READING RECOVERY
AS A SMALL GROUP INTERVENTION

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ABSTRACT

A small scale pilot study and a larger experimental study were undertaken to determine whether the Reading Recovery procedures could be successfully adapted for small group instruction. The purpose of the pilot study was to determine effective ways of working and to make recommended changes, if necessary, to the standard Reading Recovery lesson format. The experimental study was designed to see if these modifications would be as effective as the standard one to one Reading Recovery program. Both studies involved a high percentage of children for whom English was a second or third language.

Pilot study teachers, working with either two or three children, devised ways of working with children reading at the same instructional level and with children working at different instructional levels. The experimental study involved seventy five children. Fifty of these children were taught in a pair situation and twenty five were taught one to one. A wide battery of tests including the Observation Survey (Clay 1993), a word reading test and tests of phonological processing ability was administered to all children prior to commencing the program, at the end of their program, and at year end.

The results from both studies suggest that one to one Reading Recovery can be successfully modified for small group instruction, the preferred group size being two. Results from both studies indicated that by investing at most 27% more instructional time, the teachers could service 100% more children.

ACKNOWLEDGMENTS

Many people contributed to the success of this study.

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My gratitude and appreciation, as always, go to my supervisor Professor Bill Tunmer. I wish to thank him sincerely for his continued professional guidance, interest and encouragement throughout the study. My thanks also to Dr James Chapman for intervening on my behalf to overcome initial setbacks and for reading the final manuscript.

Finally I am indebted, as ever, to my husband, Greg, for his support, encouragement, patience and tolerance.

Spelling Task

Student's Name: _____ **Student Number:** _____

School: _____ **Total Correct:** _____

Date Tested: _____ **Total Points:** _____

Tester: _____

				Correct spelling (0 or 1)	Points (0 to 4
1.	**fat**	My dog is too **fat.**	**fat**		
2.	**fill**	Please **fill** my glass.	**fill**		
3.	**lump**	He has a **lump** on his head.	**lump**		
4.	**pop**	Don't **pop** the balloon.	**pop**		
5.	**bank**	She put her money in the **bank.**	**bank**		
6.	**side**	He painted the **side** of his house.	**side**		
7.	**hay**	Cows like to eat **hay.**	**hay**		
8.	**meat**	Dogs like to eat **meat.**	**meat**		
9.	**kick**	She likes to **kick** the ball.	**kick**		
10.	**hot**	It was a **hot** day.	**hot**		
11.	**pack**	He put his book in the **pack.**	**pack**		
12.	**yell**	Never **yell** in the classroom.	**yell**		
13.	**van**	His father has a big **van.**	**van**		
14.	**duck**	She gave the **duck** some bread.	**duck**		
15.	**jail**	Robbers go to **jail.**	**jail**		
16.	**bit**	The cat **bit** her finger.	**bit**		
17.	**cake**	The children ate some **cake.**	**cake**		
18.	**tight**	His shoe is too **tight.**	**tight**		

a b c d e f g h i j k l m n o p q r s t u v w x y z

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CHAPTER 1

INTRODUCTION

Rationale

The motivation for this study was initiated by an article by Wasik and Slavin (1993). This article compared the effect sizes of five one-to-one tutoring programs including *Reading Recovery*. It summarized research by Pinnell, Lyons, De Ford, Bryk and Seltzer, later published in 1994, which compared the regular *Reading Recovery* program with two other one-to-one programs and a small group intervention called *Reading Writing Group*. The teachers who taught the *Reading Writing Group* were all *Reading Recovery* trained teachers who used *Reading Recovery* materials and strategies and adapted them to a small group setting. Of great interest was the fact that of the four groups, the *Reading Writing Group* had the second best results after standard *Reading Recovery*. The *Reading Writing Group* "had the most positive effects (ES = +.29 for Dictation, + .32 for Text Reading Level). This treatment also had the largest positive effects on the May Gates - MacGintie of all treatments (ES +.34)" (Wasik & Slavin 1993, p. 186). These results with a small group for four children led Wasik and Slavin to ask the question, "could one-to-two or one-to-three instruction be nearly as effective?" (Wasik & Slavin 1993, p. 197).

Of interest also was the research into phonological processing in the *Reading Recovery* program of Iversen and Tunmer (1993). They found that by including explicit instruction on phonological processing into the *Reading Recovery* program, the children were able to complete their programs in 16 fewer lessons. In effect this

suggested that standard *Reading Recovery* was 37% less efficient than the program modified to include explicit training in phonological processing skills.

