavale, 1999; NICHD, 2000; Purdie & Ellis, 2005; Rose, 2009). The period of time between the post- and longitudinal testing (Times 2 and 3) for children in the waitlist group was one month longer than for the children in the original experimental group. Additionally, this month was comprised entirely of a school holiday period. Allington and McGill-Franzen (2003) have written about the detrimental effect on children’s academic scores of the extended summer break in the USA. They have found that disadvantaged children do not maintain their current level of reading and often perform poorly after the summer break (Allington & McGill-Franzen, 2003). The Australian school holiday periods are not as long as those in the USA. However, the school holiday period may deny children with reading difficulties, of the opportunities they require for practice and revision (Charlton, Williams, & McLaughlin, 2005; Dempster, 1987; Gredler, 2001). Despite the extended school holiday period experienced by children in the waitlist control group however, they continued to maintain and improve their performance on phonological awareness tests. These findings establish R4L as a robust intervention for improving phonological awareness for young children with reading difficulties.

Control Group Contamination. One of the goals of the present investigation was to measure the intervention’s effectiveness using a waitlist control experimental design. However, maintaining the integrity and independence of a waitlist control group in an educational setting can be difficult (Carter & Wheldall, 2008; Cook & Campbell, 1979; Craven, Marsh, Debus, and Jayasinghe, 2001; Plewis & Hurry, 1998). During each initial meeting with the school principal and school champion, the process of conducting the research was explained in person by the research team, and particularly
the details regarding the control group receiving the R4L intervention in the second half of the year. A review of the raw scores of all of the children revealed that, whilst children in the experimental group improved in all areas of reading achievement, the children in the control group also made gains, some of which were quite large (see Chapter 5). Although it was anticipated that some contamination of the control group would occur in the ecologically natural contexts of education in the school and home environments, the extent of contamination was difficult to predict.

Researchers, such as Craven et al. (2001), have described instances of diffusion effects, whereby children in the control group are exposed to aspects of the intervention, accidentally or intentionally. Other researchers, such as Cook and Campbell (1979) write about the compensatory assistance sometimes provided to children in the control group, as they are perceived to be missing out on treatment. This contamination of the control group has been found to reduce the overall effect size of an intervention and mask the true results (Craven et al., 2001; Moerbeek, 2005; Plewis & Hurry, 1998). The experience of the researcher in the present investigation was similar to that of these previous studies. Allocation to the control group led some teachers and parents to respond by devoting more time and energy to these children who were waiting for their turn at R4L; this was identified during the interviews in Study 2. Many teachers revealed that, as R4L was occurring within the school during the first half of the year, they decided to redistribute their limited literacy support resources to assist the control group while they were waiting for their turn to receive the intervention. Many children in the control group received literacy support from their school in potentially greater frequency than they would normally have, due to the increased availability of time, as the students in the experimental group were perceived to be already receiving help. This trend was confirmed upon speaking to parents from the control group during the second phase of the qualitative study. Several of these parents commented that they employed a tutor after receiving the report that indicated their child was experiencing difficulty in reading and would receive support from the R4L program later in the year. Hence, although control group participants had not received R4L during the intervention phase, many participants had received support of a different kind. This is consistent with findings of other research studies conducted in schools (Campbell & Cook, 1979; Craven et al., 2001; Kember, 2003) which show that adults may provide additional or compensatory assistance to the children in the control group, as there is a
belief they are missing out. Hence, the waitlist group itself is compromised when schools and parents are provided with information about the delay in reading scores at the commencement of the present investigation. In educational research, the control group cannot be considered as receiving no education: rather, they receive only regular education, without the addition of the new strategy or program being studied (Kember, 2003). However, in the present investigation there is evidence to suggest that children in the control group received more than regular education during the intervention period.

Although statistically significant results for the intervention were obtained throughout Study 2 for phonological awareness, the effect size for the interaction of Condition by Time was small, according to accepted guidelines from Cohen (1998) and below less stringent suggestions sometimes suggested in special education (Lloyd, Forness, & Kavale, 1998). This is consistent with findings from previous researchers utilising waitlist control designs (Craven, et al., 2001; Moerbeek, 2005; Plewis & Hurry, 1998; Wheldall & Bearman, 2000), where contamination of the control group has led to smaller effects for the experimental group (Vaughn et al., 2009). During the interviews, after the first phase of Study 1, consistent reports of schools redeploying support resources to children in the control group confirmed that the control group had in fact been contaminated. Despite standardisation being used to attempt to counter for this contamination (see Chapter 5), the effect size for phonological awareness in the present investigation was small. Given the additional support being provided to children in the control group (i.e.; control group contamination), as school resources were redeployed during the intervention phase, the positive results found for phonological awareness attest to the strength of the intervention in improving phonological awareness. The waitlist control group may also have received phonological awareness training during the first phase of the intervention. However, the children in the experimental group demonstrated greater improvement, suggesting that the R4L intervention facilitated greater improvements than the other assistance provided, within regular classroom teaching or in support provided to the waitlist control group. Hence, these results suggest that R4L is a salient intervention for enhancing phonological awareness skills in a short period.
Section Summary. R4L has been shown to improve the phonological awareness of children with reading difficulties. These findings offer practical solutions to educators in selecting and designing powerful interventions for phonological awareness. The efficacy of R4L in improving the phonological awareness of children with reading difficulties demonstrates the success of incorporating research-validated strategies into phonological awareness instruction. Phonological awareness interventions should reflect the developmental sequence of phonological awareness (Chard & Dickson, 1999; Ehri, 1995), utilise direct and explicit instruction in the skills of phonological awareness (DEST, 2005; Juel & Griffith, 1986; NICHD, 2000; Rose, 2006), and include opportunities for revision and practice (Charlton, Williams, & McLaughlin, 2005; Dempster, 1987; Gredler, 2001). R4L was designed to include these elements and the positive result for participating children in phonological awareness supports their inclusion for future interventions.

Sight Word recognition

Instrument Reliability. The Burt Word Reading Test ([Burt]; Gilmore, Croft, & Reid, 1981) was found to be a reliable measure of sight word recognition for children with reading difficulties. The sample in the present investigation is different to the normed sample for the Burt (Gilmore, Croft, & Reid, 1981), as it includes only children with reading difficulties, rather than children of all abilities. Nonetheless, the Burt (Gilmore, Croft, & Reid, 1981) was a reliable measure, consistent with the published normative data of the Burt (Gilmore, Croft, & Reid, 1981). As such, the results obtained from the Burt (Gilmore, Croft, & Reid, 1981) can be considered reliable for the sample of children with reading difficulties in the present investigation.

Effectiveness of R4L. Researchers recognise that children with reading difficulties experience difficulty in recalling common words quickly and accurately (Adams, 1990; Byrne, Freebody, & Gates, 1992; Hay, 1995; Henderson, 1982). Children’s performance on sight word recognition tasks increased after participation in R4L, although the Condition by Time interaction in Study 2 was not statistically significant (see Chapter 7). Children in the experimental group at Time 2 (post-intervention) scored higher on the Burt, by reading more words accurately. However, the children in the control group also read more words and scored higher on the Burt at
the same time. The sight word section of the R4L intervention synthesises the research recommending increased opportunities for practice and revision (Beck, Perfetti, & McKeown, 1982; Byrne, Fielding-Barnsley, & Ashley, 2000; Gredler, 2001; Hay & Fielding-Barnsley, 2006; Lerner, 2003; Nuthall, 2005; Spencer & Hay, 1998) to achieve mastery, distributed in small time allotments to facilitate memory (Dempster, 1987; Gredler, 2001). Previous research has also demonstrated that the inclusion of flashcards and games is effective in engaging children when rehearsing sight word recognition, and assists to reduce boredom where repetition and drill are required (Baker, Herman & Yeh, 1981; Charlton, Williams, & McLaughlin, 2005; Etess, 2004; Falk, Band, McLaughlin, 2003; Lepper, 1988; Stone, McLaughlin, & Webber, 2002). The R4L intervention synthesised these previous findings and recommendations to include a small number of words being introduced each session, using direct and explicit scripts to recognise these words, and revising them using flashcard games. These pedagogical strategies are similar to those included in the phonological awareness section of the R4L intervention, which have been demonstrated to be effective for improving phonological awareness. However, the findings at Time 2 are inconsistent with hypothesised predictions of improvements in sight word recognition for the experimental group after direct sight word training and practice. The research related to poor sight word recognition skills for children with reading difficulties suggests that children in the control group would continue to experience difficulty with sight words, as they were not participating in a program specifically addressing these skills (Adams, 1990; Byrne, Freebody, & Gates, 1992; Hay, 1995; Henderson, 1982). However, this was not the case, as the control group did make gains. Perhaps the comparable gains made by the control group are another indication of the extent of the compensatory assistance provided to children during the intervention phase.

Findings emerged from the analyses of interviews in Study 2 that were contradictory to Study 1. A small number of children and reading buddies reported an improvement in the number of sight words that children could recognise. Sight word recognition was an activity included at the beginning of each session, known as the Warm Up (see Chapter 3). As they were engaged in these activities on a weekly basis, the reading buddies observed changes in the children’s performance on these tasks each week. One parent and one teacher also recognised this improvement. Although not a large number of participants mentioned sight word recognition improvements, there is
an indication that for some children this occurred. These improvements were expected, given the inclusion of practice and revision activities to address delays in sight word recognition, discussed previously. These results however, were not corroborated by the quantitative analyses and therefore perhaps could be considered as isolated successes or small improvements made by a few children.

The non-significant interaction effect of Condition by Time for sight word recognition (see Chapter 7) was not predicted, as it is an area that was strengthened for the intervention in the present investigation. Possible explanations for the non-significant results for sight word recognition were considered. Further examination of the Burt Word Reading Test (Gilmore, Croft, & Reid, 1981) identified some concerns in the suitability of this test. Only 32 of the 110 words included in the Burt Word Reading Test (Gilmore, Croft, & Reid, 1981) are also contained in the Fry Instant Word List (Fry, Kress, & Fountoukidis, 2004) used in the R4L intervention. This equates to only 29% of sight words in the Fry Instant Word List, which children participating in R4L would have learnt during the course of the R4L intervention. This low correspondence between the R4L intervention and testing materials is a limitation of the research design employed, and may have contributed to the non-significant result. Perhaps the children did not have had an adequate opportunity to demonstrate their improved knowledge of sight words during the testing, as so few of the words they had learnt during R4L were included in the Burt Word Reading Test (Gilmore, Croft, & Reid, 1981). However, additional unreported analyses using only the 32 words common to both the Fry Instant Words (Fry, Kress, & Fountoukidis, 2004) and the Burt Word Reading Test (Gilmore, Croft, & Reid, 1981) were undertaken, and the result was also non-significant for the experimental group. With only 32 common words, there appears to have been little room for improvement for both groups. Hence, a significant difference between the groups was perhaps unlikely. As previously discussed in Chapter 4, the Fry Instant Word List (Fry, Kress, & Fountoukidis, 2004) was selected as the stimulus material for sight word recognition in the R4L intervention as it contained a large number of words (1000) and was the most recent sight word list developed, based on frequency counts. This meant that all children could begin at Group One, as these were the most frequent words appearing in English texts. Unfortunately, the Fry Instant Word List (Fry, Kress, & Fountoukidis, 2004) does not have an accompanying diagnostic or standardised assessment; hence the Burt Word Reading Test (Gilmore, Croft, & Reid, 1981) was
selected to provide a standardised measure of children’s sight word recognition. Sight word recognition is a visual skill where children learn a core group of words that appear commonly in everyday texts (Adams, 1990; Gaskins, Ehri, Cress, O’Hara, & Donnelly, 1996; Hay, 1995). To measure how well children in the experimental group had improved their ability to recognise sight words they should perhaps be pre- and post-tested on the words they are going to learn: that is, the Fry Instant Word List (Fry, 1980). This would not provide a standardised measure of sight word recognition, but may have been a more accurate measure of the impact of the R4L intervention on children’s sight word recognition skills.

Previous research has demonstrated that children with reading difficulties require greater exposure to sounds, words, and reading strategies to achieve mastery (Gredler, 2001; Hay & Fielding-Barnsley, 2006; Lerner, 2003; Nuthall, 2005; Spencer & Hay, 1998). The sight words were sent home each week in the Communication Book for practice at home, to take advantage of these recommendations. Throughout the course of the interviews in Study 2 it became apparent that some families were not familiar with the communication books, and therefore were not able to complete the recommended practice. Consequently, some children were disadvantaged in not having an opportunity to complete sight word practice at home with their families. It is possible that this reduced home practice affected the results for children participating in R4L and hence, contributed to the non-significant result for the effectiveness of the intervention in respect of of sight words.

The present investigation did not include a measure of the teaching style children were exposed to in their regular classrooms. Previous research has demonstrated that the classroom environment can affect the impact of supplementary reading programs. Center, Freeman, & Robertson (2001), in their research of the Reading Recovery program found that children whose classrooms included a code-oriented focus performed better than those children from a meaning-oriented classroom after participating in an identical Reading Recovery Program. It is not known whether the direct and explicit instruction techniques employed in the R4L intervention were consistent with the experience of children in their classrooms. Hence, it is unclear whether this may have influenced the results of the present investigation. It is possible the language orientation of classrooms may have been different for children in the
present investigation and that this unknown variation in the sample may have provided some children with different opportunities to review this work throughout the week.

**Long-term effects of R4L.** As with phonological awareness, children in the experimental group were assessed again, three months after the intervention period ceased and scored higher on sight word measurements: this is indicative of a sleeper effect, whereby there are delayed effects of an intervention (Ellis, Marsh, & Craven, 2005; Kumkale & Albarracin, 2004; O’Mara et al., 2006). This is contrary to many intervention studies, where short-term results fade in the long term (Borman & D’Agostino, 2001; Lee, Brooks-Gunn, & Schnur, 1988; White, 1985). However, there was no control group comparison for the longitudinal data and thus, it cannot be concluded that R4L is responsible for this continued growth. As the results of the children in the control group are not known for this period, they too may have continued to improve in sight word recognition during the same time. The results for the control group during the intervention period suggest this is certainly plausible.

**Replicability of intervention effects.** After participating in R4L themselves, children in the waitlist control group performed in a similar manner in sight word recognition, to the children in the experimental group. Children in the waitlist control group were able to read more sight words after participating in R4L and continued to improve in this area during the four months following the intervention, as demonstrated by a statistically significant difference between Time 2 and 3 scores for participating children. These findings are consistent with hypothesised predictions that performance on sight word recognition tasks would be similar for different groups of children with reading difficulties participating in R4L. In the case of sight words, as the results for the experimental group were non-significant, so too were the results for the control group. As discussed previously, the results for the waitlist control group were also confounded by the poor correspondence between the Fry Instant Words (Fry, 1980) used in the R4L intervention and the Burt Word Reading Test (Gilmore, Croft, & Reid, 1981) used for measurement of sight word recognition. Despite the instrument being a reliable measure of sight word recognition, it is questionable whether this is the best measure for the sight word knowledge gained by children during their participation in R4L.
**Section Summary.** The findings related to the effectiveness of R4L in effecting change in the sight word recognition skills of children with reading difficulties are inconclusive. Children were able to read more sight words after participating in R4L, and read even more words, several months after the intervention period. This pattern of improvement was obtained for two groups of children after participating in R4L. However, these improvements were not strong enough to result in a statistically significant finding, were confounded by contamination of the control group and a measurement instrument that did not reflect the words being taught during the R4L intervention. R4L was designed to include strategies that have been empirically validated, such as direct and explicit instruction and over learning using motivating activities. The efficacy of R4L in improving the sight word recognition skills of children with reading difficulties requires further examination, perhaps utilising a different test to reflect the intervention.

**Reading Accuracy**

**Instrument Reliability.** The Neale-R (Neale, 1989) was found to have poor reliability for the sample of the present investigation (see Chapter 6). This result is inconsistent with previous research studies reporting moderate reliability of the Neale-R for samples of children with reading difficulties (Chapman, Tunmer, & Prochnow, 2001; Malelaine & Wheldall, 1998). It is unknown why the reliability of reading accuracy for this sample was different to the normative data of previous studies. All research assistants participated in training to learn how to implement each of the measurement instruments for the study and were provided with opportunities to practise and conduct testing under supervision. The poor reliability of the Neale-R (Neale, 1989) was not predicted and as such, the results obtained from the Neale-R for reading accuracy need to be interpreted with caution for the sample of children with reading difficulties in the present investigation.

**Effectiveness of R4L.** After participating in R4L, children in the experimental group displayed improved performance on reading accuracy tasks. However, these improvements were not statistically significant, as the Condition by Time interaction was non-significant. Additionally, children in the experimental group continued to improve on their post-intervention scores (Time 2) three months after the intervention.
(Time 3), as demonstrated by a statistically significant difference between Time 2 and 3 scores. These findings suggest that there were delayed effects of the R4L intervention on reading accuracy. Hence, time was perhaps needed for children to acquire the skills fundamental to reading accuracy, resulting in a sleeper effect at Time 3 (Ellis, Marsh, & Craven, 2005; Kumkale & Albarracin, 2004; O’Mara et al., 2006).

The structure and content of the intervention were consistent with the body of research identifying the components of reading proficiency. This research states that for a child to be a successful reader they require proficient skills in phonological awareness (McNamara, Scissors, & Dahleu, 2005; Torgesen, Wagner et al., 1997), a bank of consistently recognised sight words (Fuchs, Fuchs, Hosp, & Jenkins, 2001; Stahl & Kuhn, 2002), and a variety of successful strategies to decode unfamiliar words (LeBerge & Samuels, 1974), before applying meaning to what has been read. The Reading Helper Bookmark in the R4L intervention was based on theories related to strategy instruction, which has been demonstrated to be effective for children with reading difficulties (Forness, 2001; Jitendra et al., 2004; Swanson, 2001; Swanson, Carson, & Sachse-Lee, 1996; Westwood, 2004; Zimmerman & Schunk, 1989). During the Main Event, or reading section of R4L, children were taught and supported in using a variety of reading strategies. The successful synthesis and application of these strategies was perhaps reflected in the significant gains made for Time 3 in comparison to Time 2 reading accuracy scores.

An additional consideration of the impact of R4L on reading accuracy is related to the Matthew Effect, a phenomenon in the area of reading difficulties whereby the difference between the reading skills of children with and without reading difficulties increases disproportionally to the years of schooling (Hill, Comber, Louden, Rivalland, & Reid, 1998; Rohl & Milton, 2002; Stanovich, 1986). In a series of longitudinal studies Thomson (1990) has shown that children with reading difficulties, across an entire year of schooling, gain an average of 5 months in reading ability, corresponding to less than half a month (0.4 months) improvement for each month of the year. In the present investigation, the children in the experimental group improved, on average, six months during the four-month period between pre- and post-testing (Time 1 and Time 2). This represents a gain of 1.5 months, and an opportunity perhaps for children to close the gap between their reading performance and that of their peers. Given predictions by
Thomson, an improvement of 0.8 months would have been expected for this sample of children with reading difficulties. However, these children gained 1.5 months, thus exceeding the trajectories identified by Thomson, which offers further support for the salience of the R4L intervention.

**Long-term effects of R4L.** The continued progress of children in the experimental group from Time 2 to Time 3, demonstrated by a statistically significant difference between Time 2 and 3 reading accuracy scores, suggests that the skills of reading accuracy require more time, to improve. This hypothesis is supported by theories describing the phases that children progress through to become proficient readers (Ehri, 1995; Marsh, Friedman, Welch, & Desberg, 1981; Reitsma, 1983; Tunmer & Chapman, 2004). With a strong focus on visual memory of sight words and phonological awareness, children are still functioning at an alphabetic phase (Ehri, 1995; Marsh, Friedman, Welch, & Desberg, 1981; Tunmer & Chapman, 2004), with the orthographic phase of analogy and syllabification requiring more time to develop (Reitsma, 1983). The findings suggest participating children improved skills in phonological awareness and that some children developed greater automaticity in sight word recognition. Given the short time frame of the R4L intervention period, 11½ hours spread across 15 sessions, it is reasonable for initial gains to have been present in the skills contributory to reading. These gains were present for phonological awareness, and to a lesser extent for sight words. Previous studies have found that improving phonological awareness has not always led to an immediate or direct improvement in reading ability (Bus & van Ijzendoorn, 1999; Lovett, Steinback, & Frijters, 2000; NICHD, 2000; Torgeson, 2004). The findings from the present investigation are consistent with these previous studies.

As with phonological awareness and sight word recognition, there is no comparison for the long-term improvements of the experimental group in the present investigation and as such, R4L cannot be considered solely responsible for the result of statistically significant difference in Time 3 reading accuracy scores. Children had experienced regular school teaching and may have participated in a range of other home or school support for their reading. The demonstrated significant gains in reading accuracy suggest that R4L is a promising intervention for children with reading difficulties.
difficulties and that the existence of sleeper effects (Ellis, Marsh, & Craven, 2005; Kumkale & Albarracin, 2004; O'Mara et al., 2006) may also apply to reading accuracy.