The Studies

In an effort to find out if *Reading Recovery*, modified to include explicit training in phonological processing skills, could be further modified for small group instruction, a small scale pilot study and a larger experimental study were designed. The purpose of the pilot study was to determine whether the *Reading Recovery* format could be successfully modified for use with small groups. The larger experimental study was designed to see if such modifications would be effective in terms of lesson length and program time. As *Reading Recovery* is an international program, it was also important to test the modified procedures in different educational settings and with different ethnic groups.

The pilot study was undertaken in Auckland, New Zealand. All the teachers had extensive classroom experience, but not all had been trained in *Reading Recovery*. All but one teacher worked with two or three children who would have been eligible for *Reading Recovery* had the school received sufficient funding to cater for them. One teacher taught two children who had been in a *Reading Recovery* program, and who had been referred on for further specialist help.

The experimental study was undertaken in Florida, USA. In this study teachers worked with children in a one-to-one tutoring format and also with children in a paired situation. In both these studies there was a high percentage of children from minority ethnic groups, many of whom spoke a language other than English as their first language.

Overview

Chapter Two contains a review of the literature and examines those attributes that make early intervention programs successful. A model of reading development is presented that includes phonological processing, metacognitive strategies and exposure to print. The model suggests that these three components are necessary for reading development. Unequal emphasis on any one of the components could reflect the teacher's theoretical bias and/or the prior knowledge of the children.

The instructional setting in which learning takes place is discussed in relationship to a model of assisted learning. This model is based on the theories of Vygotsky (1978), and includes suggestions for collaborative, interdependent activity between teacher and learner.

Chapter Three describes the pilot study from its inception to the final reports submitted by the teachers. It also includes a full description of the testing material that the teachers used and the modifications which they felt necessary to implement the program successfully. Chapter Four describes the experimental study.

The results are presented and discussed in Chapter Five. These results include the specific statistical analyses from the experimental study together with a general discussion which links the findings of both studies. Chapter Six summarizes the study and presents the key findings. It also makes some suggestions for further investigation.

CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

Over the past decade there has been continuing discussion in the research literature about the efficacy of early intervention programs for children experiencing difficulties in reading and writing (Allington, 1990; Allington & McGill Franzen, 1989a, 1989b; Allington & Shake, 1986; Carter, 1984; McGill Franzen & Allington, 1991; Russell, 1991; Slavin, 1987; Slavin & Madden, 1989). Regardless of program emphasis or classroom type there are children who make poor progress in reading and writing. Clay, (1990, p. 238) warned that there are "costs and risks in any program emphasis" especially for some children. The children who are able to make good progress regardless of the program emphasis are those children who are able to learn beyond the program. In literacy, this ability to learn beyond the program is usually found in the high progress reader. Poor readers learn only what they are taught (McGill-Franzen & Allington, 1991).

It appears that the first year of instruction is critical as children who are making poor progress after one year at school continue to make poor progress (Clay, 1979b; Lundberg, 1985; Juel, 1988; Stanovich, 1986a, 1986b). Juel, (1988) reported a longitudinal study following children from first to fourth grade. She described the cumulative disadvantage that was manifest in wide differences in reading ability in particular, and academic achievement in general, for those children who do not develop good word recognition skills in first grade.

Provision for At Risk Children

There are varying organizational mechanisms that schools employ to address the problems of at risk children. These include retention, which usually occurs during the first three years at school, small group pull-out programs taught by either qualified teachers or unqualified paraprofessionals, reducing class size, and ability grouping. None of these methods for assisting children who need extra help in reading and writing has been found to be particularly effective (Russell, 1991).

Generally, although schools have traditionally preferred to use small group (five to seven children) pull-out special education and compensatory programs for children at risk, these programs do not appear to be particularly successful (Allington, 1990; Allington & McGill Franzen, 1989a, 1989b; Allington & Shake, 1986; Carter, 1984; McGill Franzen & Allington, 1991; Russell, 1991; Slavin, 1987; Slavin & Madden, 1989). "In fact they do little more than keep at risk students in the early grades from falling further behind their peers" (Slavin & Madden, 1989, p. 12), and "the more time students spent in pull - out programs the less they learned" (Slavin & Madden, 1987). In effect, those children who get off to a poor start in reading and writing for whatever reason tend to remain behind (Carter, 1984; Juel, 1988; Stanovich, 1986a, 1986b).