**Replicability of intervention effects.** The suggestion that reading accuracy may be a skill that takes longer to develop than other reading skills, such as phonological awareness, is further supported in the results of the waitlist control group after they participated in R4L. Statistically significant results were found for both the short-term (main effect of time between Time 1 and Time 2) and long-term (main effect of time between Time 2 and Time 3) after the waitlist control group participated in R4L (new experimental group). In this instance, children in the waitlist control group demonstrated improved performance on reading accuracy tasks after participating in R4L and four months after the intervention period ceased. Additionally, statistically significant results were found for the interaction effect of Condition by Time, indicating that children in the new experimental group at Time 2 achieved higher reading accuracy scores than children in the original experimental group at Time 2. Perhaps this result was also confounded by the contamination of the control group, whereby it seems likely these children received additional interventions. This result is also consistent with the previously discussed body of research detailing the developmental phases of reading development (Ehri, 1995; Marsh, Friedman, Welch, & Desberg, 1981; Tunmer & Chapman, 2004) and the need to have pre-existing skills in phonological awareness (McNamara, Scissors, & Dahleu, 2005; Torgesen, Wagner et al., 1997) and sight words (Fuchs, Fuchs, Hosp, & Jenkins, 2001; Stahl & Kuhn, 2002). As previously discussed, children in the waitlist control group demonstrated improved performance in both phonological awareness and sight words during Phase 1 of the intervention, while the experimental group participated in R4L. Children in the control group also received support in addition to regular classroom teaching during this time, as described by participants during interviews in Study 2. The combined effect of gains in phonological awareness and sight words during their time in the control group may have contributed to this second group of children having gained improved reading skills. These children appear to have progressed beyond the alphabetic phase (Ehri, 1995; Marsh, Friedman, Welch, & Desberg, 1981; Tunmer & Chapman, 2004) and were reading with greater accuracy. The children in the waitlist control group were also six months older when they participated in R4L and the combined developmental effect may also be a factor confounding these results.
**Qualitative findings.** During interviews in Study 2, participants spoke of improvements in reading: supporting and providing additional insights into, the experience of R4L for children. Children believed that they had learnt new strategies to sound out, or decode, unfamiliar words when reading, since participating in R4L. Parents and teachers, both of whom had directly observed children attempting to sound out the phonemes in unfamiliar words after participating in R4L, confirmed their perceptions. Reading buddies also saw a change in the reading strategies used by the children they were working with. These observations indicate that the children had been encouraged to attempt unfamiliar words when reading, and to use the sound correspondence to assist them as a first strategy. This prompt to sound out words is provided on the Reading Helper Bookmark in the intervention manual, and the consistent reports of the use of this strategy in and out of the context of the R4L sessions indicate that the reading buddies were using the intervention materials correctly, and that the intervention was successful in encouraging children to use these strategies.

These reports are consistent with the findings from Study 1, demonstrating improvements in reading accuracy. These reports are also consistent with the body of research previously described, in relation to reading accuracy interventions. After participating in R4L children were observed using strategies to read unknown words, an approach identified by researchers as effective for children with reading difficulties (Forness, 2001; Jitendra et al., 2004; Swanson, 2001; Swanson, Carson, & Sachse-Lee, 1996; Westwood, 2004; Zimmerman & Schunk, 1989). The interviews in Study 2 were conducted during the period of time between the intervention ceasing, and longitudinal testing for both the original experimental and the new experimental (formerly waitlist control) groups. For both groups, participating children had improved in phonological awareness (statistically significant results for both groups) and sight words (improvements, but non-significant for both groups). Furthermore, in the original experimental group, improvements in reading accuracy had occurred, although these were non-significant. However, they were statistically significant for the new experimental group. The combined effects of these improvements lend support to developmental theories of reading development whereby researchers have demonstrated the progression of reading achievement for children (Ehri, 1995; Marsh, Friedman, Welch, & Desberg, 1981; Reitsma, 1983; Tunmer & Chapman, 2004) and, most
importantly, to the predictive power of phonological awareness (Juel & Meier, 1999; McNamara, Scissens, & Dahleu; Scarborough, 1998; Tunmer, Chapman, Ryan, & Prochnow, 1998). Children in both groups improved in phonological awareness and, over time, they would have begun to apply these skills to new reading situations.

**Home Reading.** Guided oral repeated reading is considered to be an effective strategy for improving reading accuracy and ultimately fluency, for younger children (Chard, Vaughn, & Tyler, 2002; Therrien, 2004) and is considered the most effective strategy by the National Reading Panel (NICHD, 2000). Repeated reading was included in the revised edition of R4L evaluated in the present investigation, with information provided in the Communication Book. Interview data from Study 2 strongly indicate that home reading did not occur on a frequent basis throughout the R4L intervention. Interviews during Study 2 indicated that children and parents, those in the best position to comment on the completion of home practice, reported inconsistent home practice occurred throughout the intervention period. Teachers and reading buddies also reported inconsistent or no home practice. However, these were opinions formed on speaking with the children, rather than by direct observation of reading in the home environment. Previous research recognises the positive influence that a positive home literacy environment can have on learning outcomes, with children’s academic outcomes improved by home reading experiences (Adams, 1990; Edwards, Dandridge, & Pleasant, 2000; Erion, 2006; Frijters et al., 2000; Jeynes 2005; Cotton & Wikeland, 2001; Rashid et al., 2005; Senechal et al., 1996). These reports of inconsistent to no home practice, indicate that the advantage expected from home reading during the R4L intervention was not made available to participating children. Hence, the reading component of the R4L intervention was not implemented in full and may have contributed to the non-significant result for the effectiveness of the R4L intervention for reading accuracy that was found for the original experimental group.

Some of the teachers suggested that a parent’s lack of English-speaking and literacy skills affected capacity for reading practice at home. This suggestion is consistent with research in the area of hereditary links to reading difficulties, which suggests that the children from families where reading difficulties occur are also likely to experience reading difficulties themselves (Petrill, Deater-Deckard, Schatsneider, & Davis, 2005; Scarborough, 1988; Shaywitz, 2003; Stevenson, Graham, Fredman, &
The incidence of reading difficulties within families can be related both to genetic characteristics of reading difficulties (Stevenson, Graham, Fredman, & McLoughlin, 1987; Shaywitz, 2003) and to the environmental impact of having a parent with a reading difficulty (Petrill, Deater-Deckard, Schatsneider, & Davis, 2005; Scarborough, 1988). Although the parents themselves in Study 2 did not raise this issue, parents nominated themselves to participate in the interview process, and parents who did not have a strong grasp of English or who were concerned about their own literacy skills, may not have volunteered to be interviewed. In addition, participants during interviews also mentioned parents’ lack of time for reading with their child at home as being a result of large families and busy working schedules.

**Changed reading behaviours.** Although the data from Study 2 strongly suggest that children were not reading with their parents at home, the children were reading on their own at home. Children described an increase in the amount and kinds of reading they participated in after the R4L intervention. They were reading harder books than they had previously, they were reading comic books instead of just looking at the pictures, and they were reading environmental signs. The children credited this change in reading to their improved reading skills after working with their reading buddy. Previous research indicates that children with reading difficulties do not engage in independent reading by choice (Cox & Guthrie, 2001) and are often reluctant to read aloud or to offer to read (Stanovich 1986). The data from Study 2 suggest that after participation in R4L, a change began in these behaviours, and children were beginning to read by choice. The reports of a change in these behaviours are consistent with previous research describing low involvement in reading activities, as this had been the case for children before their participation in R4L (Cox & Guthrie, 2001). However, after participating in R4L this reluctance to read had begun to change. The observations from Study 2 concerning an increase in independent reading, suggest that it is possible to change the reading behaviours of children in a short period of time, and that children can be re-engaged in the reading process.

Parents expressed satisfaction at seeing their child select reading as a leisure activity, and reading texts in the environment (i.e., signs and posters). The conviction of the parents’ perceptions in relation to their children’s reading independently, suggests that this is a change for the children, and that they were not reading of their own
volition previously. Prior research has suggested that parent involvement in home reading can also lead to an increase in voluntary reading for children in the middle years of school (Braten, Lie, Andreasson, & Olaussen, 1999), thus establishing long-term and permanent reading habits in teenagers (Jennings, Caldwell, & Lerner, 2006; Krashen & McQuillan, 2007). The findings from Study 2 suggest that voluntary reading can be affected by children’s changed attitudes, as demonstrated in the present investigation, and is not reliant only upon parental involvement. Thus, although reading practice with parents did not occur at home during the R4L intervention, children had begun to read at home independently.

These reports also suggest that the children were generalising their reading skills to situations outside of their session with their reading buddy. They had experienced success and were more confident to use their reading skills in a number of different situations. Researchers have demonstrated that children with reading difficulties do not always generalise their learning of reading skills and transfer them to new situations (Lovet, Ransby, Hardwick, Johns, & Donaldson, 1989; Vaughn, Gerstem, & Chard, 2000). The findings from Study 2 however, suggest that after participation in R4L, children began to apply their reading skills in situations outside of the R4L session. Children’s learning during R4L sessions appears to have transferred to new settings, in the home, and resulted in small, but noticeable, behavioural changes for children.

Children were also observed by the adults around them to show more perseverance when decoding words during reading. Parents and teachers recognised a change in the reading behaviours of children after participation in R4L. It is widely recognised that children with reading difficulties often experience a phenomenon known as learned helplessness, whereby their experiences of failure lead them to believe they are incapable of performing these tasks and consequently avoid opportunities to participate in these activities (Chapman, 1988; Linnenbrink & Pintrich, 2003; Rimm-Kaufman, Kagan, & Byers, 1999; Scott, 2004). Demonstrating more perseverance in decoding words, rather than giving up or avoiding these words, is a promising outcome of the present investigation. These reports of changed behaviours in relation to reading tasks can serve both to support the results from Study 1, that children had developed strategies to read more accurately, and to suggest that the experience of success had prompted behavioural changes in participating children.
Section Summary. After participating in R4L, children were observed to read words and texts with greater accuracy, and began to persevere with decoding unfamiliar words in texts. Additionally, children were reading independently in their home environment—a marked change for many of these children. Children in the experimental group demonstrated a small improvement in reading accuracy skills after participating in R4L, but gains were non-significant. They did continue to make further gains in the area of reading accuracy three months after the intervention ceased, suggesting that reading accuracy is a skill requiring more time to develop. Demonstrating that this may be the case for reading accuracy, after participating in the R4L intervention six months after the original experimental group, the new experimental group (formerly waitlist control group) made greater gains than the original experimental group, in the short term. The quantitative results for reading accuracy were impeded by an instrument that displayed poor reliability for the sample of children with reading difficulties. Hence, conclusions made in the area of reading accuracy, from the quantitative data, must be considered with caution, as the instrument’s reliability may have affected the overall result. Children in both the experimental and waitlist control groups, after receiving the R4L intervention, demonstrated statistically significant improvements in reading accuracy skills. Similarly, analysis of qualitative data indicated that children demonstrated improved reading skills during R4L sessions, classroom reading activities, and independent and voluntary home reading.

Reading Comprehension

Instrument Reliability. The Neale-R (Neale, 1989) was found to be a reliable measure of reading comprehension for the sample of the present investigation (see Chapter 6). This result is consistent with previous research studies reporting moderate reliability of the Neale-R for samples of children with reading difficulties (Chapman, Tunmer, & Prochnow, 2001; Malelaine & Wheldall, 1998). As such, the results for reading comprehension obtained from the Neale-R (Neale, 1989) can be considered reliable for the sample of children with reading difficulties in the present investigation.

Effectiveness of R4L. The results for the final reading achievement area, reading comprehension, were similar to those for reading accuracy in Study 1. In the
quantitative analyses, children in the experimental group were able to answer more reading comprehension questions after participating in R4L. However, the effectiveness of the intervention (as demonstrated by the Condition by Time interaction) was not statistically significant in the short-term. The children in the control group demonstrated improved performance on reading comprehension tasks during the intervention period, as they did for all other reading skills. The results of small short-term improvements in comprehension skills are consistent with the body of literature concerning the development of reading comprehension skills following improvements in reading accuracy. Prior research has demonstrated that inaccurate and dysfluent reading compromises reading comprehension; hence, children must be able to read text before they can be expected to understand it (Adams, 1990; LeBerge & Samuels, 1974; Torgesen, Rashotte, & Alexander, 2001). Researchers thus recommend prioritising reading accuracy instruction and fluency practice prior to focusing on comprehension (Carreker, 2002; Chall, 1979; Nathan & Stanovich, 1991; Pressley, 2001). The R4L intervention was informed by this research, with reading comprehension comprising a small component of the R4L intervention, concentrating on children's recall of information from the text. As discussed in the previous section, children in the experimental group demonstrated improved reading accuracy after participation in R4L, although this was non-significant when compared to the control group. Given that these skills were still developing for the children, it is reasonable for the reading comprehension skills to have produced a similar result of improved, but non-significant reading comprehension skills, immediately after the intervention period ceased. The improvements of children in the waitlist group during the intervention period may be further evidence of the contamination of the control group during the intervention period, discussed previously.

Additionally, the short time frame of the R4L intervention should be considered in relation to the impact on reading comprehension. The actual intervention period comprised of 15, 45-minute sessions totaling 11¼ hours of time where the reading buddy and child worked together. Whilst this period of time is significant for children who are not receiving other forms of assistance, it may not have been long enough for children with reading disabilities to improve in multiple areas of reading. These children require additional time to develop core skills (Pursie & Ellis, 2005; Shaywitz, 2003), and the period of the R4L intervention may not be long enough for substantive gains in the
complex skill of reading comprehension to be observed. Brooks (2007) acknowledges intervention programs lasting more than a term have a greater impact on academic outcomes than shorter programs, however the overall time of the studies examined in his work is greater than the 11¼ hours of R4L. The period of the R4L intervention is shorter than many reading fluency programs evaluated in meta-analyses (Chard, Vaughn, & Tyler, 2002; NIHCD, 2000). An extended or repeated exposure to the materials of the R4L intervention could be considered in further studies to consider this further.

**Long-term effects of R4L.** Children in the experimental group maintained and improved on their post-intervention scores (Time 2) for reading comprehension three months after the intervention (Time 3), suggesting that, as with reading accuracy, there were delayed effects on reading comprehension. This is consistent with the research discussed above and reasonable in consideration of the long-term results of the experimental group in relation to reading accuracy and children’s continued independent reading. As children were reading texts with greater accuracy, as demonstrated by continued improvements in the long term for reading accuracy, and the interview data from multiple sources attesting to changed reading behaviours, they were better able to understand the texts read. Thus the impact of inaccurate and dysfluent reading on comprehension previously demonstrated by researchers (Adams, 1990; LeBerge & Samuels, 1974; Torgesen, Rashotte, & Alexander, 2001) and present in the Time 2 data, where statistically non-significant results for reading comprehension were obtained, changed for participating children at Time 3. Hence at Time 3, children were better able to answer comprehension questions on a text they had read because they had improved skills to read the text accurately.

The National Reading Panel (NICHD, 2000) cautions that effective reading comprehension instruction requires teachers to be well-versed in strategies for comprehension. For both university students, enrolled in a subject known as Learning through Community Service (LCS), and adult reading buddies, employed in various roles within companies, both of whom administered the R4L intervention without educational training, reading comprehension was not a significant component of the R4L intervention. Reading comprehension in R4L comprised of recall questions (Who? What? When? Where?) at the end of the reading session, to encourage children to reflect briefly on the text they had read. Researchers have demonstrated the longitudinal
predictors of reading comprehension to include word reading, grammatical awareness, and vocabulary knowledge (Muter, Hulme, Snowling, & Stevenson, 2004). Word reading was included in the R4L intervention, during the phonological awareness and sight word activities. The short time frame of the R4L intervention (112 hours) did not include any reference to grammar or vocabulary. Hence, although reading comprehension was not specifically targeted as a key focus in the R4L intervention, participating children nonetheless demonstrated improved performance on reading comprehension tasks.

**Replicability of intervention effects.** Statistically significant positive results were found for both the short-term (main effect of time between Time 1 and Time 2) and long-term (main effect of time between Time 2 and Time 3) in reading comprehension for the wait list control group after participation in R4L (the new experimental group). The significant short-term result for the waitlist control group is a different result to that of the experimental group. Additionally, the interaction effect of Condition by Time was also statistically significant; hence, children in the new experimental group at Time 2 achieved higher results for reading comprehension than children in the original experimental group at Time 2. Although both groups had demonstrated improved performance in reading comprehension after participation in R4L, the waitlist control group improved more than the experimental group after participation. These results suggest that R4L may perhaps have been more effective for the waitlist control group, or that the impact of the assistance received by the children in the waitlist control group during the first phase of the intervention was more evident for the skill of reading comprehension. However, both groups maintained, and continued to improve in, reading comprehension skills at Time 3 after the intervention period ceased. These results imply that strengthening children’s reading skills can also result in improved reading comprehension.

Both the original experimental and the waitlist control groups received the same R4L intervention. As discussed previously, consistent with recommendations by the National Reading Panel (NICHD, 2000) and the focus on reading accuracy as the prerequisite skill for comprehension (Adams, 1990; LeBerge & Samuels, 1974; Torgesen, Rashotte, & Alexander, 2001), reading comprehension comprised a minor part of the entire R4L intervention, and was limited to concentrating on recall skills. As the
intervention was the same for both groups, it is reasonable to have expected both groups to perform in a similar manner. They both improved on performance in reading comprehension tasks after participation. Additionally, the waitlist control, who were six months older and who had also improved in reading comprehension during the first intervention phase, improved more than the original experimental group.

The children in the waitlist group improved in reading comprehension during the first intervention phase, before they had participated in the R4L intervention. They also improved in phonological awareness, sight word recognition, and reading accuracy skills during this time. As discussed previously, many of the children in the control group received compensatory assistance, both within and outside of school during this period, in response to being identified for inclusion in the present investigation. Consequently, the children in the waitlist control group had begun to develop skills in reading accuracy prior to their participation in R4L: skills considered essential for the development of reading comprehension (Adams, 1990; LeBerge & Samuels, 1974; Torgesen, Rashotte, & Alexander, 2001). Hence, the result of improved performance in reading comprehension, beyond that of the original experimental group is reasonable, and consistent with the previous findings, that reading accuracy improvements are required before reading comprehension instruction can be effective (Adams, 1990; LeBerge & Samuels, 1974; Torgesen, Rashotte, & Alexander, 2001). The combined effect of some compensatory assistance in the first half of the year, together with regular classroom teaching, and then participating in the R4L intervention in the second half of the school year when some developmental improvements in reading will have naturally occurred, accounts for this unexpected result and is consistent with previous research, that comprehension is a skill influenced by other reading outcomes, such as reading accuracy (which are in turn influenced by phonological awareness and sight words).

**Section Summary.** Children displayed improved abilities in understanding texts read after participating in R4L, in the short term and the long term. Those children from the waitlist control group demonstrated larger gains in the areas of reading comprehension after participating in R4L in the second half of the year. The only statistically non-significant result in the area of reading comprehension was the short-term effects for the experimental group, in comparison to the control group. All remaining results, long-term for the experimental group and short- and long-term
results for the control group, yielded a significant result. Reading comprehension is a minor inclusion in the R4L intervention, as it is a skill dependent upon improved reading accuracy skills and an area demanding the skills of a qualified teacher to teach. Small gains in reading comprehension were evident for children after participation in R4L. These gains can be attributed to the gains made by children in their phonological awareness skills, leading to gains in reading accuracy, considered the prerequisite for reading comprehension. These interpretations are supported by the statistically significant long-term results for the experimental group and the statistically significant short- and long-term results for the waitlist control group, after participating in R4L.

**Reading Self-Concept**

*Introduction*

Children’s experience of R4L and the observed changes in reading self-concept were explored from the perspectives of multiple stakeholders during interviews in Study 2. The key findings in relation to reading self-concept, including individualised attention, relationship with reading buddy, and confidence in reading, are discussed below.

*Reading Self-Concept*

The children, during interviews in Study 2, described feeling smarter and more skilled in reading after participating in R4L. Thus, their self-concept of reading had changed in a positive way after participating in R4L. Parents, teachers, and reading buddies supported this change in self-concept by reporting that the children displayed confidence, a positive attitude towards reading, and that their approach to reading had changed after participating in R4L. Over half of the participants in Study 2 recognised changes in children’s confidence and attitudes towards reading. Children’s reading self-concept had improved after participation in the R4L intervention. The outcome of observable changes in the self-concept of children, displayed through greater confidence, is a desirable outcome of schooling (MCEETYA, 2008) and a strong outcome of the R4L intervention.