It would seem that many traditional programs being implemented for children at risk have lost sight of their prime goal which is to improve children's classroom reading and writing. Instead the programs are rarely integrated with the classroom program (Slavin & Madden, 1987), often use different methods and materials (Allington & McGill-Franzen, 1989a, 1989b; Allington & Shake, 1986; McGill Franzen & Allington, 1991), and are not geared to producing independent, competent readers (McGill-Franzen & Allington, 1991). It is possible however, that the lack of integration with the classroom program, and the use of different materials, may in fact be of benefit to children who

have been withdrawn from classrooms with a narrow instructional focus. The important issue is the latter claim by McGill-Franzen and Allington that instruction is not designed to produce independent readers. For many children identified as at risk, the expectation is that they will always remain at risk and require remedial support, rather than an expectation that with appropriate strategic instruction most can become competent, independent readers and writers.

Early Intervention Programs

Currently, there is a growing body of evidence that much of this reading failure can be prevented with appropriate early intervention programs (Clay, 1985,1993b; Hatcher, Hulme & Ellis, 1994; Hiebert, Colt, Catto & Gury, 1992; Hiebert & Taylor, 1994; Lyons & Beaver, 1995; Pinnell 1989; Reynolds, 1991; Slavin et al., 1990; Slavin et al., 1992; Taylor, Fyre, Short & Shearer, 1992; Taylor, Strait & Medo, 1994). Recently, comparisons have been made between some early intervention programs (Lyons, Pinnell & DeFord, 1993; Pikulski, 1994, Pinnell et al., 1994; Wasik & Slavin, 1993).

Pikulski, (1994) compared five USA school based, first grade, early intervention programs, whose published results suggested that they were effective. These programs were *Success for All* (Slavin et al., 1990), *The Winston-Salem Project* (Hall et al., 1993, *Early Intervention in Reading* (EIR, Taylor et al., 1994), *The Boulder Project* (Hiebert, 1994b), and *Reading Recovery* (Clay, 1985).

These programs were found to have the following common characteristics which Pikulski suggested contributed to their success: time over and above the regular classroom program; carefully selected reading materials; regular, daily instructional

procedures that led the student from dependence to independence; on-going monitoring and assessment, and, teacher education and support.

Wasik and Slavin (1993) also compared five USA early intervention programs, but limited their selection to first grade interventions that were delivered on a one-to-one basis by certified teacher, paraprofessional or volunteer. The programs reviewed by Wasik and Slavin were *Reading Recovery* (Clay, 1985), *Success for All* (Slavin et al., 1990), *Prevention of Learning Difficulties* (Silver & Hagin, 1979) , *Wallach Tutoring Program* (Wallach & Wallach, 1976), and *Programmed Tutorial Reading* (Elson, et al. 1965). The key findings of Wasik and Slavin are similar to those of Pikulsky.

Lyons, et al. (1993,1994) limited their comparison of early intervention programs to three different instructional models of the *Reading Recovery* program: standard *Reading Recovery, Reading Success*, and *Reading Writing Group* (*RWG*). They compared these with each other, and with an individual tutorial that featured developing essential reading skills (DISP), and the regular Chapter One small group program. The results of this study suggests that the one on one *Reading Recovery* tutorial, combined with an intensive ongoing teacher development program, is the most powerful method of early intervention. Of all these programs only *Reading Recovery* is operative outside of the United States of America. *Reading Recovery* was developed in New Zealand in the 1970s and is currently being used as an early intervention program in that country, parts of Australia, Canada and the UK as well as the United States of America.

Analysis of Early Intervention Programs

An analysis of the 11 early intervention programs reviewed by Pikulski (1994), Wasik and Slavin (1993) and Lyons et al. (1993,1994) points to some indicators for success.

1. All programs reflected the importance of prevention through early intervention, before the cumulative effects of reading failure became chronic. Redemption beyond the first three years of schooling have been found to be largely ineffective (Kennedy, Birman, & Demaline, 1986).

2. Time over and above the regular classroom literacy program was allotted for extra tuition of needy students.

3. The most successful programs used certified teachers rather than paraprofessionals and gave them extra training. Initial teacher education often took place before the beginning of the school year, and was continued regularly throughout the year.

4. The most successful programs recognized the importance of content as well as extra time. Those that seemingly had the greatest effects were those that covered a number of aspects of the reading process, and included daily text reading and writing, rather than presenting a narrow focus of phonic drills.

5. Effective programs included explicit instruction in phonological processing skills and teaching of metacognitive strategies.

6 Ongoing assessment and evaluation of student performance was an integral part of the program.

7 High expectations were set for the children. In the most successful programs, teachers made a commitment to returning children to mainstream education rather than keeping them in remedial programs.

8 The most successful programs encouraged classroom and family support.

Successful Early Intervention Programs

Four successful early intervention programs, *Reading Recovery, Success For All, The Boulder Project* and *RWG* are described in further detail. Although these programs differ in philosophy and pedagogy they include all the above indicators for success. Although other early intervention programs also contain these indicators for success, *Reading Recovery* and *Success for All* were chosen as they appear to be the most successful of the one on one early interventions. *The Boulder Project* and *RWG* were chosen to represent successful small group interventions.

Reading Recovery

Philosophy, Orientation and Rationale

Reading Recovery (Clay, 1985, 1993b) is an early intervention designed to reduce the incidence of reading failure in a school system. In order to do this in the most expedient fashion, children requiring extra help with reading and writing are identified using a wide range of observational procedures, after one year of school. *Reading Recovery* is not a packaged approach to teaching reading. It embodies the philosophy of the emerging literacy perspective, that is, that children are active problem solvers who bring to school different amounts of knowledge about their world, and their language and show that they know how to use this knowledge in their everyday reading, writing and oral language activities.

Reading Recovery accepts as its cohort those children who have not benefitted from the first year of instruction, and who are therefore at the tail end of the achievement distribution. Because *Reading Recovery* addresses the children's differing needs, both on entry to the program and over time within the program, it has to have instructional flexibility to accommodate a variety of processing behaviours. This program flexibility is also essential in allowing each child to make accelerated progress.

The *Reading Recovery* Program is in addition to the regular classroom reading program. It encourages the support of the classroom teacher although the program can stand alone. Children are ready to have their program discontinued when the *Reading Recovery* teacher is satisfied that they have a self extending system which will allow them to continue to increase their "control over reading and writing even with a not noticing teacher" (Clay, 1993b, p. 58). Liaison with the home is encouraged, but not essential to the success of the *Reading Recovery* program. "The school should cooperate with the family to establish appropriate home activities to follow up on lessons" (Clay, 1993b, p. 96).

Program Structure and Content

The *Reading Recovery* lesson is based on the children's particular strengths and weaknesses so that within as little as 12-20 weeks they have made accelerated progress and have returned to average levels of performance within their regular classroom. *Reading Recovery* research projects (Clay, 1985; Iversen & Tunmer, 1993; Pinnell et al., 1988) have consistently found that most children are ready to have their programs discontinued within a maximum of 60 lessons.

Children are given a daily, individual, 30 minute lesson by a specialist teacher who has received one year of training in *Reading Recovery* procedures, and has continued to participate in teacher education with fellow professionals in subsequent years. This lesson is heavily biased towards reading a variety of short interesting texts and writing sentences. Lessons offer the students opportunities to practice and build on the competencies they already control, and to formulate ways of knowing how to deal with increasingly difficult material. These experiences enable the children not only to learn to read and write, but also to learn while reading increasingly more complex texts and writing more complex messages.

Lesson Content

Each session starts with the child reading two or three familiar and one not so familiar book on which the teacher takes a running record (Clay, 1985, 1993b). Provision is then made for work on letter identification and the building and analyzing of words using plastic magnetic letters. The child is then invited to write a message. During writing the teacher helps the child to use three important early writing strategies; knowing how to write some words correctly in every aspect, hearing and recording sounds in words in order, and making links/analogies from known to unknown information. This message is then cut into manageable linguistic units for the child to reassemble. The lesson concludes with the introduction and reading of a new and slightly more challenging book on which the teacher takes the running record the following day. Throughout the program there is emphasis on both comprehension and word recognition. Children are also taught metacognitive strategies and how, when and where to apply them.

Instruction

Reading Recovery takes a Vygotskian view of instruction (Vygotsky, 1978). Working with what the children already know, the *Reading Recovery* teacher provides a scaffold to learning at the cutting edge of the child's assisted competence. In this way the teacher is able to continually change the zone of the child's actual independent performance. Within the lesson there is provision for teacher conversation and questioning and for independent responding. Each lesson also contains opportunities for children to receive explicit instruction and for children to come to implicit understandings.