A positive self-concept is known to contribute to success in a range of life pursuits (Hattie, 2009; Marsh & Craven, 2006; Marsh & Yeung, 1997). Researchers agree that when children feel good about themselves and are confident in their abilities, they will persevere with tasks and approach learning in a motivated way (Chapman,
1988; Dodgson & Wood, 1988; Helmke, 1989; Helmke & van Aken, 1995; Marsh & Craven, 2006; McInerney, Roche, McInerney, & Marsh, 1997; Sommer & Baumeister, 2002). Hattie (2009) asserts that confidence is the “most powerful precursor and outcome of schooling” (Hattie, 2009, p. 47) and this is reinforced in the goals of schooling in Australia, which include aspirations for children to be confident and have a strong self-concept (MCEETYA, 2008). The findings from Study 2 indicate that after participation in R4L, children felt more confident about their skills and abilities in reading, and hence had developed a stronger reading self-concept. In consideration of the body of research linking positive self-concept to success in life, these findings from Study 2 suggest that participation in R4L creates possibilities for achieving success in life for children.

The noticeable improvement in the reading self-concept of children holds particular promise for the population of children with reading difficulties identified in the present investigation. It is commonly agreed that children with reading difficulties have lower academic self-concepts than their peers, and sometimes a negative academic self-concept, and this self-concept declines further as schooling progresses (Burden, 2008; Chapman, 1988; Chapman, Tunmer, & Prochnow, 2000; Polychroni, Koukoura, & Anagnostou, 2007; Renick & Harter, 1989; Silverman & Zigmond, 1983; Zelke, 2004). Previous research has documented children’s experience of repeated failure in classroom situations and the detrimental effect this has on their academic self-concept (Burden, 2008; Humphrey, 2002; Kavale & Forness, 2000; Licht, 1983). Although the present investigation did not include a quantitative measure of self-concept, to validate whether this was the case, there is strong support in Study 2 that there was a change, in a positive direction, in the self-concepts of children with reading difficulties. Children, and the adults around them, believed their reading had improved and that they had more skills in reading after participating in R4L. In this way, R4L has been shown to effect a positive change in the reading self-concept of children with reading difficulties, a group of children whose future promise is compromised by poorer academic self-concepts than their peers.

The R4L intervention was designed to capitalise on the benefits of a positive self-concept and included recommendations by researchers regarding effective self-concept enhancement interventions. The R4L intervention was domain and skill
specific, focusing on the skills of reading and reading self-concept for children with reading difficulties. Researchers have demonstrated that focusing on domain specific facets of self-concept most relevant to the goals of the intervention is effective (Craven et al., 2003; Chapman & Tunmer, 2003; Hay, Byrne, & Butler, 2000; Lau, Yeung, Jin, & Low, 1999; Marsh, 1993; Marsh & Craven, 1997; 2006; O’Mara et al., 2004). Reading self-concept was facilitated through the use of attributional and internally focussed feedback statements, which have been demonstrated to be effective in promoting increased self-concept for children (Craven, 1999; Craven et al., 2003; Craven et al., 1991), including those with learning difficulties (Tabassam & Grainger, 2002). The internally focussed and attributional feedback statements help children view their reading skills in a positive light, thus contributing to developing a stronger belief in their capabilities. The children attributed the change in reading skills and abilities to their reading buddy, acknowledging that their reading buddy had taught them new skills and helped to improve their reading. Some children also described how their reading buddy praised their reading throughout the intervention period. The findings from the children in Study 2 suggest that the use of feedback statements was influential in helping children formulate new beliefs about their reading and bolstering their reading self-concept. These findings are consistent with previous research crediting the formation of self-concept of children to the influence of feedback (Hattie, 1987; Hay, Ashman, & Van Kraayenoord, 1988; O’Mara et al., 2004). These findings are also consistent with theories that children’s self-concept is strongly influenced by the perceptions and feedback of people surrounding them (Byrne, 1984; Hattie, 2009; Marsh & Craven, 1997). As such, the positive relationship formed between the child and their reading buddy creates the environment for improved self-concept to develop. In R4L, children work with an adult who provides targeted praise and feedback about performance. The findings from Study 2 suggest that the internally focussed and attributional feedback statements in the R4L intervention strengthened the reading self-concept of participating children, and thereby offer further support for the validity of the theory and research on which these are based.

Academic self-concept and achievement share a mutually reinforcing relationship, as researchers have demonstrated that improvements in one area contribute to future improvements in the other, and that these combined improvements facilitate further successes (Caslyn & Kenny, 1977; Hay, 1995; Hay, Ashman, & van
Kraayenoord, 1994, 1997; Marsh 1993; Marsh, Byrne, & Yeung, 1999; Marsh & Craven, 1997; Valentine, Du Bois, & Cooper, 2004; Wylie, 1979). Marsh & Craven (1997; 2006) refer to this relation as the reciprocal effects model (REM). In the present investigation, participating children demonstrated improvements in both reading skills and reading self-concept. Children demonstrated improved reading skills, phonological awareness in the short term, and reading accuracy and comprehension in the long term. They also exhibited increased confidence and motivation to read, a strengthened reading self-concept. This pattern of improvements is consistent with the REM (Marsh & Craven, 1997; 2006) and provides further support, based on a rare qualitative study of the REM, for the mutually reinforcing relation of reading self-concept and reading achievement.

**Individualised Attention and Relationship with Reading Buddy**

Participants recognised the value of the one-to-one working environment in which R4L was conducted. Every teacher interviewed in Study 2 expressed satisfaction with the individual working relationship, recognising how helpful this was for children with reading difficulties. Children, parents, and reading buddies shared these views throughout Study 2. This is consistent with previous research findings acknowledging the benefit that children receive from working individually with an adult (Iversen, Tunmer, & Chapman, 2005; Moody, Vaughn, & Schumm, 1997; Swanson, Carson, and Sachse-Lee, 1996; Thurlow, Ysseldyke, Wotruba, & Algozzine, 1993; Vaughn et al., 2003). Participants recognised the advantage for children with reading difficulties to have the opportunity of receiving the full attention of an adult, to help with their reading. The teachers also acknowledged how difficult it was for them to find time to listen to each child read on a weekly basis, and were grateful for the extra assistance afforded to these children. Researchers have demonstrated that schools are often limited financially in providing assistance for children with reading difficulties in the form of additional specialist staff (Elkins, 2002; Shanahan & Barr, 1995). The findings from the interviews support this research, as teachers concur that they are primary educators responsible for helping these children to read, but that there is not adequate provision of resources for them to give sufficient concentrated attention to the reading assistance required by these children. Part of the value of R4L then, was in being able to assist schools in providing individualised assistance for children with reading difficulties at no additional cost to the school.
The special one-to-one working relationship between the children and their reading buddies was explored further in Study 2, using direct questions during the interviews, supported by additional observations during sessions at schools and at celebration parties. This was the only theme where a noticeable difference was observed between the participants in the LCS (university students) and the corporate sample. The language was different during the interviews, with those children working with a corporate buddy regarding their buddy as a friend rather than a teacher, as was the case in the LCS program. These differences were consistent throughout the interviews with the adult participants, parents, and teachers. The reading buddies from the LCS program were valued, but were regarded as additional teaching support in the school. The reading buddies from the corporate program were seen as generous for giving up their time, and for forming a special bond with their one child. It is important to acknowledge that there were no negative reports regarding the relationship between the child and their reading buddy. All participants from both programs spoke of the children enjoying spending time with their buddy. This is consistent with previous research evaluating tutoring programs with children, where children consistently report feeling better about themselves after working with a tutor (Dawkins, Ritz, & Louden, 2009; Fitzgerald, 2001).

These differences in perceptions of the relationship between the children and their reading buddy may be associated with the inherent differences in the organisation of the two programs in the present investigation. Reading buddies from the corporate program leave their place of work to come to the school and see one child for the duration of the program. In contrast, reading buddies from the LCS program participated to gain course credit towards their degree and saw five children across the school day. Although each child in the present investigation worked individually with their reading buddy, the interview data suggest that children from the LCS program did not feel as special, nor recognise their buddy as a friend, as their reading buddy worked with four other children during the day. However, analyses conducted in Study 1 found no significant differences in the performance of children on phonological awareness in the corporate program, compared with children in the LCS program, suggesting that the type of buddy does not affect the development of reading skills, in terms of a child’s performance on standardised tests. Therefore, although the interview data strongly indicate that there is a difference in how the children perceive their buddies, dependent
upon who they work with, the quantitative results indicate that this difference does not influence the reading achievement of children. Hence, reading achievement outcomes after participation in R4L do not seem to be influenced by the relationship that a child forms with their reading buddy.

**Section Summary**

After participation in R4L, children felt better about their abilities in reading and displayed greater confidence, as their reading self-concept had improved after working with their reading buddy. Children felt bolstered by this experience and continued to persist, practise, and persevere with reading. Considered alongside the quantitative results from Study 1, the simultaneous attention to reading skills and reading self-concept in the R4L intervention was successful in facilitating improvements for children with reading difficulties. These findings are consistent with theories of the reciprocity between academic self-concept and academic achievement (Caslyn & Kenny, 1977; Hay, 1995; Hay, Ashman, & van Kraayenoord, 1994, 1997; Marsh 1993; Marsh & Craven, 1997; Valentine, Du Bois, & Cooper, 2004; Wylie, 1979), as children were learning new reading skills and receiving special feedback simultaneously. Hence, they began to feel better about their abilities in reading and approached reading with greater confidence, with their reading achievement continuing to grow in the long-term. Hence, the R4L intervention seems to help interrupt the cycle of failure for children by encouraging them to acknowledge and believe in their successes.

**Strengths and Limitations**

**Introduction**

The present investigation contained a number of strengths in comparison to previous educational intervention research related to the research design and findings. Alongside these strengths are several limitations for consideration when interpreting the findings of the present investigation. These are discussed in the following section.

**Strengths of the Present Investigation**

*Availability of a new empirically validated intervention.* Volunteer programs are common in schools, as they promote community participation in school environments and can provide free help to schools (Elkins, 2007). However, the
evaluation of these volunteer programs is inconsistent. Some of these volunteer programs have been empirically evaluated, enabling recommendations to be made that identify the most effective structures and inclusions (Cohen et al., 1982; Elbaum, Vaughn, Hughes, & Moody, 2000; Ritter et al., 2009; Snow, Burns, & Griffith, 1988). However, not all volunteer programs have been empirically tested or evaluated, and it is therefore unknown whether they should be used in schools or whether they are effective for children (Dawkins, Ritz, & Louden, 2009; Nye, Boyd-Zaharias, Fulton, & Wallenhorst, 1992; Wasik, 1998). When the stakes are so high for children with reading difficulties, it is imperative that any volunteer program for these children has been evaluated, and demonstrated to be effective in improving the reading outcomes of these children. R4L is a volunteer program that has now been empirically evaluated, hence, a key strength of the present investigation is in contributing a rare study to the literature that tests the efficacy of a volunteer-administered intervention. An additional strength of the study was exploration as to whether the effects varied according to the type of volunteer (corporate, university student) by employing a synergistic multi-method research design.

Additionally, the synthesis of two theoretical views in the design and implementation of the R4L intervention is a major strength of the present investigation. The theoretical perspectives of self-concept enhancement and reading research concerning the acquisition of reading skills informed the R4L intervention. Educational research has demonstrated that children require foundational skills in phonological awareness to develop competency in reading accuracy, which in turn allows for the realisation of skills in reading comprehension. Self-concept research has shown that self-concept is a multi-dimensional psychological construct that shares a mutually reinforcing and dynamic relation with achievement. Additionally, self-concept researchers have proposed that for children to receive the maximum benefit of a positive academic self-concept, interventions should include both academic skills training and self-concept enhancement simultaneously. A strength of the present investigation was the capitalising both on advances in self-concept and on reading interventions, and testing the efficacy of a novel intervention on reading outcomes for children with reading difficulties.
Mixed methods research. A major strength of the present investigation was the implementation of a mixed methods research design combining both quantitative and qualitative data collection and analysis techniques. There is increasing recognition in the research community that quantitative and qualitative research methods each possess their own strengths and limitations, and that by combining these methods researchers have access to a greater range of research tools to explore and understand phenomena (Berg 2001; Cresswell, Clark, Gutmann, & Hanson, 2003; Tashakkori & Teddlie, 2003, 2009). There were many advantages to the combined use of quantitative and qualitative methods in the present investigation. Firstly, the quantitative study allowed for the standardised measurement and analysis of the reading achievement variables under investigation. This measurement of the effectiveness of an educational intervention is desired in educational departments worldwide, to ensure that children have access only to the most effective interventions (Cook, 2002; MCEETYA, 2005; Raudenbush, 2005, 2008; Rowe, 2007; Slavin, 2008).

Secondly, children’s experience of R4L and the impact on their reading achievement and self-concept could also be considered from the perspectives of participants, allowing participants to explain and elaborate on the findings from the quantitative study, as well as identifying additional insights that were not measured or hypothesised (Guba & Lincoln, 1985; Patton, 2002; Teddlie and Tashakkori, 2009). The triangulation of these findings has led to a greater understanding of the R4L intervention than either the quantitative or qualitative data taken in isolation. As previously discussed in this chapter, the quantitative results include varying levels of statistical significance for the reading achievement measures, with only one strong outcome of improved phonological awareness across all time waves. The additional insights of the qualitative data provided an understanding of the issues concerning contamination of the control group and lack of home practice, as well as consistent reports of significantly improved confidence, participation in reading, perseverance when reading, and reading skills. Individually, these studies conducted in isolation may have yielded different conclusions, but would have been incomplete. Together, they provide a rich understanding of the complexities of the R4L intervention and how children experience the time with their reading buddy. Hence, the use of a mixed methods research design resulted in a multi-faceted understanding of the strengths and limitations of R4L.
Research design: Sample. The sample of children in the present investigation was drawn from a combination of public and Catholic schools across Sydney metropolitan and regional areas, including both boys and girls from Years 1 to 4. This is a broad representation of children with reading difficulties. The inclusive sample is a central strength of the present investigation in that results are generalisable for children with reading difficulties across schools and geographical areas, thus lending further confidence to the results.

Research design: Measurement instruments. Another strength of the research design was the selection of existing reliable instruments to measure changes in phonological awareness, sight words, and reading comprehension. The demonstrated reliability of these instruments for the sample of children with reading difficulties in the present investigation also offers further confidence in the results obtained in Study 2.

Research design: Statistical analyses. Another strength of the present investigation was the use of sophisticated statistical analyses to evaluate the effect of the R4L intervention on children’s reading achievement outcomes. Multilevel modelling was employed to analyse the results for children in the present investigation. The use of multilevel modelling is recommended for intervention studies conducted in schools so that the similarities of children within individual schools and time waves are accounted for (O’Connell & McCoach, 2008; Rowe, 2007). Multilevel modelling identifies and accounts for the variance of multilevel variables on individuals. The children in the present investigation were members of individual schools and were tested at many periods of time: hence, the data contained different levels nested within each other. It is likely that children from any one school in the present investigation were more similar to other children from that school than to children from other schools included in the sample. The use of multilevel modelling was appropriate for the data composition in the present investigation, and resulted in more accurate statistical analyses.

Research design: Longitudinal data. The long-term effects on children after participating in R4L were included in the analyses of the present investigation. Longitudinal testing is important for avoiding “post-group euphoria” (Marsh, Richards, & Barnes, 1986) and helps account for any inflated post-test scores. Longitudinal
Testing provides data concerning the maintenance of new skills. This is a chief strength of the present investigation, as the long-term effects of interventions are not always included in published research reports (Hurry, 2004; NICHD, 2000). After participation in R4L, children from both the original experimental group and the waitlist control group demonstrated improved performance on all reading achievement tests in months after the intervention period ceased. The inclusion of longitudinal data in the present investigation is a key strength of the research design, as it provides insights into the longevity of the gains made by the children after participation in R4L.

**Research design: Waitlist control group.** The present investigation was one of a small number of volunteer-administered reading intervention evaluations worldwide, with a waitlist control design for a specific population of children with reading difficulties (Ritter, Barnett, Denny, & Albin, 2009). A common limitation of reading intervention research is the failure to include a control group in the research design (Slavin, 2008). However, the present investigation utilised a waitlist control design, whereby a comparison group of children (i.e., control group) were measured at the same time point as the group of children receiving the intervention (i.e., experimental group) and later received that same intervention. The data at Time 1 and Time 2 from both the experimental and control groups provided an equivalent measure against which to consider the effect of R4L for the experimental group. The availability of a comparison group is a key strength of the present investigation, as the results for children in the experimental group can be attributed to their participation in R4L, as they are compared to children in the control group, who did not participate in R4L.

**Limitations of the Present Investigation**

**Research design: Sample.** Classroom teachers identified participating children for inclusion in the present investigation, using the supplied criteria of girls and boys experiencing difficulties in reading and not being eligible for other forms of disability funding within the school system. Teacher identification of children with reading difficulties was poor in the present investigation. Of the 412 children identified for testing at Time 1, 130 were ineligible, as they were performing at average to above average level on standardised reading achievement tests. Teachers were not able to consistently identify children in their classes who were struggling, proving successful
only in 68% of cases. The low identification rate by teachers of children with reading difficulties supports the call from recent reviews, for more training for classroom teachers in assessing and working with children with reading difficulties (DEST, 2005; Rohl & Milton, 2002; Rose, 2006; 2009). Classroom teachers do not appear to have known the reading abilities of all of the children in their class, and identified children who were in fact reading at an age-appropriate level. It is therefore unclear whether there were children at the school who had had genuine reading difficulties but were not identified by their classroom teacher.

Secondly, it is possible that classroom teachers were asked by the researcher to identify more children with reading difficulties than were actually present in their classrooms. The most recent NAPLAN results in Australia report an average of 4% of children in Year 3 performing below the benchmark in reading assessments, with an enormous range across all of the Australian states of 1.7–28.1% (ACARA, 2010). Based on these figures, in a classroom of 30 children there could be between one to nine children with reading difficulties. The 14 schools in the present investigation were asked to identify up to 10 children per grade, and it is possible that there were not 10 children with reading difficulties enrolled at that school in those grades. Although all eligible children were below the 25th percentile for phonological awareness, this was not the case for all of the reading measures (Weiner, 2003). Only 62% of participating children were below the 25th percentile on the Neale-R for accuracy, and 66% for comprehension. The request for large numbers of children in the present investigation may have been beyond the scope of the enrolments at the schools. Consequently, there may have been children included in the sample for the present investigation who did not have significant reading difficulties—the very children whom the intervention was designed to help.

**Research design: Measurement instruments.** The present investigation employed qualitative measures to explore the effect of the R4L intervention on self-concept during interviews in Study 2. The children felt more confident about their abilities in reading and believed they were more capable of reading. All adult participants confirmed this, and spoke of observing changes in the beliefs, attitudes, and confidence of children. These consistent reports of improved confidence and attitudes towards reading, support the finding that participation in the R4L intervention has a
positive impact on reading self-concept. However, there was no quantitative measure of the reading self-concept of children. Hence, formal validation of self-concept increases could not be made. Furthermore, the REM model underpins the R4L intervention, with a dual focus on both reading skills and reading self-concept enhancement (Marsh & Craven, 2006). In the absence of a quantitative measurement of reading self-concept, it was not possible to infer objectively the operation of these relations; thus, empirical tests substantiating the REM model for children with reading difficulties could not be undertaken.

**Research design: Longitudinal data.** Although longitudinal data were included in the analyses of the present investigation, there are some limitations concerning the data available from the longitudinal testing. The experimental and control groups were both tested concurrently at Times 1 and 2. However, only the experimental group was assessed at Time 3, to provide the longitudinal data for this group. Consequently, there is no comparison for the experimental longitudinal data, and caution is required in interpreting these results, as it is not known what changes may have occurred for the control group during this time. As previously discussed throughout this chapter, children in the experimental group maintained and continued to improve their performance on reading achievement tests after participation in R4L. However, no definitive conclusions can be drawn from these data as there is no information about the performance of children in the control group.

Additionally, the longitudinal analyses were both conducted after school holiday periods, where children were not attending school. For the original experimental group, this was a period of two weeks during July. For the second experimental group (the original control group receiving the intervention) this was a period of six weeks throughout December and January. Consequently, comparisons between the longitudinal results for the two experimental groups are not equally matched for time. In both groups the children demonstrated improved performance on all reading achievement measures. However, further analysis and comparison could not be undertaken, due to these inconsistencies.

**Research design: Waitlist control group.** Although the present investigation utilised a waitlist control design, the actions of schools and parents providing
compensatory support to the control group resulted in contamination of the control group. Hence, the identification of a waitlist control group was both a strength and a limitation in the present investigation. The presence of the control group allowed for a comprehensive evaluation of the effectiveness of the R4L intervention. However, the evaluation was compromised by the control group also receiving special assistance in addition to regular classroom teaching. Subsequently, children from both groups demonstrated improved performance on reading achievement tests, and therefore conclusions made about the effectiveness of the R4L intervention are based upon a comparison with a group of children who received a different intervention rather than regular classroom instruction.

**Inconsistent home practice.** To make the most of the advantages for children participating in a rich literacy environment at home (Adams, 1990; Edwards, Dandridge, & Pleasant, 2000; Erion, 2006; Frijtiers et al., 2000; Jeynes 2005; Cotton & Wikelund, 2001; Rashid et al., 2005; Senechal et al., 1996) and the demonstrated benefits of repeated reading on reading accuracy (Chard, Vaughn, & Tyler, 2002; NICHD, 2000; Therrien, 2004), repeated reading was included in the revised version of R4L. Thus, home practice in the R4L intervention was to involve parents participating in revising sight words and repeated reading. Throughout the interviews in Study 2 however it became clear that home practice did not occur consistently for the children in the present investigation. Hence, the home practice component of the R4L intervention was not completed. In consideration of the previous research supporting both repeated reading (Chard, Vaughn, & Tyler, 2002; NICHD, 2000; Therrien, 2004) and participation in home reading (Adams, 1990; Edwards, Dandridge, & Pleasant, 2000; Erion, 2006; Frijtiers et al., 2000; Jeynes 2005; Cotton & Wikelund, 2001; Rashid et al., 2005; Senechal et al., 1996), it is a limitation of this study that participating children did not have an opportunity to receive the full benefit of the R4L intervention.

**Implications for Theory, Practice, and Future Research**

The present investigation capitalised on recent advances in reading and self-concept theory and research to produce an intervention that was successful in improving the reading skills of children with reading difficulties and strengthening their self-concepts.
in reading. This type of intervention, where educational and psychological enhancement are emphasized concurrently, is novel in the field of reading disabilities. The results from the present investigation provide support for combining reading instruction and self-concept enhancement strategies in future interventions. The next section discusses the implications of the findings from the present investigation in relation to theory, research, and practice.

Theory

**Developmental theories of reading acquisition.** Findings from the present investigation support theoretical perspectives on the acquisition of reading skills for young children. Theories of the development of reading skills state that for successful reading, children require an awareness of the sounds of English (phonological awareness), visual recognition of commonly appearing sight words, and a range of strategies to decode unfamiliar words. Additionally, children develop skills in reading accuracy prior to reading comprehension. The structure and content of the R4L intervention in the present investigation were designed to reflect these developmental theories of reading acquisition.

The findings from the present investigation offer some support for these developmental theories. Children demonstrated improved performance on phonological awareness tasks in the short-term, which has potential to serve as a prerequisite for further reading acquisition. The performance of the children in the experimental group on reading accuracy tasks was significantly improved in the longitudinal testing, suggesting that the initial gains in phonological awareness may have contributed somewhat to these gains in reading accuracy. Reading comprehension skills were also significantly improved for the experimental group after the initial learning and gains during the R4L intervention period. These findings considered together, the present investigation provides support for these developmental theories.

Furthermore, the developmental theories of phonological awareness span across the first three to four years of schooling, with children expected to progress through these stages in incremental steps over an extended period of time (Chard & Dickson, 1999; Ehri, Nunes, Stahl, & Willows, 2001; Neilson, 2003). The findings from the
present investigation suggest that it is possible to remediate phonological awareness in a short period of time for young children. Thus, although the majority of children will progress through these stages at a gradual pace, children who have been delayed in developing phonological awareness may be able to redress this delay in a condensed period of time. The findings from the present investigation, in relation to improved phonological awareness after a short intervention period, offer an extension to the existing theories of development of phonological awareness for children with reading difficulties and suggest that enhancement of phonological awareness can be achieved over a short intervention period.

**Learning theories.** One of the core theoretical underpinnings of the R4L intervention comes from behavioural theorists: the promotion of explicit code-based reading instruction, involving direct instruction in the morphological and orthographical patterns in words. These approaches have been demonstrated in previous research to be effective for children with reading difficulties (Lloyd, Forness, & Kavale, 1998; Tunmer, Chapman, Ryan, & Prochnow, 1988). Direct and explicit instruction techniques were employed throughout the R4L intervention in the instruction of phonological awareness, sight words, and decoding strategies. The findings in the present investigation demonstrated that children developed improved phonological awareness and reading accuracy skills after participation in the direct and explicit instruction of the R4L intervention. The current findings for phonological awareness and reading accuracy support the behaviouralist theories of explicit code-based reading instruction. As previously discussed in this chapter, although statistically significant results were not obtained for improvements in sight word recognition, the measurement instrument employed may not have been indicative of the sight words children had learnt to read during the intervention and hence, the result is inconclusive (Gilmore, Croft, & Reid, 1981). These theories of explicit code-based reading instruction have also been expanded in their application in the R4L intervention, by their inclusion in a unique reading skill and reading self-concept enhancement intervention for young children. The findings of the present investigation have demonstrated that it is possible to combine explicit code-based reading approaches with other techniques, such as self-concept enhancement.
**Self-concept theories.** Research supporting the REM (Marsh & Craven, 1997; 2006; Marsh & Yeung, 1997) has established a reciprocal relation between academic self-concept and achievement, whereby increases in one area are accompanied by increases in the other and vice versa. The implication of the REM for children with reading difficulties is that academic self-concept and achievement must be developed concurrently. Hence, interventions designed for this disadvantaged group of children should include enhancement strategies for both reading self-concept and reading skills. The R4L intervention was designed to reflect these self-concept enhancement theories, with the inclusion of special feedback statements alongside reading enhancement training. The current findings offer some support for the REM for children with reading difficulties. Children improved in areas of reading achievement, demonstrated by a range of statistically significant results in phonological awareness in the short-term and these gains, as well as gains in reading accuracy and comprehension, continued longitudinally. Additionally, participants consistently reported significant changes in children’s reading self-concept, as children displayed and expressed greater confidence towards reading. Thus, there is a strong indication that children improved in both reading skills and reading self-concept and that the combination of these improvements fostered continued improvements in reading skills longitudinally. The findings of this study therefore offer further support for the REM based on a qualitative investigation of the phenomenon and extend the findings of the REM to young children with reading difficulties.

**Educational Practice**

**Reading pedagogy.** In demonstrating that R4L is effective in improving phonological awareness, reading accuracy, and comprehension, the present investigation has implications for educational practice. R4L was theoretically derived from the body of international literature over the past 30 years, from the most effective strategies identified for teaching reading to young children. Findings from the present investigation suggest that the inclusion of these reading strategies is beneficial for children with reading difficulties. Explicit instruction of phonological awareness skills, increasing in complexity, and supported with motivating games practice, has been demonstrated to be effective in improving children’s phonological awareness skills in
the present investigation. Hence, the R4L intervention has provided a model for effective teaching of phonological awareness for teachers to use when teaching children with reading difficulties. The R4L intervention could be used in classrooms as an entire program or as a model for teachers to apply in their classroom.

Additionally, the present investigation has demonstrated that reading accuracy can be improved after phonological awareness skills improve and is enhanced when children are explicitly taught to use a variety of reading strategies, in approaching words in the text they are not able to read. These improvements in reading accuracy will require more time and are reliant on children’s phonological awareness. These findings can inform the planning of effective literacy instruction, whereby the prerequisite skills of reading, such as phonological awareness, are taught before the introduction of specific reading skills.

Cost effective and successful interventions. Children with reading difficulties require intense support over an extended period of time, preferably in smaller group or one-to-one environments (Moody, Vaughn, & Schumm, 1997; Rose, 2009). The support available for children with reading difficulties often requires financial assistance from government and educational departments. This support is compromised in Australia, where reading difficulties are not formally recognised by education departments and only minimal funding is available (Elkins, 2007; Hiebert, 1994; Shanahan & Barr, 1995). Additionally, in Australia funding for learning support is often directed to the provision of Reading Recovery for children in Year 1. The Reading Recovery Program has been criticised for its lack of effectiveness in children with reading difficulties (Chapman, Tunmer, & Prochnow, 2001; Elbaum, Vaughn, Hughes, & Moody, 2000) due to the omission of phonological awareness instruction (Chapman, Tunmer, & Prochnow, 2001). The R4L intervention addresses the deficiencies in Reading Recovery by emphasising phonological awareness instruction and has been demonstrated to be effective in improving the short- and long-term outcomes of children in the present investigation. Multilit is another program currently employed to support children with reading difficulties in Australian classrooms throughout primary grades (MULTILIT, 2007). Multilit is consistent with the philosophy of R4L in terms of formally teaching the skills required for reading in a one-to-one environment with a trained adult (MULTILIT, 2007). However, R4L provides
additional and engaging practice of phonological awareness and sight words using card and board games, does not involve daily practice with a trained adult, and incurs no cost to the school to train the adults in the program.

The findings from the present investigation suggest that R4L offers schools a mechanism for providing the essential individualised support to children with reading difficulties without impacting on constrained school budgets. Trained reading buddies deliver the R4L intervention in a one-to-one environment, volunteering their time. Learning Links conduct all pre- and post-testing and the cost is borne by the organisation supplying the reading buddies. Schools are only required to identify a space for the R4L sessions to take place. Hence, R4L has the potential to support children with reading difficulties, alongside other programs such as Reading Recovery (Clay, 1985, 1987, 1993) or Multilit (MULTILIT, 2007) to improve reading outcomes.

**Model for new interventions.** Recommendations from researchers who have conducted evaluations of volunteer or tutor programs include clear training for volunteers, systems to ensure that volunteers are reliable, and the provision of structured programs where volunteers are supporting children in the practice of educational skills (Cohen et al, 1982; Elbaum, Vaughn, Hughes, & Moody, 2000; Ritter et al., 2009; Snow, Burns, & Griffith, 1988). The researcher incorporated these recommendations into the design and structure of the R4L intervention, and the findings from both studies in this research support the success of R4L in improving reading skills. R4L thus provides a model for educators in developing programs for volunteers to administer to children with reading difficulties. Hence, in addition to R4L being an intervention for reading, it could also potentially serve as a model for new programs to be developed for other skills required by young children, such as mathematics.

**Assessment validation for children with reading difficulties.** Existing commercial measurement instruments for reading achievement skills were shown to be suitable for children with reading difficulties. The SPAT-R (Neilson, 2003), Burt Word Reading Test (Gilmore, Croft, & Reid, 1981), and Neale-R (Neale, 1989) were found to be reliable measures of phonological awareness, sight words, and reading comprehension respectively. The Neale-R (Neale, 1989) was not found to be a reliable
measure of reading accuracy in the present investigation, and warrants further testing on a larger sample of children with reading difficulties. These instruments have been formally standardised on large samples of children with wide ranging abilities, and possess strong psychometric properties. The present investigation involved a skewed sample of children; all were behind in their reading abilities, with a limited range of reading skills. The results from the present investigation suggest that these instruments can be used on populations that differ from the normal distribution, and provide additional validation of the suitability of these instruments for children with reading difficulties. Initial and post assessment of reading skills are critical factors in considering the effectiveness of interventions, and these were conducted in the present investigation, as recommended by researchers (NICHD, 2000; Rose, 2006; 2009; Rowe, 2007). Ongoing assessment is also a critical component of the teaching and learning cycle for all children (Hattie, 2009). Children with reading difficulties require regular assessment within classrooms to monitor progress and modify teaching programs. Hence, it is important for teachers and researchers to have access to measurement instruments that have been empirically validated for special populations, such as children with reading difficulties.

**Identification of children with reading difficulties.** Although the present investigation was not designed specifically to consider identification methods or gender ratios of reading difficulties, in undertaking the Time 1 testing some trends emerged, supporting previous research and informing future educational practice. Teachers incorrectly identified 130 children, 32% of the sample, as children with reading difficulties who would benefit from additional reading assistance. It is not known whether this is a result of classroom teachers’ poor knowledge of the skills that constitute reading, or of the abilities of individual students, or indeed of the researcher’s request for a larger number of children with reading difficulties than may have been enrolled in individual classrooms. However, it would be prudent to recommend greater information and further training related to reading difficulties for classroom teachers, to assist in their identification and attention. This has been echoed in the most recent reviews on the teaching of reading to children (DEST, 2005; Rose 2009).

Many researchers have chronicled the range of terms used to describe populations of children who struggle to learn (Elkins, 2000; Ellis, 2005; Kavale,
Spaulding, & Beam, 2009; Louden et al., 2000, Rose, 2009). Although no specific terms, such as dyslexia, were employed in the present investigation, with teachers given criteria rather than a label, it is perhaps the inconsistency of these terms in the literature and educational practices that has contributed to poor identification of children eligible for inclusion in R4L. Agreement in the field about the language used to describe this population of children with reading difficulties would be an important element in improving the knowledge base of teachers.

There was also a small bias in the gender ratio of the initial teacher-selected sample for pre-testing. Despite requests for even numbers of boys and girls and grades, teachers did not or were not able to comply with this request in their individual classes. Hence, the sample was slightly biased towards boys, 59% and 41% respectively being identified for initial testing, and representing 61% and 39% respectively of the sample of eligible children. The higher incidence of boys identified with reading difficulties than girls is consistent with other studies and with prevailing beliefs about boys being more likely to experience reading difficulties (Flynn & Rahbar, 1994; Hawke, Wadsworth, Olson & DeFries, 2007; Ruttner et al., 2004; Shaywitz & Shaywitz, 1988; 2003). Whilst gender biases were not a key focus area of investigation in this study, their occurrence in the sample supports the body of literature regarding gender bias. It is important for teachers to be aware of the potential bias in identification of children with difficulties in their classrooms and for teachers to be encouraged to develop skills to accurately identify children with reading difficulties so that teaching strategies can be developed tailored to individual student’s needs.

**Policies for children with reading difficulties.** Australian policy and provisions for children with reading difficulties are inconsistent with other Western governments. After the release of the Report on Teaching Reading in 2005, there have been no policy amendments for children with reading difficulties (Bond et al., 2010). Children with reading difficulties are acknowledged and supported in other countries, such as the USA, with its No Child Left Behind Act (2001) and the United Kingdom’s new Primary National Strategy framework (Department of Education and Skills, 2006). Reading competence is identified by the Australian government as a goal of schooling and the foundational skill for other learning (DEST, 2005; MCEETYA, 2008). However, there are few provisions to help children who are experiencing difficulty in
achieving this competence. Reading difficulties are not formally recognised within Australia and as a result, financial assistance to schools to support these children is negligible. The present investigation demonstrated that children with reading difficulties can improve their reading skills and reading self-concept after participation in a short intervention administered by trained reading buddies, thus improving their opportunities for success in education, employment possibilities, and happiness in life. The evaluation of R4L has shown that improvements are possible for children with reading difficulties. It is imperative for the educational policies within Australia to acknowledge the existence and needs of these children, to provide the necessary assistance, and to help all children read. In the present investigation, implementation of the parent component of the intervention was poor. Further research needs to be undertaken to identify successful parent-administered reading interventions that breed success.

**Future Research**

The findings of the present investigation were strengthened in the availability of both quantitative and qualitative data. The mixed methods research design provided an opportunity to counter some of the challenges in conducting experimental research in educational settings, such as the contamination of the control group for the quantitative study. The onus is on researchers to find ways to conduct this research in challenging educational settings, and mixed methods is a way forward to address this by considering multiple perspectives. Utilisation of mixed methods research designs provides a rich and multi-faceted understanding of educational interventions in classrooms. Future research of educational interventions would benefit from considering employing mixed methods approaches.

The present investigation was the first empirical evaluation of the R4L intervention utilising a waitlist control group. Replication studies of the R4L intervention should be undertaken to develop a stronger research base on the efficacy of R4L. These replication studies should address some of the limitations described in this chapter, such as the provision of a control group for the longitudinal data, an alternative instrument to measure sight words, further investigation of the reliability of the Neale-R (Neale, 1989) as a reliable instrument for reading accuracy, and the formal measurement of self-concept. Further research could employ larger sample sizes or control groups in
different schools to help minimise control group contamination (Moerbeek, 2005; Wheldall, 2009). Such replication studies could also further explore how gender, home reading, classroom reading instruction methods, and the length of time of the intervention mediate or moderate the outcomes of R4L.

The multidimensional and domain specific structure of self-concept has been well validated in many populations (Byrne, 1996; Hay & Ashman, 2003; Marsh, Byrne, & Shavelson, 1988; Marsh, Craven, & McInerney, 2003; Marsh & Craven, 2006; Marsh & Hattie, 1996; Marsh & Yeung, 1999; Valentine, DuBois, and Cooper, 2004). However, findings from studies examining the self-concept of children with reading difficulties are hampered by inconsistent definitions of learning difficulties and by a lack of clear distinction between general and academic self-concept (Byrne, 1996; Durrant, Cunningham, & Voelker, 1990; Polychroni, Koukoura, & Anagnostou, 2007; Zelke, 2004). The scope of the present investigation did not include a comparison of the self-concept of children with and without reading difficulties or measure self-concept using a formal measurement instrument. Given the widely known benefits of a positive self-concept for life possibilities (Chapman, 1988; Hattie, 2009; Marsh & Craven, 2006; Marsh & Yeung, 1997), it is vital for self-concept to be further understood for the population of children who are disadvantaged by their reading difficulties and the detrimental impact this has on their formation of academic self-concept. This is an area for future researchers to consider exploring further: the impact of the R4L intervention on reading self-concept for children with reading difficulties.

The measurement of sight word recognition in the present investigation was potentially obstructed by the low incidence of common words between the sight words taught to children during R4L sessions, from the Fry Instant Word List (Fry, 1980), and the measurement instrument, Burt (Gilmore, Croft, & Reid, 1981). As a consequence, children were potentially restricted in demonstrating the full extent of their improvement in sight word recognition, with so few words they had learnt being contained in the Burt list (29%). As sight word recognition is a visual skill, there is a need for the availability of corresponding sight word lists and assessments, to ensure that the visual memory learning assessed, corresponds to what was taught. Furthermore, both of these materials are 30 years old, and may no longer be indicative of the most commonly sighted words encountered by children. Future researchers could consider
the development of a new sight word list and corresponding assessment, with standardised norms from large populations, encompassing the words most frequently occurring in everyday and digital texts, to provide more accurate measures of sight word recognition.

Additionally, the positive long-term reading achievement results of participating children and the consistent reports of improved reading self-concept and confidence from both studies, provide some support for the REM (Marsh & Craven, 2006). It would be useful, however, for these relations to be investigated causally, utilising a quantitative self-concept measure alongside reading achievement measures.

The reports during the interviews in Study 2, of children reading more, reading harder texts, and reading independently, were explored in terms of printed books and environmental print on billboards. There was no mention of reading undertaken in digital form, either on the computer or other electronic devices. Technological advancements and the increase in availability of electronic devices are increasing the demands on reading skills (Hagood, 2000; Luke, 2000; Palfrey & Gasser, 2008; Prensky, 2010; Unsworth, 2002). Further research could investigate how children are reading digital materials and the pressure this places on children with reading difficulties. R4L currently utilises printed books and materials. However, the inclusion of digital materials may need to be considered in the future, and could be a possibility for providing the required home support for these children.

The R4L intervention is entirely focussed on the area of reading and has been demonstrated to be effective in improving phonological awareness for participating children. There is research stating that phonological awareness training has also been shown to improve spelling in the long term (Bus & van Ijzendoorn, 1999; Bradley & Bryant, 1985; Byrne et al., 2000; Lundberg, Frost, & Petersen, 1988). Spelling skills were not included in the present investigation and as such it is not possible to comment on the effect of the improved phonological awareness of children on spelling skills. Further research could include spelling assessments within the battery of reading assessments, to consider additional multiplier effects of phonological awareness training interventions.
As previously discussed throughout this chapter, classroom teachers were not accurate and reliable in identifying children with reading difficulties in their classes. Unfortunately, the scope of the present investigation did not allow for additional testing of whole classes to test whether some children with reading difficulties had not been identified by their classroom teacher. Future research could consider assessing entire classes to identify accurately the children who were struggling with reading. It would also be helpful for further research to consider the extent to which teachers can accurately identify and intervene in reading difficulties.

Chapter Summary

This chapter has summarised and discussed the significant findings from the mixed methods study comprising the present investigation. The R4L intervention, synthesising educational and psychological research by simultaneously focussing on reading skills and reading self-concept, has yielded promising results in the present investigation. Children improved in reading skills, and particularly in phonological awareness, maintained these improvements over time, and felt more competent and confident of their abilities in reading, prompting further behavioural changes in independent reading. Therefore, R4L could be a useful complement to teacher-implemented programs and serve to help children with reading difficulties. Additionally, a model for volunteers working with children, including training and the provision of a structured program, provides educators with a model to devise additional programs for children. Results from the two interrelated studies were synthesised, and the strengths and limitations of the present investigation were presented. Suggestions for educational theory, future research, and pedagogy also were presented. The key findings of the present investigation are summarised in the next chapter.
CHAPTER 10

SUMMARY AND CONCLUSIONS

“Overcoming, or preventing, reading problems in dyslexia requires many hours of highly skilled and intensive teaching.” (Hulme & Snowling, 2009, p. 89)

The skill of reading has never been more necessary for schooling, employment, and social interactions, than in the current and constantly burgeoning technological age. Consequently, those children who struggle to acquire reading skills during their schooling are disadvantaged in schooling, employment and life opportunities, and socially. Hence, teaching children to read is a critical international priority.