Time

Reading Recovery has documented evidence of lesson time, timing of components within the lesson, and time taken for children to return to average levels of performance. Lyons et al. (1993) found that the average *Reading Recovery* lesson took 33.21 minutes with a range from 24.20 minutes to 41.48 minutes (Lyons et al., 1993, p. 70). They also noted that time spent on the different components within the lesson varied depending on the length of time the child had been in the program, and the expertise of individual teachers. Teachers whose children typically made good progress spent more time with children engaged in teaching text level strategies, whereas teachers whose children typically made low progress spent more time on word and letter level strategies. This may be a consequence of more powerful or less powerful teaching techniques, or it may be that the children's slow progress was not due to the teacher's emphasis on word level learning but the cause of it. Systematic word level activity in *Reading Recovery* has proven very successful (Iversen & Tunmer, 1993).

Assessment and Evaluation

Children are assessed at the beginning and end of the *Reading Recovery* program with the Observation Survey (Clay 1993a). The Observation Survey contains a series of observational tests. These include, an alphabet letter recognition test, a word recognition test, a dictation task, a writing task, a concepts about print test and a text reading task. Each child's individual program is based on the results of the tests and literacy behaviours that the teacher has noticed in the first two weeks of the program when no new learning is introduced. Children's progress is then evaluated daily so that the teacher can adjust the program to the child's ongoing needs. Final testing ensures that children are reading and writing at average or above average levels for their school or district.

Reading Materials

There are no set *Reading Recovery* books as the philosophy underpinning the program is that children should learn how to read a variety of different types of books for a variety of different purposes. Books used in *Reading Recovery* are typically short, single story children's literature trade books which reflect a wide range of authors, illustrators, stories and language patterns. These books are arranged in a gradient of difficulty comprising twenty levels, each posing further challenges to the beginning reader. These challenges include increasingly difficult vocabulary and concepts, more complex language structures, varied size and position of print and decreasing illustrative support. The initial trialling and levelling of books was undertaken in New Zealand where teachers were able to use a graded series of books, known as *Ready to Read*, as a benchmark when observing children's reading behaviour. This benchmark was used by teachers to compare which books from that series, and which books from

other series of readers, the children could read with 90%-94% accuracy. In this way, teachers were able to assess the instructional level of new material.

Books available in any one geographical area are printed in a booklist to assist *Reading Recovery* teachers with book selection. This list serves as a guide only, because a child's ability to read any text is subtly influenced by many variables. These influences may include background experience with books and the concepts contained within them; interest in, and attitude toward, the chosen book; control over book language and the concepts about print; and the child's increasing control over the integration of cues from the context, the language and the print, which enables him/her to search for and monitor ongoing comprehension.

Teacher Qualifications, Education and Support

Teacher education, both prior to and during intervention programs, is seen to be both necessary and effective (Lyons, Pinnell & DeFord, 1993; Pikulski, 1994, Pinnell et al., 1994; Wasik & Slavin, 1993). *Reading Recovery* chooses only experienced classroom teachers for admission into the year long, stringent and comprehensive teacher education program. *Reading Recovery* teachers are trained not only to deliver the components of the *Reading Recovery* program but also to develop "a system of theoretical and practical knowledge out of which their actions flow" (Lyons et al., 1993). As *Reading Recovery* proceeds from the child's strengths and at all time encourages independence in the learner, teachers need to be competent decision makers so that they can take the child into the next appropriate learning without removing the child's independent decision making power. "It is not enough with problem readers for the teacher to have rapport, to generate interesting tasks and generally to be a good teacher. The teacher must be able to design a superbly sequenced program determined

by the child's performance, and to make highly skilled decisions moment by moment during the lesson" (Clay, 1993b, p. 9).

Teachers meet either weekly or bi-weekly for specialized training under the guidance of a teacher leader. At these sessions teachers are required to teach children behind a one way mirror for their peers to observe and critique. Following the teaching session, the teacher leader guides a group discussion of the lesson with reference to the *Reading Recovery* Procedures (Clay 1985,1993b). In this way teachers learn more about teaching the children while actually engaged in the *Reading Recovery* program.

This apprenticeship model allows teachers to learn how to be *Reading Recovery* teachers while actually teaching the children throughout the first year of training. In addition to the group meetings, teachers are visited regularly in their schools by the teacher leader. During these individual sessions, teacher leaders are able to observe teaching closely and provide appropriate feedback. In subsequent years teachers meet less frequently and receive fewer individual visits from the teacher leader. A detailed manual is available for continual reference.

The year long initial inservice course has been found to be a more appropriate model that an intensive short course (Pinnell et al., 1994) because it allows for ongoing teacher dialogue, reflection and self evaluation. Lyons et al., (1994) suggest that three factors contribute to the success of *Reading Recovery*. These are the individual instruction, the lesson framework and the teacher education. "Of the three, teacher education emerged as the most powerful factor" (Lyons et al., 1994, p. 56).

Eligibility Criteria

Reading Recovery is designed to assist the lowest performers after one year's instruction at school. As implementing a *Reading Recovery* program is one way that a school system can reduce the incidence of reading failure within that system, the program must take the children from the lowest end of the achievement distribution and improve their literacy performance in order to fulfill its goals. Clay 1993b found the following:

> The children with the poorest performance of all the children in their schools at 6.0 were selected for instruction. Teachers used no procedures for excluding any children...and included
>
> - bicultural Maori children
> - bilingual Pacific Island children
> - children with handicaps
> - children awaiting Special Class placements. (p. 95).

There is no set percentage of children who can be served by a *Reading Recovery* program as funding dictates how many children can have access to one-to-one tuition. Most systems aim to service the lowest 10%.

Success for All

Philosophy, Orientation and Rationale

Success For All (Madden et al., 1987,1991,1992; Slavin et al., 1990,1992; Wasik & Slavin, 1993) is a beginning literacy program, designed especially for disadvantaged children, that emphasizes the prevention of reading failure through early intervention. It's two main principles are "prevention and immediate, intensive intervention" (Slavin, et al., 1994 p 126). Although the broader program includes working before and beyond the first grade, first grade children in the intervention program work daily on a one-to-one basis with a certified teacher for a period of 20 minutes, reinforcing the learning that has occurred in the 90 minute classroom language program. Students are re-evaluated each eight weeks and may take advantage of the program for as long as it is necessary.

Success for All has an entirely different format and underlying philosophy from *Reading Recovery* and does not articulate a theory of reading. Its underlying philosophy suggests that language is regular to a degree and that a strong sight vocabulary and phonics training will assist with the identification of unknown words. As well as including this emphasis on word recognition, children also read meaningful text and are taught how to use their prior knowledge, how to make inferences, and how to detect and correct errors. Emphasis is also placed on comprehension and strategy learning, and children are explicitly taught how, when, why and where to use such strategies.

The *Success for All* intervention is completely integrated with the classroom program, and is often taught by the classroom teacher. To this end it focuses on the regular

classroom reading program rather than teaching different objectives in the one-to-one situation. The program also offers a wide range of support techniques and systems to enable poor families to become involved in their children's schooling.

Program Structure and Content

The reading program used by *Success for All* enables students to learn to read in meaningful context while providing for the systematic learning of word attack skills.

Lesson Content

A typical individual tutoring session begins with familiar reading and is followed by a short drill to reinforce the letter sounds taught in class. The rest of the lesson is spent with the teacher and tutee sharing the reading of predictable stories with phonemically controlled language. During reading the student is assisted to sound out regular, unknown words, answer comprehension questions, reread some passages to gain fluency, and to write. The program provides for short sharp drills, for teacher conversation and questioning and for independent responding.

Instruction

The instruction in *Success for All* appears to be more content driven than driven by the needs of the students. Instruction is rapid and introduces a variety of activities designed to enable students to master beginning literacy skills and metacognitive strategies. As well as this explicit instruction, the program also contains opportunities for children to come to implicit understandings.

Time

Students receive 90 minutes of classroom literacy instruction daily in homogeneous groups. Students receiving individual instruction receive a further 20 minutes to consolidate the skills and strategies learnt in the classroom program.

Assessment and Evaluation

Entry to the intervention component of the *Success for All* program is determined by a students performance on informal reading inventories. Thereafter students are re-evaluated every eight weeks using specifically designed curriculum-based measures. As well as providing information as to literacy requirements these measures also identify children who require further family or medical support. Students remain in the program until they can function satisfactorily in the regular classroom.

Reading Materials

Success for All uses a variety of reading materials to ensure the success of students. Teachers read literature to the children and share other books with the children. These shared books typically have some material written in small type for the teacher to read and some material written in larger type for the children to read. While using regular trade books for the children to read independently, *Success for All* also uses some books especially chosen for their controlled vocabulary so that words and patterns can be introduced systematically.