The mixed methods investigation comprised two interrelated studies that aimed to: (a) design a reading intervention, Reading for Life (R4L), informed by international educational and psychological research; (b) evaluate the effects of R4L on a range of reading outcomes (phonological awareness, sight words, reading accuracy, and comprehension) measured by standardised assessments; and (c) evaluate the effects of R4L on children’s reading self-concept and reading behaviours, informed by interviews with multiple stakeholders (children, volunteers, parents, teachers, and principals).

The key finding from Study 1 was empirical support for the development of improved phonological awareness skills in the short- and long-term after participation in R4L. R4L was found to increase phonological awareness skills significantly. In consideration of the predictive influence of phonological awareness in future reading success, this is a positive validation of the efficacy of the R4L intervention. Additional findings from Study 1 include statistically significant longitudinal growth at Time 3 in reading accuracy and comprehension for all children, and statistically significant Time 2 gains for a second group of children in these areas. These results provide support for
the usefulness of direct and explicit instruction in phonological awareness, an interactive and engaging approach to revision and practice, and one-to-one oral reading practice using strategy instruction.

Study 2 was designed to explore the experience of R4L for children from the perspectives of multiple stakeholders. The findings from Study 1 were enriched as participants described observing improved decoding skills, greater perseverance in decoding, and increased frequency of autonomous reading. Participants praised the content and materials of the R4L intervention and acknowledged the role the intervention took in engaging children and motivating them to learn. Further, children were observed to have progressed successfully in the sight word section of the R4L intervention, a finding inconsistent with the non-significant result for sight word recognition in Study 1, suggesting that changes may have taken place that were not identified in the quantitative analyses. Hence, the findings from Study 2 supported and extended those from Study 1 overall, affirming that R4L improves aspects of reading skills for children with reading difficulties.

Study 2 also investigated the impact of R4L on children’s reading self-concept. Multiple stakeholders reported that children were more confident about reading, shared their confidence in new skills and abilities with adults in a variety of situations, and consequently approached reading with enjoyment after experiencing the R4L intervention. The special relationship formed between the reading buddies and children, and the rare one-to-one nature of this working relationship in an educational environment, were considered by all participants in the present investigation to be strong influences that contributed to the improved reading self-concept of children. The R4L intervention incorporated internally focussed and attributional feedback statements to enhance self-concept, informed by recent advances in self-concept theory. Evidence was found to support the capacity of R4L to effect change in children’s beliefs and confidence about reading: that is, their reading self-concept.

The present investigation has contributed to the reading research literature. Reading and self-concept research have been synthesised and capitalised upon in the design of a unique psychosocial reading intervention, addressing reading skills and reading self-concept simultaneously. R4L utilises educational practices to build competency in
reading and psychological strategies to help children recognise their improved competencies and attribute their successes to internal processes. The developmental theories of reading acquisition, whereby children develop phonological awareness in a sequential manner before applying these skills to reading accurately, thereby allowing children to understand what they have read, were supported in the investigation. These developmental theories were extended with the findings in the present investigation, whereby phonological awareness improvements were achieved in a short period of time after participation in direct phonological awareness training with a volunteer. Learning theories of explicit code-based reading, utilising direct instruction scripts to build skills in phonological awareness and reading strategies, were also demonstrated to be effective when included in an intervention that also addressed self-concept enhancement. The present investigation provided support for the significant role that self-concept enhancement plays, together with reading skills training. Furthermore, the present investigation has been able to extend self-concept enhancement theory by demonstrating the salience of the REM for children with reading difficulties, based on a rare study utilising a qualitative approach to explore the predictions of the REM.

The empirical validation of the R4L intervention also has implications for educational practice with children with reading difficulties. The present investigation provides a new intervention suitable for children with reading difficulties that can be used in primary classrooms for children with reading difficulties. The R4L intervention can assist a greater number of children than other, existing programs, due to its relatively lower cost in implementation. The present investigation has also demonstrated that trained adults can use a systematic program and effect change in both the achievement and self-concept of children, providing a new model for potentially potent volunteer-administered intervention. The R4L intervention can also serve as a model for teachers when teaching children with reading difficulties. The findings from the present investigation help inform teachers of the benefits of teaching phonological awareness in a systematic and explicit manner, with opportunities for revision and practice using card and board games. The findings also demonstrate the importance of focussing on phonological awareness skills prior to reading accuracy and comprehension instruction.
Children with reading difficulties are at risk of a range of destructive consequences including, but not limited to, school failure and disengagement, poor mental health, unemployment, incarceration, and alcohol and drug dependency. These children’s futures are compromised by their reading difficulties. It is the responsibility of educators to identify the most effective ways to facilitate reading development in children and to avoid the devastating effects of reading failure. Educational research provides educators with a clear path for remediating reading difficulties, with a focus on direct and explicit teaching of a range of reading sub-skills. Moreover, it is incumbent upon educators to consult research in a range of disciplines to ensure that the most potent interventions are available for children with reading difficulties. Self-concept theory and research offers great promise for increasing the power of educational interventions. By facilitating more positive self-concept beliefs and confidence in skills, children approach life with a greater chance of success. Combining self-concept enhancement interventions with direct instruction in reading skills is likely to result in potent reading interventions for children with reading interventions. The findings of this study demonstrate that by capitalising on advances in theory and research, potent interventions can be implemented that make a difference to reading difficulties and the lives of young children.
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APPENDICES
| APPENDIX A | Introducing Your Buddy ................................................................. 351 |
| APPENDIX B | Reports—Ineligible Children ............................................................ 352 |
| APPENDIX C | Reports—Post-Intervention ............................................................... 354 |
| APPENDIX D | Reading for Life Pack ....................................................................... 356 |
| APPENDIX E | How to Increase Self-Concept ............................................................. 452 |
| APPENDIX F | Reading with Your Child .................................................................... 454 |
| APPENDIX G | Summary of Modifications to R4L Intervention ................................. 455 |
| APPENDIX H | Information & Consent Form: Principal ............................................... 457 |
| APPENDIX I | Information & Consent Form: Teachers ............................................... 462 |
| APPENDIX J | Information & Consent Form: Parents .................................................... 466 |
| APPENDIX K | Criteria for Inclusion (Student Target Group) ..................................... 469 |
| APPENDIX L | Information & Consent Form: Reading Buddies (Corporate) ................ 470 |
| APPENDIX M | Information & Consent Form: Reading Buddies (UWS) ...................... 473 |
| APPENDIX N | Information & Consent Form: Research Assistants .......................... 476 |
| APPENDIX O | Test Administration Cover Sheet .......................................................... 479 |
| APPENDIX P | School Fidelity Rating ....................................................................... 484 |
| APPENDIX Q | Means and Standard Deviations Before and After Standardisation ........ 485 |
| APPENDIX R | Interview Schedule—Phase I ............................................................... 487 |
| APPENDIX S | Interview Schedule—Phase II .............................................................. 498 |
Introducing your Reading Buddy ... 

Child’s Name (Class Class) 

S/He likes (hobbies). 

Name’s parents hope Name will (parent’s goals). 

Have fun!
Reading for Life

Child’s First Name: «Childs_Name»
Class: «Class»
School: «School»
Date of Birth: «Date_of_Birth»
Date of Assessment: «Pretest_date»
Chronological Age: «Pre_CA»

REASON FOR ASSESSMENT

«Childs_Name» has been nominated by both «HisHer» parents and teacher to participate in the Reading for Life program being implemented at «HisHer» school over the coming terms. The Reading for Life program aims to enhance the reading skills, and reading confidence and enjoyment of participating children.

Each week volunteers will enter the school to work with participating children individually for 45 minutes. Learning Links will be training volunteers as Reading Buddies, preparing the weekly material and providing support to the volunteers over the duration of the program.

As part of the Reading for Life program, all participating children will receive an individual literacy assessment both at the commencement and end of the program. This report presents the findings of the initial assessment conducted prior to the commencement of the program.
ASSESSMENT RESULTS

Neale Analysis of Reading Ability – Third Edition (Form 1)
This test consists of a series of graded passages that the child is required to read aloud. They are also required to answer questions about the text. This test measures accuracy and speed of reading, as well as comprehension.

Test Results:

<table>
<thead>
<tr>
<th>Skill</th>
<th>Range</th>
<th>Age Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Accuracy</td>
<td>«Pre_Accuracy_Range»</td>
<td>«Pre_Accuracy_Age»</td>
</tr>
<tr>
<td>Reading Comprehension</td>
<td>«Pre_Comp_Range»</td>
<td>«Pre_Comp_Age»</td>
</tr>
</tbody>
</table>

Sutherland Phonological Awareness Test – Revised (Form A)
This test aims to identify students at risk of difficulties in reading by testing phonemic awareness, that is, the ability to hear and identify sounds in words, give rhyming words, segment words and identify accompanying symbols. It is considered an early literacy skill.

Test Results: Percentile Rank «Pre_SPATR»

This test provides normative data for children up to, and including, Year 3. Therefore, if the child is beyond Year 3, the percentile rank presented is compared to children in Year 3, not children their same age.

Burt Word Reading Test
Each child was presented with a list of sight words. Sight words are words that cannot be decoded through the application of phonemic skills. These words are best learnt through revision.

Test Results: Age Equivalence «Pre_Sight_Words»

SUMMARY
Results of the assessment have been provided to the child’s parents and teacher. Results indicate that «Childs_Name»’s skills are developing well. As such, enrolment in the Reading for Life program will not occur. Best wishes for future learning success.

«Coordinator»
Co-ordinator
Reading for Life
Reading for Life

Child’s First Name: «Childs_Name»

Class: «Class»

School: «School»

Date of Birth: «Date_of_Birth»

Date of Assessment: «Posttest_date»

Chronological Age: «Post_CA»

REASON FOR ASSESSMENT

The Reading for Life program has now been completed. As part of this program, «Childs_Name» worked individually with a volunteer for a period of «N_of_sessions» weeks. Sessions of 45 minutes duration were held weekly. The Reading for Life program aimed to enhance the reading skills, and reading confidence and enjoyment of participating children.

As part of the Reading for Life program, all participating children received an individual literacy assessment both at the commencement and end of the program. This report provides information about gains made since the commencement of the program.
ASSESSMENT RESULTS

Neale Analysis of Reading Ability – Third Edition (Form 2)

<table>
<thead>
<tr>
<th>Skill</th>
<th>Months gained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Accuracy</td>
<td>«Gain_Accuracy»</td>
</tr>
<tr>
<td>Reading Comprehension</td>
<td>«Gain_Comp»</td>
</tr>
</tbody>
</table>

Sutherland Phonological Awareness Test – Revised (Form B)
This test reports results as percentile ranks. Percentile ranks refer to the comparative position of other children the same age, e.g., a percentile rank of 60 means that the child achieved a score as good as, or better than, that of 60% of children the same age. The figure below tells us that the child is now performing better than this additional portion of children their age, compared to the time of initial testing.

Percentile Ranking Increase: «Gain_SPATR»%

Burt Word Reading Test
Each child was presented with a list of sight words. Sight words are words that cannot be decoded through the application of phonemic skills. These words are best learnt through revision.

Test Result: «Gain_Sight_Words» gained

SUMMARY

Results of the assessment have been provided to the child’s parent/s and teacher. It is hoped that these results are helpful in understanding «Childs_Name»’s needs and planning for «HisHer» future learning success. We hope that participating children found the Reading for Life program both beneficial and enjoyable and we wish them all the best for future schooling success.

«Coordinator»
Co-Ordinator
Reading for Life
Appendix E
Appendix F
# SUMMARY OF MODIFICATIONS TO R4L INTERVENTION.

<table>
<thead>
<tr>
<th>Program Component</th>
<th>Pilot Intervention</th>
<th>Modifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assessment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ants in the Apple Sight Word Screener</td>
<td>Burt Word Reading Test</td>
<td></td>
</tr>
<tr>
<td>Sutherland Phonological Awareness Test</td>
<td>Nil</td>
<td></td>
</tr>
<tr>
<td>Neale Analysis of Reading Ability</td>
<td>Nil</td>
<td></td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td>Discussion and information packs provided to schools, teachers, parents, and volunteers.</td>
<td>Nil</td>
</tr>
<tr>
<td></td>
<td>Training and support sessions for volunteers.</td>
<td>Fidelity checks for volunteers</td>
</tr>
<tr>
<td><strong>Intervention</strong></td>
<td>Building a Relationship</td>
<td>Highlights</td>
</tr>
<tr>
<td>Welcome chat directed by buddy.</td>
<td>Welcome chat sentence starters provided in manual.</td>
<td></td>
</tr>
<tr>
<td><strong>Sight Words</strong></td>
<td>Explicit script and card games provided for buddies and parents.</td>
<td>Sight words from “Fry Instant Words”.</td>
</tr>
<tr>
<td>Sight words from “What, When, Where to Teach English K-6”.</td>
<td>Warm Up</td>
<td></td>
</tr>
<tr>
<td><strong>Knowledge of Sounds</strong></td>
<td>Order of skills covered: sound identification, rhyme compound words, vowel digraphs, and homophones.</td>
<td>Stretching</td>
</tr>
<tr>
<td>Order now reflecting developmental continuum.</td>
<td>Script to formally introduce each skill included in manual for buddies to follow.</td>
<td></td>
</tr>
<tr>
<td>Set of 10 commercially produced games addressing these skills.</td>
<td>Set of 10 games removed from intervention.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Set of card and board games developed by researcher and Learning Links to rehearse each skill.</td>
<td></td>
</tr>
<tr>
<td>Program Component</td>
<td>Pilot Intervention</td>
<td>Modifications</td>
</tr>
<tr>
<td>-------------------</td>
<td>--------------------</td>
<td>---------------</td>
</tr>
</tbody>
</table>
| **Reading**       | Before reading activities to promote prediction. | **The Main Event**
|                   | During reading activities using the Reading Helper. | Removed from program, begin immediately with decoding. |
|                   | After reading activities based on Bloom’s Taxonomy. | Nil |
|                   | **Cool Down** | Previous questions removed completely. |
|                   | A transfer activity for children to identify sight words and phonological awareness skills in chosen text. | Reading Helper for during reading activities now has a reverse side with recall question prompts. |
|                   | **Celebrating Effort** | **Cool Down** |
|                   | Children and buddies write in their communication book and celebrate with stickers. | **Celebrating Effort** |
|                   | **Celebrating Effort** | Nil changes. |
Dear School Principal,

I wish to invite your school to participate in a research project that investigates and seeks to assist young children in Years 1 to 4 who are experiencing reading difficulties. This research project has been funded by the Australian Research Council. Early literacy skills are the building blocks of academic success. In order to help students acquire these reading skills more effectively, this study aims to implement an innovative reading intervention to be administered by trained volunteers (Corporate employees) at your school to build skills in reading achievement and reading self-concept. This intervention is called Reading for Life (see website - www.readingforlife.net.au) and is conducted by Learning Links in association with the University of Western Sydney, Unilever Australasia, and other corporates. By end-2006, 1,100 children have been helped through Reading for Life in schools across Australia and New Zealand.

Reading for Life is a volunteer reading program to help children having difficulty reading at primary school. It is designed to support teachers and give one-to-one assistance to children in Year 1 to Year 4 who are struggling to read in a classroom environment and is available to schools in Australia and New Zealand. Volunteers from businesses or a University become reading buddies to selected children and visit them at their school to help enhance children’s reading skills and self-concept. Each volunteer works with a child one-to-one for fifteen forty-five minutes sessions.

Reading for Life is more than simply reading with children. Its semi-structured content is modelled on best practice and developed by a team comprising psychologists, teachers, and speech pathologists. Volunteers are trained and supported by experienced professionals. Reading for Life contains activities to engage and interest children. It also offers them encouragement to do their best and have a go in a supportive environment. Each Reading for Life program includes schools, children, and volunteers who meet certain selection criteria. The program also actively involves families and classroom teachers.

In addition, a parent companion to the Reading for Life intervention will be available. The parent intervention will complement the Reading for Life volunteer intervention and seeks to empower families to build literacy capabilities in their children.
Participation would involve:

- Teachers identifying children from Grades 1-4 with reading difficulties, according to the selection criteria to identify students who would most likely benefit from the program;
- Teachers distributing and collecting, from the students they have identified, parental permission letters and rating aspects of participating students’ reading achievement on 3 occasions (before the intervention, after, at 3 months later);
- Supplying the research team with a suitable space (visible to other staff members), equipment (chair and table) and timetable (when participating children are available during school day) to conduct testing;
- Student participation in an individually-administered pre-test, conducted by experienced research assistants over a period of up to an hour that measures children’s reading achievement on standardised tests (Burt Word Reading Test, Sutherland Phonological Awareness Test, Neale Analysis of Reading Ability - Revised);
- Children from your school participating in the intervention by working with a volunteer in a public and visible location for 45 minutes on 15 occasions with half of the children participating in the intervention over the first half of the school year and the remaining half participating in the intervention over the second half of the year;
- Attendance at an orientation morning tea at your school where children, their parents, teachers and reading buddies will meet prior to the intervention’s commencement;
- Students participation in two post-tests of up to an hour, conducted by experienced research assistants, at the completion of the intervention and three months after the intervention to measure changes in achievement over time;
- A selection of parents, children, and teachers participating in a focus group discussion of 30 minutes at the completion of the intervention,
- A brief interview with you at the completion of the intervention, which I anticipate would last for 20 minutes.

Your school will receive individual students’ results for reading achievement tests for parents who agree to release this data to the school which measure sight words recognition, phonological awareness, reading fluency, and comprehension, which should provide rich information on individual student’s progress in key skills over three occasions. Your school will also receive a report of the aggregated findings for your school that should serve to inform school reading policy and practice. A representative from your school is welcome to attend the training sessions with the volunteers for the Reading for Life intervention so that you are well informed of how the materials will be used. A full copy of the Reading for Life intervention will remain at your school during and at the completion of the intervention.

Students from Years 1 to 4, their parents, and teachers will be invited to participate in this research. Individual students’ reading performance will be measured by a range of standardised reading tests (the Neale Analysis of Reading Ability - Revised measures reading accuracy, fluency, and comprehension; the Sutherland Phonological Awareness Test or SPAT measures syllabification, rhyme, individual sound identification, phoneme blending, individual sound manipulation and reading, and nonsense words spelling; and the Burt Word Reading Test assesses sight words recognition). The tests will be administered by trained researchers to students at a time nominated as convenient by you. Teachers’ professional evaluations of students’ reading performance will also be sought. A teacher rating scale will be given to class teachers, who will be asked to make summary ratings of their students’ reading performance in relation to sight words recognition, phonological awareness, reading fluency, comprehension; and overall academic achievement. Permission notes will be supplied to your
school to seek parental permission for students’ to participate in this project based on informed consent.

Students will be administered both the survey and reading achievement tests individually with a trained research assistant in a public location on school grounds nominated by the school for a period of up to one hour during the school day. The measurement will be conducted on 3 occasions for each group (prior to the intervention, at the end of the intervention, and three months after the intervention) on dates nominated by you.

The intervention will be administered individually by a reading buddy, who will have completed all relevant Child Protection Screening and participated in training sessions to use the package. Children will meet with their designated reading buddy for 15 x 45 minute sessions in a public location on school grounds nominated by the school. At the conclusion of the intervention a party will be held for participants to celebrate their achievements.

Schools’, students’, and teachers’ participation in this study is voluntary. There will be no adverse consequences for those who wish not to participate and/or those who withdraw participation after giving consent to be in the study. The information they provide in this study will not be identified to other people apart from the researchers in this study with the exception of an overall achievement score for each of the standardised tests being provided to the school for each individual child with parental permission to supply these to the school. Any results that are reported in research reports will be reported in group form, without identifying individuals or the school. The data will be kept in a locked file, accessible only to the researchers in this study although the data may be further analysed by other researchers.

This research is being conducted by Samantha Hornery (0412 601972, s.hornery@uws.edu.au) as her doctoral thesis and is supervised by Professor Rhonda Craven (02 97726557, r.craven@uws.edu.au) and Dr. Alex Yeung, (02 9772 6325; a.yeung@uws.edu.au) of the University of Western Sydney. Please contact the researchers if you have any questions relating to the study. The research has been approved by the UWS Human Research Ethics Committee.

Sincerely,
Samantha Hornery
PhD Candidate
Centre for Educational Research, University of Western Sydney

NOTE: This study has been approved by the University of Western Sydney Human Research Ethics Committee (Approval no. HREC 07/161). If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Research Ethics Officers (tel: 02 47 360 883). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
Dear ______________

Please consider the children in your class and for each of the eight areas listed (sight word recognition, phonological awareness, reading fluency, reading comprehension, overall reading ability, general academic ability, reading self-concept, and reading motivation) indicate with a number (1-5) corresponding to the rating scale below your impressions of the child’s abilities in these areas.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>Below Average</td>
<td>Average</td>
<td>Above Average</td>
<td>Excellent</td>
</tr>
</tbody>
</table>

Thank you for your time.

(Please Note: Presented in landscape format for teachers)
As part of a study being conducted at the University of Western Sydney, I have been asked to:

- Distribute information sheets and consent forms to teachers and parents pertaining to this study;
- Identify a public visible space and suitable timetable for assessments and sessions to occur within school grounds;
- Supply and attend an orientation morning tea at my school where children, their parents, teachers, and reading buddies will meet prior to the intervention’s commencement;
- Provision of a space for weekly reading buddy sessions to be conducted at my school in a public and visible location for 15 x 45 minute sessions per week during the two programs during the year; and
- Participate in a brief interview with you at the completion of the intervention, which I anticipate would last for 20 minutes.

My school’s participation in this study is voluntary, and there will be no adverse consequences if I wish not to participate and/or withdraw participation after giving consent to be in the study. The information I provide in this survey will be unidentifiable to all other people apart from the researchers in this study with the exception of children’s reading achievement results which will be given to the school for those children with parental permission. Any results that are reported will be reported in group form, without identifying individuals. The data will be kept in a locked file, accessible only to the researchers in this study but may be used by other researchers.

Additionally, if I have any questions or concerns about the project, I can contact: Samantha Hornery at 0412 601972; via email at s.hornery@uws.edu.au, or her supervisors Prof. Rhonda Craven at (02) 9772 6557; via e-mail at r.craven@uws.edu.au or Dr Alex Yeung at (02) 9772 6325; via e-mail at a.yeung@uws.edu.au.

I have read and understood the above and agree to participate in this study.

Principal’s Name _________________________ (please print)
Principal’s signature _________________________ Date______________

NOTE: This study has been approved by the University of Western Sydney Human Research Ethics Committee (Approval no. HREC 07/161. If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Research Ethics Officers (tel: 02 47 360 883). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
Appendix I

Information & Consent Form Teachers

Dear Teacher,

I wish to invite you to participate in a research project that investigates children’s reading skills. This research project has been funded by the Australian Research Council. Early literacy skills are the building blocks of academic success. In order to help students acquire these reading skills more effectively, this study aims to develop an innovative reading intervention to be administered by trained volunteers at your school to build skills in reaching achievement and reading self-concept. By end-2006, 1,100 children have been helped through Reading for Life (see website - www.readingforlife.net.au) in schools across Australia and New Zealand.

Reading for Life is a volunteer community reading program to help children experiencing difficulty reading in primary school. It is designed to support teachers and give one-to-one assistance to children who are struggling to read in a classroom environment and is available to schools in Australia and New Zealand. Volunteers from businesses or the community become reading buddies to selected children and visit them at their school to help enhance children's reading skills, self-esteem and motivation. Each volunteer works with a child one-to-one fifteen 45-minute sessions.

Reading for Life is more than simply reading with children. Its semi-structured content is modelled on best practice and developed by a team comprising a psychologist, teacher and speech pathologist. Volunteers are trained and supported by professionals. Reading for Life contains activities to engage and interest children. It also offers them encouragement to do their best and ‘have a go’ in a supportive environment. Children in the program range in age from seven to ten years. Each Reading for Life program includes schools, children and volunteers who meet certain selection criteria (attached).

In addition, a parent companion to the Reading for Life intervention will be available. The parent intervention will complement the Reading for Life volunteer intervention and seek to empower families to build literacy capabilities in their children.
Participation would involve:

- Identifying children from Grades 1-4 with reading difficulties, according to a suitability criteria;
- Distributing and collecting parental permission letters and rating participating students’ reading achievement and attitudes on 3 occasions (before, after, and 3 months following the intervention);
- Attendance at an orientation morning tea at your school where children, their parents, teachers and reading buddies will meet prior to the intervention’s commencement;
- Participation in a focus group at the completion of the intervention to identify your views of the impact of the intervention on your students’ reading skills and attitudes.

Your school will receive individual students’ results for reading achievement tests which measure sight words recognition, phonological awareness, reading fluency, and comprehension, which should provide rich information on individual student’s progress in key skills over three occasions. Your school will also receive a report of the aggregated findings for your school that should serve to inform school reading policy and practice. You are welcome to attend the training sessions with the volunteers for the Reading for Life intervention so that you are well informed of how the materials will be used. A full copy of the Reading for Life intervention will remain at your school.

Students will be administered both the survey and reading achievement tests individually with a trained research assistant in a public location on school grounds nominated by the school for a period of up to one hour (35-60 minutes) during the school day. The measurement will be conducted on 3 occasions for each group (prior to the intervention, at the end of the intervention, and three months after the intervention) on dates nominated by your school.

The intervention will be administered individually by a reading buddy, who will have completed all relevant Child Protection Screening and participated in training sessions to use the package. Children will meet with their designated reading buddy for 15 x 45 minute sessions in a public location on school grounds nominated by the school.

Schools’, students’, and teachers’ participation in this study is voluntary. There will be no adverse consequences for those who wish not to participate and/or those who withdraw participation after giving consent to be in the study. The information they provide in this study will not be identified to other people apart from the researchers in this study with the exception of an overall achievement score for each of the standardised tests being provided to the school for each individual child. Any results that are reported in research reports will be reported in group form, without identifying individuals or the school. The data will be kept in a locked file, accessible only to the researchers in this study although the data may be further analysed by other researchers.
This research is being conducted by Samantha Hornery (0412 601972, s.hornery@uws.edu.au) as her doctoral thesis and is supervised by Professor Rhonda Craven (02 97726557, r.craven@uws.edu.au) and Dr. Alex Yeung, (02 9772 6325; a.yeung@uws.edu.au) of the University of Western Sydney. Please contact the researchers if you have any questions relating to the study. The research has been approved by the UWS Human Research Ethics Committee.

Sincerely,

Samantha Hornery
PhD Candidate, Centre for Educational Research, University of Western Sydney

NOTE: This study has been approved by the University of Western Sydney Human Research Ethics Committee (Approval no. HREC 07/161). If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Research Ethics Officers (tel: 02 47 360 883). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
As part of a research study being conducted at the University of Western Sydney, I have been asked to complete a rating scale on participating students from my class that rates their reading performance and attitudes on up to 3 occasions.

My participation in this study is voluntary, and there will be no adverse consequences to me if I wish not to participate and/or withdraw participation after giving consent to be in the study. The information I provide in this survey will be unidentifiable to all other people apart from the researchers in this study. Any results that are reported will be reported in group form, without identifying individuals. The data will be kept in a locked file, accessible only to the researchers in this study but may be used by other researchers.

Additionally, if I have any questions or concerns about the project, I can contact: Samantha Hornery at 0412 601972; via email at s.hornery@uws.edu.au, or her supervisors Prof. Rhonda Craven at (02) 9772 6557; via e-mail at r.craven@uws.edu.au or Dr Alex Yeung at (02) 9772 6325; via e-mail at a.yeung@uws.edu.au. Alternatively, I can speak to the principal.

I have read and understood the above and agree to participate in this study.

Teacher's Name _________________________ (please print)

Teacher's signature _________________________ Date______________

NOTE: This study has been approved by the University of Western Sydney Human Research Ethics Committee (Approval no. HREC 07/161). If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Research Ethics Officers (tel: 02 47 360 883). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

Please return this form to the School Principal.
Dear Parent,

I am writing to invite your child to participate in a research project that aims to help children improve their reading skills. Your child would work with an adult community volunteer who has been trained to work with young children to improve their reading skills and self-concept using a program developed by Learning Links called Reading for Life (www.readingforlife.net.au). I will also provide you with some written strategies to help your child read at home in a Communication Book, which will come home each week during the project.

Participation would involve:

- Your written permission for your child to participate in the study (only students with parental permission will be able to participate in the study);
- Your child’s reading achievement being assessed on 3 occasions (before participating in sessions with volunteers, after they have participated in 15 sessions with volunteers, and three months after the conclusion of the program). This will be conducted within school time and on school premises in a public location by experienced research assistants over a period of 35-60 minutes. Please be aware that not all children who receive an initial assessment will be able to enrol in the program as only students identified as likely to benefit from the program will be enrolled; and
- Your child working with a Volunteer from the University of Western Sydney who will become a reading buddy for fifteen, forty-five minute sessions. Volunteers complete a training session on the program and relevant Child Protection Screening. Before the program begins, volunteers will visit the school for orientation and to meet their reading buddy. You will also be invited to attend this orientation session. At the conclusion of the reading sessions a party will be held with children, volunteers, parents, and teachers to celebrate your child’s achievement.

A summary of each child’s results will be provided to you from Learning Links in the form of a written document. With your permission, your child’s class teacher and school will also receive a report on the results of your child for reading achievement and a report of the aggregated findings for your school that should serve to inform school reading policy and practice. On the basis of these assessments some children will receive the intervention during the first half of the year and some children will receive the intervention in the second half of the year.
Each week, the volunteer will write a summary about the session in a “Communication Book”. Children will carry this book with them so you and your child’s teacher have knowledge about the content and progress of the sessions. Please make sure you read this book and that your child takes it to each Reading for Life session. Additional follow-up activities will also be included in the Communication Book for you and your child to enjoy.

Children, parents, and teachers will also be invited to either complete a survey or an interview at the end of the program so we can continue to improve the program.

The information students provide in this study will not be identified to other people apart from the researchers in this study with the exception of an overall achievement score for each of the standardised tests being provided to the school for each individual child. Any results that are reported in research reports will be reported in group form, without identifying individuals or the school. The data will be kept in a locked file, accessible only to the researchers in this study although the data may be further analysed by other researchers. Students’ participation in this study is voluntary, and there will be no adverse consequences to those who wish not to participate and/or those who withdraw participation after giving consent to be in the study. Any results that are reported will be reported in group form, without identifying individuals. The data will be kept in a locked file, accessible only to the researchers in this study.

If you have any questions or concerns about the project, feel free to contact a member of the research team: Samantha Hornery who is undertaking this research to produce a doctoral thesis at 0412 601972; via email at s.hornery@uws.edu.au, or her supervisors Prof. Rhonda Craven at (02) 9772 6557; via e-mail at r.craven@uws.edu.au and Dr Alex Yeung at (02) 9772 6325; via e-mail at a.yeung@uws.edu.au.

I hope you are interested in your child participating.

Sincerely,

Samantha Hornery
PhD Candidate
Centre for Educational Research, University of Western Sydney

**NOTE:** This study has been approved by the University of Western Sydney Human Research Ethics Committee (Approval no. HREC 07/161). If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Research Ethics Officers (tel: 02 47 360 883). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
Consent Form for Parents

Centre for Educational Research
University of Western Sydney
Bankstown campus
Locked bag 1797, Penrith South DC, NSW 1797, Australia

As part of a research study being conducted at the University of Western Sydney, my child has been asked to participate. I give permission for:

- My child to receive an assessment of their reading skills and reading attitudes at the beginning, end of, and 3 months after the program. This will be conducted by trained research assistant on school premises in a public location and will require 35-60 minutes of my child’s time, and arranged so as not to interfere with my child’s other school activities. I give permission for the University of Western Sydney to provide my child’s reading achievement scores to my child’s school and class teacher.
- My child to work with a volunteer on school premises in a public location for 15 x 45 minute sessions. I give permission for my child’s teacher to view the written comments made by the volunteer at the end of each session and to discuss my child's progress on the program with the volunteer.
- My child to be interviewed at the end of the program to gather their feedback. I give permission to provide feedback from these interviews to my child’s school and class teacher.

I am aware I will also be sent a report reporting on my child’s reading progress by Learning Links on 2 occasions. My child’s participation in this study is voluntary, and there will be no adverse consequences to my child if he/she wishes not to participate and/or withdraw participation after giving consent to be in the study. The information my child provides in this survey will be unidentifiable to all other people apart from the researchers in this study. Any results that are reported will be reported in group form, without identifying individuals. The data will be kept in a locked file, accessible only to the researchers in this study.

Additionally, if I have any questions or concerns about the project, I can contact: Samantha Hornery at 0412 601972; via email at s.hornery@uws.edu.au, or her supervisors Prof. Rhonda Craven at (02) 9772 6557; via e-mail at r.craven@uws.edu.au and Dr Alex Yeung at (02) 9772 6325; via e-mail at a.yeung@uws.edu.au. Alternatively, I can speak with my child’s teacher or the principal.

I have read and understood the above and agree (for my child) to participate in this study.

Student’s Name _________________________ (please print)

Student’s Parent and/or Legal Guardian ____________________________ (please print)

Parent/guardian’s signature _________________________ Date______________

NOTE: This study has been approved by the University of Western Sydney Human Research Ethics Committee (Approval no. HREC 07/161). If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Research Ethics Officers (tel: 02 47 360 883). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
Information & Consent Form:  
Reading Buddies (Corporate)

Centre for Educational Research  
University of Western Sydney  
Bankstown Campus  
Locked bag 1797, Penrith South DC, NSW 1797,  
Australia

Thursday, January 31, 2008

We wish to invite you to participate in a research project that investigates and seeks to help children in Year 1 to 4 who are experiencing difficulty reading develop their reading skills. This research project has been funded by the Australian Research Council.

Early literacy skills are the building blocks of academic success. In order to help students acquire these reading skills more effectively, this study aims to implement an innovative reading intervention to be administered by trained volunteers (employees) to build skills in reaching achievement and reading self-concept. This intervention is called Reading for Life (see website - www.readingforlife.net.au) and is conducted by Learning Links in association with the University of Western Sydney, Unilever Australasia, and other corporations.

Reading for Life sees a group of employees visiting a local school each week to assist children in Years 1 to 4 with their reading skills and confidence. Each volunteer works with a child one-to-one for fifteen forty-five minutes sessions. The program has been operating in Australia and New Zealand since 2003 with great results in terms of skill enhancement as well as volunteer enjoyment! By end-2006, 1,100 children have been helped through Reading for Life in schools across Australia and New Zealand. We are looking for volunteers who have an adequate level of literacy and communication skills and can make the time commitment to the program.

Reading for Life is more than simply reading with children. Its semi-structured content is modelled on best practice and developed by a team comprising psychologists, teachers, and speech pathologists. Volunteers are trained and supported by experienced professionals. Reading for Life contains activities to engage and interest children. It also offers them encouragement to do their best and have a go in a supportive environment. Their teachers and parents would like them to have the chance to benefit from the extra one-on-one help this program provides. Each Reading for Life program includes schools, children, and volunteers who meet certain selection criteria.
Participation would involve:

- Completion of a questionnaire expressing your interest to participate and signing a Declaration Form that will subject you to relevant child protection screening;
- Attend a two-hour training session to learn how to use the materials;
- Attend the school for a one-hour (approx.) orientation session to meet your reading buddy before starting;
- Attend the school to complete a 45 minute session each week over 15 weeks to meet individually with your reading buddy;
- Attend two one-hour feedback sessions during the 15 weeks;
- Attend a celebration party for the children at the end of the program;
- Complete an evaluation survey at the end of the program; and
- Participate in a focus group at the end of the program.

Your participation in this study is voluntary. There will be no adverse consequences for those who wish not to participate and/or those who withdraw participation after giving consent to be in the study. The information you provide in this study will not be identified to other people apart from the researchers in this study. Any results that are reported in research reports will be reported in group form, without identifying individuals or the school. The data will be kept in a locked file, accessible only to the researchers in this study although the data may be further analysed by other researchers.

This research is being conducted by Samantha Hornery (0412 601972, s.hornery@uws.edu.au) as her doctoral thesis, and is supervised by Professor Rhonda Craven (02 97726557, r.craven@uws.edu.au) and Dr. Alex Yeung, (02 9772 6325; a.yeung@uws.edu.au) of the University of Western Sydney. Please contact the researchers if you have any questions relating to the study.

Sincerely,

Samantha Hornery
PhD Candidate
Centre for Educational Research, University of Western Sydney

**NOTE:** This study has been approved by the University of Western Sydney Human Research Ethics Committee (Approval no. HREC 07/161). If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Research Ethics Officers (tel: 02 47 360 883). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
As part of a study being conducted at the University of Western Sydney, I have been asked to:

- Complete a questionnaire expressing my interest and sign a Declaration Form and complete any other forms required by legislation that will subject me to relevant child protection screening;
- Attend a two-hour training session to become familiar with the materials;
- Attend the school for a one-hour (approx.) orientation session before starting;
- Attend the school to complete a 45 minute session each week over 15 weeks to meet individually with my reading buddy in a public location on school premises;
- Attend two one-hour feedback sessions during the 15 weeks;
- Attend a celebration party for the children at the end of the program;
- Complete an evaluation survey at the end of the program; and
- Participate in a focus group at the end of the program.

My participation in this study is voluntary, and there will be no adverse consequences to me if I wish not to participate and/or withdraw participation after giving consent to be in the study. The information I provide in this survey will be unidentifiable to all other people apart from the researchers in this study. Any results that are reported will be reported in group form, without identifying individuals. The data will be kept in a locked file, accessible only to the researchers in this study but may be used by other researchers.

Additionally, if I have any questions or concerns about the project, I can contact: Samantha Hornery at 0412 601972; via email at s.hornery@uws.edu.au, or her supervisors Prof. Rhonda Craven at (02) 9772 6557; via e-mail at r.craven@uws.edu.au or Dr Alex Yeung at (02) 9772 6325; via e-mail at a.yeung@uws.edu.au. Alternatively I can speak with my employer.

I have read and understood the above and agree to participate in this study.

Volunteer's Name _________________________ (please print)
Volunteer's Signature _________________________ Date______________

NOTE: This study has been approved by the University of Western Sydney Human Research Ethics Committee (Approval no. HREC 07/161). If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Research Ethics Officers (tel: 02 47 360 883). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
Appendix M

Information & Consent Form: 
Reading Buddies (UWS)

Centre for Educational Research 
University of Western Sydney 
Bankstown Campus 
Locked bag 1797, Penrith South DC, NSW 1797, Australia

Thursday, January 31, 2008

We wish to invite you to participate in a research project that investigates and seeks to help children in Year 1 to 4 who are experiencing difficulty reading develop their reading skills. This research project has been funded by the Australian Research Council.

Early literacy skills are the building blocks of academic success. In order to help students acquire these reading skills more effectively, this study aims to implement an innovative reading intervention to be administered by trained volunteers (employees) to build skills in reaching achievement and reading self-concept. This intervention is called Reading for Life (see website - www.readingforlife.net.au) and is conducted by Learning Links in association with the University of Western Sydney, Unilever Australasia, and other corporations.

Reading for Life sees a group of employees visiting a local school each week to assist children in Years 1 to 4 with their reading skills and confidence. Each volunteer works with a child one-to-one for fifteen forty-five minutes sessions. The program has been operating in Australia and New Zealand since 2003 with great results in terms of skill enhancement as well as volunteer enjoyment! By end-2006, 1,100 children have been helped through Reading for Life in schools across Australia and New Zealand. We are looking for volunteers who have an adequate level of literacy and communication skills and can make the time commitment to the program.

Reading for Life is more than simply reading with children. Its semi-structured content is modelled on best practice and developed by a team comprising psychologists, teachers, and speech pathologists. Volunteers are trained and supported by experienced professionals. Reading for Life contains activities to engage and interest children. It also offers them encouragement to do their best and have a go in a supportive environment. Their teachers and parents would like them to have the chance to benefit from the extra one-on-one help this program provides. Each Reading for Life program includes schools, children, and volunteers who meet certain selection criteria.
Participation would involve:

- Completion of a questionnaire expressing your interest to participate and signing a Declaration Form that will subject you to relevant child protection screening;
- Attend a two-hour training session to learn how to use the materials;
- Attend the school for a one-hour (approx.) orientation session to meet your reading buddy before starting;
- Attend the school to complete a 45 minute session each week over 15 weeks to meet individually with your reading buddy;
- Attend two one-hour feedback sessions during the 15 weeks;
- Attend a celebration party for the children at the end of the program;
- Complete an evaluation survey at the end of the program; and
- Participate in a focus group at the end of the program.

Your participation in this study is voluntary. There will be no adverse consequences for those who wish not to participate and/or those who withdraw participation after giving consent to be in the study. The information you provide in this study will not be identified to other people apart from the researchers in this study. Any results that are reported in research reports will be reported in group form, without identifying individuals or the school. The data will be kept in a locked file, accessible only to the researchers in this study although the data may be further analysed by other researchers.

This research is being conducted by Samantha Hornery (0412 601972, s.hornery@uws.edu.au) as her doctoral thesis, and is supervised by Professor Rhonda Craven (02 97726557, r.craven@uws.edu.au) and Dr. Alex Yeung, (02 9772 6325; a.yeung@uws.edu.au) of the University of Western Sydney. Please contact the researchers if you have any questions relating to the study.

Sincerely,

Samantha Hornery
PhD Candidate
Centre for Educational Research, University of Western Sydney

NOTE: This study has been approved by the University of Western Sydney Human Research Ethics Committee (Approval no. HREC 07/161). If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Research Ethics Officers (tel: 02 47 360 883). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
Consent Form Volunteers - UWS

Centre for Educational Research
University of Western Sydney
Bankstown campus
Locked bag 1797, Penrith South DC, NSW 1797, Australia

As part of a study being conducted at the University of Western Sydney, I have been asked to:

- Complete a questionnaire expressing my interest and sign a Declaration Form and complete any other forms required by legislation that will subject me to relevant child protection screening;
- Attend a two-hour training session to become familiar with the materials;
- Attend the school for a one-hour (approx.) orientation session before starting;
- Attend the school to complete a 45 minute session each week over 15 weeks to meet individually with my reading buddy in a public location on school premises;
- Attend two one-hour feedback sessions during the 15 weeks;
- Attend a celebration party for the children at the end of the program;
- Complete an evaluation survey at the end of the program; and
- Participate in a focus group at the end of the program.