Teacher Qualifications, Education and Support

Success for All tutors are certified teacher with experience in teaching traditional remedial programs. These teachers are often the same teachers who teach the morning classroom language arts program. In addition, each school appoints a highly skilled teacher to be the program facilitator. It is this person's responsibility to plan and oversee the program, to assist with scheduling, coordinate the family support team, and to visit classes and tutoring sessions to assist with problems that may arise. In addition, program facilitators and other project staff make in-service presentations, provide teachers with three days of specific training at the beginning of the program and observe teaching on a weekly basis. Teachers also meet informally to share problems and solutions. Detailed teacher manuals which cover general teaching strategies and specific lesson plans are supplied.

Eligibility Criteria

Success for All is designed for implementation in urban elementary schools typically serving disadvantaged children. In the schools where *Success for All* operates, all the children requiring help to enable them to read on grade level are included in the program. The program starts in preschool and continues through third grade if necessary. The intensive one-to-one tutorial is given to the most needy first graders.

The Boulder Project

Philosophy, Orientation and Rationale

The Boulder Project (Hiebert, 1994b; Hiebert, Colt, Catto, & Gury, 1992), was designed to improve the traditional Title 1 program operating for first graders. Title 1 is a federal program which funds tutors to instruct children having difficulty with reading, maths and language arts. The program covers children from kindergarten to grade 12 who fall below the 50th percentile when tested with a standardized test. Children in the lowest quartile must be served, while funding dictates how many other children can receive extra tuition. School districts typically endeavour to service the bottom 40% of children. Traditionally, support has been in the form of small group pull-out programs which occur at least four days a week, although an in-class model operates in some schools.

The Boulder Project adapts the regular Title 1 program to ensure time for repeated readings of familiar text, writing, and word study that emphasizes phonemic awareness. It's philosophy suggests that if these components are combined with high, yet realistic teacher expectations, children will be able to be returned to the mainstream classroom program rather than being perpetually dependent on extra remedial assistance. The goal of the program "was for children to attain grade-level proficiency in reading interesting text and in writing messages"(Hiebert 1994, p 89).

The program encourages support of both the classroom and the home. In many cases this proved to be problematic because classroom teachers "excuse themselves from the responsibility for the education of low achieving students" (Walmsley & Allington,

1995, p. 25). In other instances both parents and the classroom teacher did not know how to provide such support even if they had wanted to give it.

Children are taught in small groups of three in daily half hour sessions by either the Title 1 teacher or a teachers aide. At the end of the semester, the teacher and the aide change groups.

Program Structure and Content

There are three components to *The Boulder Project* instruction. First, repeated reading of short books with high picture support so as to ensure that the story line is able to be predicted, second, writing, and third, metacognitive strategies emphasizing phonemic awareness and the patterns of words. "The aim was to develop generalizability among children in their knowledge of patterns, not to teach every pattern of the English sound-letter system" (Hiebert, 1994b, p. 92).

Lesson Content

A typical session starts with the rereading of a book that was read the previous day. The children read some pages together and some pages individually. They then find, and supply some rhyming words, for the word that was studied yesterday. The teacher next introduces a new book, chosen because of its level of difficulty and because of the word pattern being studied. The children predict what the story will be about and then take turns reading individual pages. After several readings, the children locate the new target word and relate it to previous words they have studied. The children then write and discuss the target word, and generate orthographic analogies by changing the onset and leaving the rime constant. The new book for the day is then reread and the children

follow this rereading with individual story writing in their personal notebooks. If time permits the children continue to read previously read books.

"Guidance on the words in texts, emphasizing phonemic awareness and word patterns" (Hiebert ,1994b, p. 89) is attended to throughout the entire lesson through two different activities. First a target word or words from the text are presented to the children with other words that rhyme and do not rhyme with the target word. Children have to listen for those words that rhyme. Secondly the children engage in an activity to encourage spelling through saying and writing the sounds in words. This activity is based on Elkonin (1973) and is similar to the hearing and recording sounds in words activity in the *Reading Recovery* Program.

Instruction

As with *Success for All*, *The Boulder Project* appears to be more content driven than driven by the needs of the students. There is provision for short sharp drills, for teacher conversation and questioning and for independent responding. The program also provides opportunities for children to receive explicit instruction and for children to come to implicit understandings.

Time

Students receive 30 minutes instruction daily in small groups of three. Some of this program time is spent with a certificated teacher, while at other times, the students work with a teacher aide.