My participation in this study is voluntary, and there will be no adverse consequences to me if I wish not to participate and/or withdraw participation after giving consent to be in the study. The information I provide in this survey will be unidentifiable to all other people apart from the researchers in this study. Any results that are reported will be reported in group form, without identifying individuals. The data will be kept in a locked file, accessible only to the researchers in this study but may be used by other researchers.

Additionally, if I have any questions or concerns about the project, I can contact: Samantha Hornery at 0412 601972; via email at s.hornery@uws.edu.au, or her supervisors Prof. Rhonda Craven at (02) 9772 6557; via e-mail at r.craven@uws.edu.au or Dr Alex Yeung at (02) 9772 6325; via e-mail at a.yeung@uws.edu.au. Alternatively I can speak with my employer.

________________________________________________________________________

I have read and understood the above and agree to participate in this study.

Volunteer’s Name _________________________ (please print)
Volunteer’s Signature _________________________ Date______________

NOTE: This study has been approved by the University of Western Sydney Human Research Ethics Committee (Approval no. HREC 07/161). If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Research Ethics Officers (tel: 02 47 360 883). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
We wish to invite you to participate in a research project that investigates and seeks to help children in Year 1 to 4 who are experiencing difficulty reading develop their reading skills. This research project has been funded by the Australian Research Council.

Early literacy skills are the building blocks of academic success. In order to help students acquire these reading skills more effectively, this study aims to implement an innovative reading intervention to be administered by trained volunteers (employees) to build skills in reaching achievement and reading self-concept. This intervention is called Reading for Life (see website - www.readingforlife.net.au) and is conducted by Learning Links in association with the University of Western Sydney, Unilever Australasia, and other corporations.

Reading for Life sees a group of volunteers visiting a local school each week to assist children in Years 1 to 4 with their reading skills and confidence. Each volunteer works with a child one-to-one for fifteen forty-five minutes sessions. The program has been operating in Australia and New Zealand since 2003 with great results in terms of skill enhancement as well as volunteer enjoyment! By end-2006, 1,100 children had been helped through Reading for Life in schools across Australia and New Zealand.

Child participants in the Reading for Life program are assessed on a range of reading achievement and psychosocial measures at the beginning, at the completion and a term after their involvement in the program. We are looking for research assistants who have experience working with children to participate in the administration of the testing instruments for this study.

Participation would involve:
- Completion of a Criminal Check Certification and the Prohibited Employment Declaration;
- Attendance at a two-hour training session to learn how to administer the instruments; and
- Administration of testing instruments to children in primary schools (up to one hour per child).

Your participation in this study is voluntary. You will be asked to nominate days you are available during the testing periods and schools you can travel to. There will be no adverse consequences for those who wish not to participate and/or those who withdraw participation after giving consent to be in the study. The information you provide in this study will not be identified to other people apart from the researchers in this study. The data will be kept in a locked file, accessible only to the researchers in this study although the data may be further analysed by other researchers.

Research assistants from the University of Western Sydney will be paid on an hourly basis to administer instrumentation. Learning Links will pay research assistants from Learning Links as per their employment contracts with Learning Links.
This research is being conducted by Samantha Hornery (0412 601972, s.hornery@uws.edu.au) as her doctoral thesis, and is supervised by Professor Rhonda Craven (97726557, r.craven@uws.edu.au) and Dr. Alex Yeung, 9772 6325; a.yeung@uws.edu.au of the University of Western Sydney. Please contact the researchers if you have any questions relating to the study. The research has been approved by the UWS Human Research Ethics Committee and the departments governing all schools the research will be conducted in.

Sincerely,

Samantha Hornery
PhD Candidate
Centre for Educational Research, University of Western Sydney

**NOTE:** This study has been approved by the University of Western Sydney Human Research Ethics Committee (Approval no. HREC 07/161). If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Research Ethics Officers (tel: 47 360 883). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
Consent Form Research Assistants

Centre for Educational Research
University of Western Sydney
Bankstown campus
Locked bag 1797, Penrith South DC, NSW 1797, Australia

As part of a study being conducted at the University of Western Sydney, I have been asked to:

- Completion of a Criminal Check Certification and the Prohibited Employment Declaration for working in NSW Schools;
- Attendance at a two-hour training session to learn how to administer the instruments; and
- Administration of testing instruments to children in primary schools (up to one hour per child).

My participation in this study is voluntary, and there will be no adverse consequences to me if I wish not to participate and/or withdraw participation after giving consent to be in the study. I will be asked to nominate days I am available during the testing periods and schools I can travel to. I understand that I will be paid for this research assistant work as per my employment contract with either the University of Western Sydney or Learning Links. The information I provide in this survey will be unidentifiable to all other people apart from the researchers in this study. The data will be kept in a locked file, accessible only to the researchers in this study but may be used by other researchers.

Additionally, if I have any questions or concerns about the project, I can contact: Samantha Hornery at 0412 601972; via email at s.hornery@uws.edu.au, or her supervisors Prof. Rhonda Craven at (02) 9772 6557; via e-mail at r.craven@uws.edu.au or Dr Alex Yeung at (02) 9772 6325; via e-mail at a.yeung@uws.edu.au.

I have read and understood the above and agree to participate in this study as a research assistant.

Research Assistant’s Name _________________________ (please print)
Research Assistant’s Signature _________________________ Date ____________

NOTE: This study has been approved by the University of Western Sydney Human Research Ethics Committee (Approval no. HREC 07/161). If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Research Ethics Officers (tel: 47 360 883). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
## TEST ADMINISTRATION COVER SHEET

1. **ID**  
   (University Use Only)

2. **Date of Administration**
   
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<td>☐ Time 5</td>
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</tbody>
</table>

3. **School**

4. **Surname**  
   *(check spelling on class list)*

   CAPITAL LETTERS & CLEAR PRINT

5. **First Name**  
   *(check spelling on class list)*

   CAPITAL LETTERS & CLEAR PRINT

6. **Date of Birth**  
   *(from class list)*

   DD/MM/YYYY  

    |   |   |
   |---|---|
   | ___ | ___ | ___ | ___ | ___ | ___ |

7. **How old are you now?**

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<td>years</td>
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8. **What year are you in at school?**

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<tbody>
<tr>
<td>1</td>
<td>☐ Year 1</td>
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<td>2</td>
<td>☐ Year 2</td>
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<td>☐ Year 3</td>
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<td>4</td>
<td>☐ Year 4</td>
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9. **Are you a:**

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<tbody>
<tr>
<td>1</td>
<td>☐ Boy</td>
</tr>
<tr>
<td>2</td>
<td>☐ Girl</td>
</tr>
</tbody>
</table>
INSTRUCTIONS TO ADMINISTRATORS FOR ALL TESTS

- Children should not be hurried into providing a response on any of these tests.

- Test Administrators should record children’s responses using a clipboard, away from the child’s line of sight.

- Children can hold stimulus materials themselves, for their own vision and comfort.

- At the completion of the administration with the child, return the child to their classroom then spend 5 minutes checking the test administration booklet, initialing the box at the bottom of each page to reflect each page has been filled in correctly.

- If you are unsure how to score an item, please check with the project manager before handing the completed test booklet in.

- It is imperative that these standardised procedures are followed for every child in the research study.

THE BURT WORD READING TEST
SUTHERLAND PHONOLOGICAL AWARENESS TEST – REVISED
NEALE ANALYSIS OF READING ABILITY
Dear Administrators,

Before you hand this booklet to the project manager and work with the next student please ensure that:
1. You have scored SPAT Spelling test.
2. Each item has been scored \( \rightarrow \) where tests have been discontinued return to the test and circle \( \odot \) for all remaining items.
3. You have initialed the bottom of each page.

Thank you

ONLY COMPLETE THIS FINAL SECTION FOR TIME 1 ADMINISTRATION (IE; THE FIRST TIME WE ARE IN A SCHOOL)

<table>
<thead>
<tr>
<th>QUALITATIVE ANALYSIS</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the student exhibit behavioural difficulties which may limit the effectiveness</td>
<td>1 ( \square )</td>
<td>2 ( \square )</td>
</tr>
<tr>
<td>of the session with a volunteer?</td>
<td></td>
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</tr>
<tr>
<td>Does the student understand basic instructions and interact with peers and adults?</td>
<td>1 ( \square )</td>
<td>2 ( \square )</td>
</tr>
<tr>
<td>Does the student appear interested and compliant working with an adult?</td>
<td>1 ( \square )</td>
<td>2 ( \square )</td>
</tr>
<tr>
<td>Do you have any concerns about this student’s inclusion in the Reading for Life program? Please explain.</td>
<td>1 ( \square )</td>
<td>2 ( \square )</td>
</tr>
</tbody>
</table>
# School Fidelity Ratings

**Name of Observer:**

**Observer Affiliated with:**  
☐ Learning Links  ☐ UWS

**Name of School:**

**Name of Reading Buddy Observed:**

**Date:**

Please circle the rating which best describes your observations of the environment Reading for Life is operating within at this school. If you are not able to make a judgment, please leave the item blank and write “NA” next to the item.

<table>
<thead>
<tr>
<th></th>
<th>Definitely False</th>
<th>False</th>
<th>Mostly False</th>
<th>More False than True</th>
<th>More True than False</th>
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<th>True</th>
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<tr>
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<td>4</td>
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<td>6</td>
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<td>8</td>
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<tr>
<td>Teacher Support</td>
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<td>2</td>
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<td>School Champion</td>
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<td>Support</td>
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</table>

| **Reading Buddies**  |                  |       |              |                      |                      |            |      |                 |
| Following script of  | 1                | 2     | 3            | 4                    | 5                    | 6          | 7    | 8               |
| intervention         |                  |       |              |                      |                      |            |      |                 |
| Rapport with students| 1                | 2     | 3            | 4                    | 5                    | 6          | 7    | 8               |
| Overall intervention |                  |       |              |                      |                      |            |      |                 |
| implementation       | 1                | 2     | 3            | 4                    | 5                    | 6          | 7    | 8               |
### Study 1: Does R4L Work?

#### Means and Standard Deviations for Whole Sample Before Standardisation

<table>
<thead>
<tr>
<th></th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
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<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>TSpat</td>
<td>Exp</td>
<td>31.36</td>
<td>12.47</td>
</tr>
<tr>
<td></td>
<td>Con</td>
<td>30.64</td>
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<tr>
<td>TBurt</td>
<td>Exp</td>
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<td></td>
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<tr>
<td>TAcc</td>
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<td></td>
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<td>Exp</td>
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<tr>
<td></td>
<td>Con</td>
<td>7.75</td>
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</table>

Note: TSpat = total Spat-R score (phonological awareness); TBurt = total Burt score (sight word recognition); TAcc = total Neale DR score for reading accuracy; ZComp = total Neale DR score for comprehension. * No longitudinal data available for control group.

#### Means and Standard Deviations for Whole Sample After Standardisation

<table>
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<tr>
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<tr>
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<td>SD</td>
<td>Mean</td>
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<tr>
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<td>Con</td>
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<td>.96422</td>
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</tbody>
</table>

Note: ZBurt = total Burt score (sight word recognition), standardised in relation to control group at T1 and T2; ZSpat = total Spat-R score (phonological awareness), standardised; ZAcc = total Neale DR score for reading accuracy, standardised; ZComp = total Neale DR score for comprehension, standardised. * No longitudinal data available for control group.
Study 1: Replicability Analyses

Means and Standard Deviations for Whole Sample Before Standardisation

<table>
<thead>
<tr>
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<td>Mean</td>
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<tr>
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<td>10.47</td>
<td>5.19</td>
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Study 1: Replicability Analyses

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<td>ZBurt</td>
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INTERVIEW SCHEDULE – PHASE I

READING FOR LIFE
POST-PROGRAM EVALUATION –
FOCUS GROUP WITH CHILDREN

Preparation
◆ Provide name tags for participants
◆ Room layout in a circle formation (no desks)

Instructions for Administrators
◆ Thank you for attending “Thank you for participating in this evaluation of Reading for Life”
◆ Introduce researchers “My name is _____ and I will be talking with you today.”
◆ Introduce the participants (5 participants in each focus group) “Before we begin, can I ask you each to tell me your first name”. Prepare name tags for each of the children as they say their name.
◆ Confirm that the interview will be recorded, but not shown to anyone outside of the research team. Remind participants that although they will be using their names today during the discussions, their names will not appear in the actual transcript as participants will select a name to represent them at the end of the session “Today’s discussion will be recorded on this digital recorder, but will not be shown to anyone outside the research team at the university. Although you are using your first names in the discussion today, your real names will not appear in our transcripts or any analysis. You can pick your own pseudo-name at the end of the discussion.”
◆ Explain the purpose of the focus group (to produce participants with opportunities to discuss in more detail their experiences in the Reading for Life program) “Today you will have a chance to tell me about your time with your Reading Buddy. Some of these questions will sound similar to the ones you were asked when you were last tested. That’s OK, don’t worry about repeating yourself, just tell us what you think.”
◆ Emphasise that there is no right or wrong answer, nothing that the researchers don’t want to be said, it will be an honest discussion “There are no right or wrong answers here, please speak freely and honestly. We are interested in your true opinions. You will not offend anyone by sharing your opinions and thoughts.”
◆ Emphasise that we are looking for diverse opinions, it is ok for people to disagree and have different opinions “It is OK to disagree with each other and to have different opinions stemming from your different experiences.”
◆ Remind participants that as this focus group is being taped it is important for participants to listen while others are speaking and refrain from interrupting, so that we can gain meaning from each participant “Because we are taping the discussion today, please let each other speak one at a time. For each question 1 or two participants will have an opportunity to share their thoughts.” (When asking questions, start with the name of the participant you are asking, ask the question and allow them to speak, depending on the length of the answer, ask another participant to share their thoughts on this question).

Schedule
The schedule outlined here is indicative of the areas to be explored during the focus group. As far as possible, the focus group should be driven by the participants, with the researchers producing general questions to encourage discussion. The main questions are listed in plain type, under each relevant research question. There are italicised probes to elicit a more detailed response.
Research Question 2.1.1: Impact of the intervention on children’s achievement.
In this section I am interested in identifying whether the participants have noticed any changes in the children’s reading achievement.

Do you think you are a good reader?
  How good?
  How do you know this?
  Why do you think you are good?

When you come to a tricky word what do you do?
  Have you learnt new ways to read tricky words with your buddy?
  What did you used to do?

Research Question 2.1.2: Impact of possible threats to the control condition.
In this section I am interested to see what has been occurring for children in the control condition.

Do you have any other reading help out of school? Tell me about this.

Tell me about the help you get at school for reading.

Research Question 2.2.1: Impact of the intervention on children’s reading self-concept.
In this section I am interested in identifying whether the participants have noticed any changes in the children’s reading achievement, self-concept (how they feel about reading), and motivation (why they chose to read).

Describe your Reading Buddy to me (like a friend, fun, helpful).
  Were they friendly, fun?
  Did they help you?
  Were they a nice person to spend time with?

How do you feel about reading?
  Do you enjoy it?
  Is it something you would do in your spare time?
  Has this changed after your time with your reading buddy?

Did you like spending 1-1 time with your Reading Buddy?
  What was your favourite part of working with them?
  Do you do this any other time at school?
Research Question 2.2.2: Impact of the intervention on children’s reading behaviours at home.
In this section I am interested to see whether the parents could ascertain any parental involvement.

How often do you read at home?
  Who did you read with?
  Has this changed during the program?
  Will you keep reading at home?

During the program did you play card games and read with your family?
  Which games?
  Who did you play with?
  Did you enjoy playing with your family?

Research Question 2.3.1: Strengths and limitations of the intervention.
It is important for us to gain some evaluative feedback from the teachers about the actual intervention.

What is the best thing in this program?

What was your favourite activity?

Are there any activities you would like to change?

What would you say to your friends who are going to do Reading for Life next term?

Final Comments

Is there anything else you would like to add?

Conclusion

“Thank you very much for your time today. We are very grateful for your input which will help us understand the effect of Reading for Life and make improvements for the future. The last thing we’d like you to do, is take off your name tag, and write on the back of it, the name you’d like to be called in the transcripts. If you don’t care, just leave it blank.”
PREPARATION

- Digital Recorder
- Make call on phone with loud speaker

INSTRUCTIONS FOR ADMINISTRATORS

- Thank you for attending “Thank you for participating in this evaluation of Reading for Life.”
- Introduce researchers “My name is ______.”
- Confirm that the interview will be recorded, but not shown to anyone outside of the research team. Remind participants that although they will be using their names today during the discussions, their names will not appear in the actual transcript as participants will select a name to represent them at the end of the session “Today’s interview will be recorded, but will not be shown to anyone outside the research team at UWS. Although you will use your first name in the discussion today, your real name will not appear in our transcripts or any analysis.”
- Explain the purpose of the focus group (to produce participants with opportunities to discuss in more detail their experiences in the Reading for Life program) “The purpose of the discussion today is to provide you with an opportunity to share your experiences in the Reading for Life program and to help the researchers understand the impact of the program on all involved.”
- Emphasise that there is no right or wrong answer, nothing that the researchers don’t want to be said, it will be an honest discussion “There are no right or wrong answers here, please speak freely and honestly. I am interested in your true opinions. You will not offend anyone by sharing your opinions and thoughts.”
- Confirm the start and end time of the session (10-15 minutes maximum) “The discussion will last for around 10-15 minutes, finishing at ____”

SCHEDULE

The schedule outlined here is indicative of the areas to be explored during the interview. The main questions are listed in plain type, under each relevant research question. There are italicised probes to elicit a more detailed response.

Research Question 2.1.1: Impact of the intervention on children’s achievement.

In this section I am interested in identifying whether the participants have noticed any changes in the children’s reading achievement.

What improvements have you noticed in your child’s reading?

- Is your child a better reader now?
- How do you know this?
- Do they approach tricky words differently now?
**Research Question 2.2.1: Impact of the intervention on children’s reading self-concept.**

In this section I am interested in identifying whether the participants have noticed any changes in the children’s reading achievement, self-concept (how they feel about reading), and motivation (why they chose to read).

Have you noticed any changes in your child’s behaviour?
   *Do you think that the individual attention made a difference to your child?*

Describe the relationship your child had with their buddy?
   *What did your child say about their reading buddy?*

Have you noticed any differences in your child’s attitudes towards reading?
   *What was their attitude towards reading in the beginning?*
   *How has this changed?*

**Research Question 2.1.2: Impact of possible threats to the control condition.**

In this section I am interested to see what has been occurring for children in the control condition.

What kinds of support does your child receive at school so far this year?
   *Are they participating in learning support?*
   *How frequent has this been?*
   *Has it been any different to your experience in previous years?*

Do you access other support for reading outside of school?
   *Are there tutors involved?*

**Research Question 2.2.2: Impact of the intervention on children’s reading behaviours at home.**

In this section I am interested to see whether the parents could ascertain any parental involvement.

How often do you read at home with your child?
   *Has this changed during the program?*
   *Will you keep reading at home?*

During the program did you play card games are read with your child?
   *Which games?*
   *Who played these games?*
   *Did you enjoy playing with your child?*

How often would you like to read with your child now this program is finished?
Research Question 2.3.1: Strengths and limitations of the intervention.
It is important for us to gain some evaluative feedback from the teachers about the actual intervention.

What aspects of the program did your child find most valuable or enjoyable?  
   Did they talk about any particular aspect?

Would you recommend this program to other families? What would you say to them?

Each week children were to take home their “Communication Book” to show their parents the work they had done. Did you receive this regularly?  
   If so, was it helpful?

Can you suggest any improvements to the program?

Final Comments

Is there anything else you would like to add?

Conclusion

“Thank you very much for your time today. We are very grateful for your input which will help us understand the effect of Reading for Life and make improvements for the future.”
READING FOR LIFE
POST-PROGRAM EVALUATION –
INTERVIEW WITH PRINCIPAL

♦ Digital Recorder
♦ Make call on phone with loud speaker

Instructions for Administrators
♦ Thank you for attending “Thank you for participating in this evaluation of Reading for Life.”
♦ Introduce researchers “My name is _____.”
♦ Confirm that the interview will be recorded, but not shown to anyone outside of the research team. Remind participants that although they will be using their names today during the discussions, their names will not appear in the actual transcript as participants will select a name to represent them at the end of the session “Today’s interview will be recorded, but will not be shown to anyone outside the research team at UWS. Although you will use your first name in the discussion today, your real name will not appear in our transcripts or any analysis. You can pick your own pseudo-name at the end of the discussion.”
♦ Explain the purpose of the focus group (to produce participants with opportunities to discuss in more detail their experiences in the Reading for Life program) “The purpose of the discussion today is to provide you with an opportunity to share your experiences in the Reading for Life program and to help the researchers understand the impact of the program on all involved.”
♦ Emphasise that there is no right or wrong answer, nothing that the researchers don’t want to be said, it will be an honest discussion “There are no right or wrong answers here, please speak freely and honestly. I am interested in your true opinions. You will not offend anyone by sharing your opinions and thoughts.”
♦ Confirm the start and end time of the session (20 minutes maximum) “The discussion will last for around 20 minutes, finishing at ____”

Research Question 2.1.1: Impact of the intervention on children’s achievement.
In this section I am interested in identifying whether the participants have noticed any changes in the children’s reading achievement.

Research Question 2.2.1: Impact of the intervention on children’s reading self-concept.
In this section I am interested in identifying whether the participants have noticed any changes in the children’s reading achievement, self-concept (how they feel about reading), and motivation (why they chose to read).

What improvements have you noticed in reading in the children involved in this program?

Have teachers or parents commented on any improvements?

Have you noticed any differences in children’s attitudes towards reading?

Have teachers or parents commented on any improvements?
Have you noticed any changes in the children’s behaviour or received feedback about this?

Were they more settled or less settled as the program continued?
How did their behaviour change during the program?
Do you think that the individual attention made a difference to the children?
Describe the relationship the children had with their buddies?

How did the children relate to their buddy?
What did the children say about their buddies?

Research Question 2.2.2: Impact of the intervention on children’s reading behaviours at home.
In this section I am interested to see whether the parents could ascertain any parental involvement.
Have you noticed any changes in parent’s involvement in their child’s reading?

What type of feedback did you receive from the parents?

Research Question 2.3.1: Strengths and limitations of the intervention.
It is important for us to gain some evaluative feedback from the teachers about the actual intervention.

What aspects of the program did the children find most valuable or enjoyable?

Did they talk about any particular aspect?

Would you recommend this program to other families? What would you say to them?

Can you suggest any improvements to the program?

Are you happy your school was involved in this program?

Does your school offer other additional programs to children with reading difficulties?
Would you like this program to continue in the school?

Final Comments

Is there anything else you would like to add?

Conclusion

“Thank you very much for your time today. We are very grateful for your input which will help us understand the effect of Reading for Life and make improvements for the future. The last thing we’d like you to do, is to select the name you’d like to be called in the transcripts.”
READING FOR LIFE
POST-PROGRAM EVALUATION –
FOCUS GROUP WITH TEACHERS

Preparation
◆ Provide name tags for participants

Instructions for Administrators
◆ Thank you for attending "Thank you for participating in this evaluation of Reading for Life"
◆ Introduce researchers “My name is _____ and I will be facilitating your discussion today.”
◆ Introduce the participants (5 participants in each focus group) “Before we begin, can I ask you each to introduce yourself by first name”
◆ Confirm that the interview will be recorded, but not shown to anyone outside of the research team. Remind participants that although they will be using their names today during the discussions, their names will not appear in the actual transcript as participants will select a name to represent them at the end of the session “Today’s discussion will be recorded on this digital recorder, but will not be shown to anyone outside the research team at UWS. Although you are using your first names in the discussion today, your real names will not appear in our transcripts or any analysis.”
◆ Explain the purpose of the focus group (to produce participants with opportunities to discuss in more detail their experiences in the Reading for Life program) “The purpose of the discussion today is to provide you with an opportunity to share your experiences in the Reading for Life program and to help the researchers understand the impact of the program on all involved.”
◆ Emphasise that there is no right or wrong answer, nothing that the researchers don’t want to be said, it will be an honest discussion “There are no right or wrong answers here, please speak freely and honestly. We are interested in your true opinions.”
◆ Emphasise that we are looking for diverse opinions, it is ok for people to disagree and have different opinions “It is OK to disagree with each other and to have different opinions stemming from your different experiences.”
◆ Remind participants that as this focus group is being taped it is important for participants to listen while others are speaking and refrain from interrupting, so that we can gain meaning from each participant “Because we are taping the discussion today, please let each other speak one at a time. For each question 1 or two participants will have an opportunity to share their thoughts.” (When asking questions, start with the name of the participant you are asking, ask the question and allow them to speak, depending on the length of the answer, ask another participant to share their thoughts on this question).
◆ Confirm the start and end time of the session (20 minutes maximum) “The discussion will last for 20 minutes.”

Schedule
The schedule outlined here is indicative of the areas to be explored during the focus group. As far as possible, the focus group should be driven by the participants, with the researchers producing general questions to encourage discussion. The main questions are listed in plain type, under each relevant research question. There are italicised probes to elicit a more detailed response.

Research Question 2.1.1: Impact of the intervention on children’s achievement.
In this section I am interested in identifying whether the participants have noticed any changes in the children’s reading achievement.
What improvements have you noticed in reading in the children involved in this program?

Are the children better readers now?
How do you know this?
Do they approach tricky words differently now?

Research Question 2.1.2: Impact of possible threats to the control condition.

In this section I am interested to see what has been occurring for children in the control condition.

There will be some children in your classes who will participate in R4L next term. What kinds of support have they received at school so far this year?

Are they participating in learning support?
How frequent has this been?
Has it been any different to your experience in previous years?

Are you aware of these children receiving other support for reading outside of school?

Are there tutors involved?

Research Question 2.2.1: Impact of the intervention on children’s reading self-concept.

In this section I am interested in identifying whether the participants have noticed any changes in the children’s reading achievement, self-concept (how they feel about reading), and motivation (why they chose to read).

Have you noticed any differences in children’s attitudes towards reading?

What was their attitude towards reading in the beginning?
How has this changed?

Have you noticed any changes in the children’s behaviour?

Were they more settled or less settled as the program continued?
How did their behaviour change during the program?

Describe the relationship the children had with their buddies?

How did the children relate to their buddy?
What did the children say about their buddies?

Research Question 2.2.2: Impact of the intervention on children’s reading behaviours at home.

In this section I am interested to see whether the parents could ascertain any parental involvement.

Have you noticed any changes in parent’s involvement in their child's reading? Please explain.

What type of feedback did you receive from the parents?
Were children and their families completing card games and reading practice at home during the intervention?
Is this any different to before the program?

Research Question 2.3.1: Strengths and limitations of the intervention.

It is important for us to gain some evaluative feedback from the teachers about the actual intervention.

What aspects of the program did the child in your class find most valuable or enjoyable?

Did they talk about any particular aspect?

Would you recommend this program to other families? What would you say to them?
Each week children were to take home their “Communication Book” to show their parents the work they had done. Did you have an opportunity to see this book? If so, was it helpful?

Can you suggest any improvements to the program?

Final Comments

Is there anything else you would like to add?

Conclusion

“Thank you very much for your time today. We are very grateful for your input which will help us understand the effect of Reading for Life and make improvements for the future. The last thing we’d like you to do, is take off your name tag, and write on the back of it, the name you’d like to be called in the transcripts. If you don’t care, just leave it blank. You’re more than welcome to help yourselves to lollies as you leave.”
INTERVIEW SCHEDULE – PHASE II

READING FOR LIFE
POST-PROGRAM FOCUS GROUP WITH CHILDREN

° My name is _____ and I will be talking with you today.
° “I’d like to record what you say so I don’t miss any of it. This will not be shown to anyone outside the research team at the university. We will use your names in the discussion today, but I will change your names when reporting on what we spoke about. No-one outside the university will hear these tapes.”
° “Today you will have a chance to tell me about your time with your Reading Buddy. There are no right or wrong answers here”
° “Because we are taping the discussion today, please let each other speak one at a time. For each question 1 or 2 people will have an opportunity to share their thoughts.”

“This is the Reading for Life pack you used with your buddy over the last two terms.”

(2.3.1) Describe your favourite activity?

(2.3.1) Are there any activities you would like to change?

(2.3.1) Why is Reading for Life a good program for children?

(2.3.1) What is the best part of this program?

(2.3.1) If I had been in the session with you and your buddy, what would I have seen you doing?

(2.1.1) Tell me what you learnt about reading in Reading for Life?

(2.3.1) What advice would you give to a friend who was going to do Reading for Life next year?

(2.2.1) Who was your reading buddy?

(2.2.1) How did you feel when (reading buddy’s name) came to get you each week from your classroom?

(2.2.1) What made your Reading Buddy special?

(2.2.1) We’re going to draw a picture of your Reading Buddy.

(2.2.1) Describe how you feel when you are asked to read something at school or at home.

(2.2.1) Do you feel any differently after working with your reading buddy? How? Why?

(2.2.1) Why do you read? Is it something you choose to do on your own, or only when you have to? Is this different now?

(2.2.2) Tell me about the kinds of reading you do at home. How often do you read? Who do you read with?
(2.2.2) Did the Reading for Life program change the way you read at home? How?

(2.1.2) Do you have any other reading help out of school? Tell me about this.

(2.1.2) Tell me about the help you get at school for reading?

(2.1.2) How was the Reading for Life program different to the help you get at school?

(2.3.1) What would you say to other schools about having Reading for Life for their students?

That covers the things I wanted to ask. Anything you care to add?

“Thank you very much for your time today.”
“Thank you for participating in this evaluation of Reading for Life.”

“I’d like to record what you say so I don’t miss any of it. This will not be shown to anyone outside the research team at UWS. Although you will use your first name in the discussion today, your real name will not appear in our transcripts or any analysis.”

“The purpose of the discussion today is to provide you with an opportunity to share your experiences in the Reading for Life program and to help the researchers understand the impact of the program on all involved. We are interested in understanding how Reading for Life affects the buddies and their workplace”

“The discussion will last for around 25 minutes”

(2.1.1) Can you tell me a little about [your child’s] reading and why they needed the Reading for Life program?

(2.1.1) How have those difficulties with reading affected [your child]? At school? At home? Behaviour? Self-concept?

(2.1.2) What has been your experience in gaining help for your child’s reading? At school? Outside of school?

(2.1.2) How did you feel when the school offered you the opportunity to participate in Reading for Life?

(2.3.1) Please describe your understanding of the Reading for Life program, its selection process, home requirements, and overall organization. Did you receive adequate information? Did you know what was required of you and what was involved? How could this have been improved?

(2.2.1) How did your child respond to the Reading for Life program? Did they speak about what they were doing?

(2.1.1) What kinds of differences, if any, have you noticed in your child during Reading for Life?

(2.2.2) Were you able to read with your child at home or play any of the card games? What were your impressions of these activities? Will you continue these now the program is over?

(2.2.2) Did you have the opportunity to see and contribute to the Communication Book that accompanies the Reading for Life program? How often? What did you learn from the book?

(2.2.1) How did your child speak about their reading buddy? What were their impressions of them? Have they spoken about other adults in this way?

(2.1.1) What, if anything, has your child learnt about reading from Reading for Life?

(2.3.1) Would advice would you give to other parents whose children were invited to participate in Reading for Life?

(2.2.2) What will happen for your child with reading from here?

(2.3.1) Can you suggest any improvements to the program?

That covers the things I wanted to ask. Anything you care to add?
"Thank you very much for your time today. We are very grateful for your input which will help us understand the effect of Reading for Life and make improvements for the future."

Would you elaborate on that?
Could you say some more about that?
That's helpful. I'd appreciate a bit more detail.
I'm beginning to get the picture.
I want to make sure I understand what you're saying. I think it would help me if you could say some more about that.

Let me ask you to stop for a moment because some of what you're talking about now I want to get to later in the interview. First I need to find out from you …
READING FOR LIFE
POST-PROGRAM FOCUS GROUP WITH READING BUDDIES

Preparation
◆ Provide name tags for participants
◆ Digital Recorder

Instructions for Administrators
◆ Thank you for attending “Thank you for participating in this evaluation of “Reading for Life””
◆ Introduce researchers “My name is _____ and I will be facilitating your discussion today.”
◆ Confirm that the interview will be recorded, but not shown to anyone outside of the research team. Remind participants that although they will be using their names today during the discussions, their names will not appear in the actual transcript as participants will select a name to represent them at the end of the session “Today’s discussion will be recorded on this digital recorder, but will not be shown to anyone outside the research team at UWS. Could you please your names on these tags and wear them as I will need to identify you by name before asking the questions for the transcription process. Although you are using your first names in the discussion today, your real names will not appear in our transcripts or any analysis.”
◆ Explain the purpose of the focus group (to produce participants with opportunities to discuss in more detail their experiences in the Reading for Life program) “The purpose of the discussion today is to provide you with an opportunity to share your experiences in the Reading for Life program and to help the researchers understand the impact of the program on all involved.”
◆ Emphasise that there is no right or wrong answer, nothing that the researchers don’t want to be said, it will be an honest discussion “There are no right or wrong answers here, please speak freely and honestly. We are interested in your true opinions. You will not offend anyone by sharing your opinions and thoughts.”
◆ Emphasise that we are looking for diverse opinions; it is ok for people to disagree and have different opinions “It is OK to disagree with each other and to have different opinions stemming from your different experiences.”
◆ Remind participants that as this focus group is being taped it is important for participants to listen while others are speaking and refrain from interrupting, so that we can gain meaning from each participant “Because we are taping the discussion today, please let each other speak one at a time. For each question one or two participants will have an opportunity to share their thoughts.” (When asking questions, start with the name of the participant you are asking, ask the question and allow them to speak, depending on the length of the answer, ask another participant to share their thoughts on this question. If someone interjects, or adds something at the end, be sure to identify them by name for transcription).
◆ Confirm the start and end time of the session (20 minutes maximum) “The discussion will last for 20 minutes.”
Schedule
The schedule outlined here is indicative of the areas to be explored during the focus group. As far as possible, the focus group should be driven by the participants, with the researchers producing general questions to encourage discussion. The main questions are listed in plain type, under each relevant research question. There are *italicised* probes to elicit a more detailed response.

**Research Question 2.1.1: Impact of the intervention on children’s achievement.**
*In this section I am interested in identifying whether the participants have noticed any changes in the children’s reading achievement.*

**Research Question 2.2.1: Impact of the intervention on children’s reading self-concept.**
*In this section I am interested in identifying whether the participants have noticed any changes in the children’s reading achievement, self-concept (how they feel about reading), and motivation (why they chose to read).*

Describe what it was like to work with your reading buddy each week?

What did you hope the children would achieve by participating in Reading for Life?

*Did you have any preconceived ideas about their improvements?*

How did the experience with the children compare with your expectations?

*Did the experience live up to your expectations?*

*Did it surpass them?*

*How was it different?*

In what ways did the children improve during the program?

*Did their reading improve?*

*Did their attitude to reading and working with you improve?*

*Did you notice anything else?*

Why do you think Reading for Life works for these children?

**Research Question 2.2.2: Impact of the intervention on children’s reading behaviours at home.**
*In this section I am interested to see whether the parents could ascertain any parental involvement.*

Describe the communication you received from parents during the Reading for Life program?

*How often did they communicate in the communication book?*

*Was there any other interaction with parents?*

Did you feel the program was continued at home with the family?

Was there any difference in the children who reported greater home practice?
Research Question 2.3.1: Strengths and limitations of the intervention.
It is important for us to gain some evaluative feedback from the teachers about the actual intervention.

Which aspects of Reading for Life did you enjoy most with the children?

Would you recommend this program to other workplaces? What would you say to them?

How can we improve the experience of Reading for Life?

Final Comments
Is there anything else you would like to add?
READING FOR LIFE
POST-PROGRAM FOCUS GROUP WITH UWS VOLUNTEERS

Thank you for participating in this evaluation of Reading for Life. My name is _______. I’d like to record what you say so I don’t miss any of it. This will not be shown to anyone outside the research team at UWS. Although you will use your first name in the discussion today, your real name will not appear in our transcripts or any analysis.

The purpose of the discussion today is to provide you with an opportunity to share your experiences in the Reading for Life program and to help the researchers understand the impact of the program on all involved. There are four broad areas of the Learning through Community Service (LCS) course: (a) the initial 3-day training sessions, (b) the experience in the schools, (c) the testing, and (d) the reflections. Our focus today is on the training, schools and assessments.

(2.3.1) What was it that attracted you to this cohort, Empowering Children to Read for Life? Was this compulsory for your degree? What did you hope to learn?

(2.3.1) How would you assess the training over the 3-day symposium? Did you feel prepared? How could this be improved?

(2.1.1) Tell me about the children you worked with in Reading for Life. What were their difficulties? How did they present?

(2.1.1) What kinds of differences, if any, have you noticed in the children during Reading for Life?

(2.3.1) Describe how you felt in school environment where you worked. Were the staff welcoming? Provision of space? Helpful?

(2.2.2) Did the teachers and parents contribute to the Communication Book that accompanies the Reading for Life program? How did this make you feel?

(2.3.1) Based on your experiences, what would you say are the strengths of this program?

(2.3.1) What about the weaknesses?

(2.3.1) Let me turn now to your personal likes and dislikes about the program. What are some of the things that you have really likes about Reading for Life?

(2.3.1) What about dislikes? What are some things you don’t like so much about Reading for Life?

(2.1.1) How do you think you’ve contributed to the child’s learning?

(2.3.1) What is your opinion of the organization of the Reading for Life program? Did you receive adequate information? Did you know what was required of you and what was involved? How could this have been improved?

That covers the things I wanted to ask. Anything you care to add?
“Thank you for participating in this evaluation of Reading for Life.”

“I’d like to record what you say so I don’t miss any of it. This will not be shown to anyone outside the research team at UWS. Although you will use your first name in the discussion today, your real name will not appear in our transcripts or any analysis.”

“The purpose of the discussion today is to provide you with an opportunity to share your experiences in the Reading for Life program and to help the researchers understand the impact of the program on all involved. We are interested in understanding how Reading for Life affects the buddies and their workplace”

“The discussion will last for around 15 minutes”

(2.3.1) What was it about Reading for Life that affected your decision to participate?

(2.1.2) Could you please describe the kinds of support have these children have received at your school previously?

(2.3.1) How would you assess the organization and running of the Reading for Life program? Did you feel well informed? Were your questions managed well?

(2.3.1) What were your impressions of the reading buddies who spent time at your school. Did they settle in with staff? How did they respond to the children?

(2.1.1, 2.2.1) How have the children responded to the Reading for Life program? Enjoyment? Improvements? Attitudes? Skills?

(2.3.1) Could you describe the contribution Reading for Life makes to the children and your school?

(2.1.1, 2.2.1, 2.3.1) Why do you think Reading for Life is effective for children with reading difficulties?

(2.2.2) Have the parents of the children involved showed interest in the Reading for Life program? Is this common? Do they participate in regular school activities?

(2.3.1) What do you see as the future of Reading for Life in your school? Why?

(2.3.1) How can the experience of Reading for Life be improved?

That covers the things I wanted to ask. Anything you care to add?

“Thank you very much for your time today. We are very grateful for your input which will help us understand the effect of Reading for Life and make improvements for the future.”

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READING FOR LIFE
POST-PROGRAM EVALUATION –
FOCUS GROUP WITH TEACHERS

- “Thank you for participating in this evaluation of Reading for Life.”
- “I’d like to record what you say so I don’t miss any of it. This will not be shown to anyone outside the research team at UWS. Although you will use your first name in the discussion today, your real name will not appear in our transcripts or any analysis.”
- “The purpose of the discussion today is to provide you with an opportunity to share your experiences in the Reading for Life program and to help the researchers understand the impact of the program on all involved. We are interested in understanding how Reading for Life affects the buddies and their workplace”
- “The discussion will last for around 15 minutes.”

(2.1.1) Could you tell me about the children you selected for Reading for Life. What were their difficulties? How did they present?

(2.1.2) Please describe the kinds of support is available for children with reading difficulties in your school?

(2.3.1) What is your opinion of the Reading for Life program, its selection process, home requirements, and overall organization. Did you receive adequate information? Did you know what was required of you and what was involved? How could this have been improved?

(2.1.1) How did the children respond to the Reading for Life program? Did they speak about what they were doing?

(2.1.1) What kinds of differences, if any, have you noticed in the children involved in Reading for Life?

(2.2.2) Did you have the opportunity to see and contribute to the Communication Book that accompanies the Reading for Life program? How often? What did you learn from the book?

(2.2.2) Have the parents of the children involved showed interest in the Reading for Life program? Is this common? Do they participate in regular school activities?

(2.3.1) Tell me about the reading buddies who spent time at your school. Did they settle in with staff? How did they respond to the children?

(2.2.1) Did the children speak about their reading buddy? What were their impressions of them? Have they spoken about other adults in this way?

(2.1.1, 2.2.1, 2.3.1) Why do you think Reading for Life is effective for children with reading difficulties?

(2.3.1) Can you suggest any improvements to the program?

(2.3.1) What would you like to see happen with Reading for Life in your school? Why?

That covers the things I wanted to ask. Anything you care to add?

“Thank you very much for your time today. We are very grateful for your input which will help us understand the effect of Reading for Life and make improvements for the future.”
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Let me ask you to stop for a moment because some of what you’re talking about now I want to get to later in the interview. First I need to find out from you …