Assessment and Evaluation

Initial testing is by way of standardized test. Thereafter teachers make daily comments on the students' lesson plans and also check students formally each quarter. The quarterly check comprises a reading, a writing, and a word level assessment. The reading check consists of having the students read and respond to a series of graded passages. For writing, the students have to compose and write a message which is graded according to a six category scheme (Hiebert 1992). The word level check includes children reading and writing words in isolation to ascertain whether the word patterns that have been taught, have in fact been mastered.

Reading Materials

The Boulder Project uses short, single story trade books, so that children will learn to read while reading connected text. The appropriateness of these little reading books is determined by the assistance they offer the beginning reader. Key factors to appropriateness include picture support for the text, the straightforward language structures, repeated sentence patterns and the familiarity of the content.

The Boulder Project developed a booklist which was put together by teachers and project staff. Initiators of *The Boulder Project* did not find that the available trade books and teacher manuals offered enough support for the acquisition of word patterns. Therefore all the books available for use by Title 1 staff were "ordered accordingly to difficulty level and salient word patterns" (Hiebert, 1993, p.92). This project also found it necessary to make short, easy booklets of rhyming words with the same orthographic pattern like *a log, a frog.* The last two pages of these books allowed for the children to add their own words and phrases following the pattern. Children were

also weaned away from heavy reliance on picture support by being asked to read a pictureless version of some of the little trade books whose illustrations led to accurate prediction of the text.

Teacher Qualifications, Education and Support

In addition to using qualified teachers, *The Boulder Project* also has a non qualified paraprofessional teacher aide component. This teacher aide is used to reduce group size as Title 1 teachers are required to work with groups of six children. It is felt that components of the lesson such as repeated readings of text and writing in journals or on dry erase boards can easily be implemented by the teacher aide. At all times the Title 1 teacher has the overall responsibility for the program and lesson planning. *The Boulder Project* also uses the apprenticeship model and provides ongoing teacher development through meetings, weekly observational visits and written feedback.

Eligibility Criteria

All children who are eligible for Title 1 services are also eligible for *The Boulder Project.*

Reading Writing Group (RWG)

Philosophy, Orientation and Rationale

The *Reading Writing Group* (Pinnell et al., 1994) was initiated as part of a statewide study in Ohio to assess the relative success of adaptations of *Reading Recovery* by comparing different instructional models. The materials and the program bias were the

same as for the *Reading Recovery* program but the teachers were required to "modify *Reading Recovery* teaching procedures" (Pinnell et al., 1994, p. 18) for small group instruction. Teachers were asked to use their ingenuity in devising techniques that were consistent with *Reading Recovery* one-to-one training but were able to be delivered in a small group situation.

Program Structure and Content

The *Reading Writing Group* program structure and content was based on the standard *Reading Recovery* model. The program was in addition to the regular classroom program and contained all the same elements as the standard *Reading Recovery* lesson.

Lesson Content

The *Reading Writing Group* lesson content was the same as *Reading Recovery*. That is, the small group of children were given opportunities for repeated reading of familiar and not so familiar texts, reading of a new book, independent writing with teacher assistance as necessary, working with alphabet letters and sounds, the analysis of words into syllables, onsets and rimes and phonemes, and the learning of metacognitive strategies and how, when and where to apply them.

Instruction

As with *Reading Recovery*, instruction proceeded from the needs of the students. The literacy behaviour of students was monitored frequently and instructional decisions were based on the results.

Time

The Reading *Writing Group* teachers spent half the day on one-to-one instruction with their regular *Reading Recovery* students and the other half of the day instructing children in small groups using the adapted *Reading Recovery* procedures. Each session lasted between 30 and 45 minutes. After 70 days the children were retested and the results compared with the other experimental groups' results. The *Reading Writing Group* program then continued until the end of the year.

Assessment and Evaluation

Initial assessment for a place in The *Reading Writing Group* program was based on results of The Diagnostic Survey (Clay, 1985). The students' progress in reading was monitored regularly throughout the program by observing, noting and analyzing changes in reading performance. Teachers recorded the growing number of words that students could write independently, and regularly noted book reading levels.

In the research study, end of year testing in May showed that of the instructional models studied by Pinnell et al., *Reading Writing Group* had the largest positive effects on the standardized Gates-MacGintie (ES = +.34). It is also interesting to note that a follow up test in October showed continuing positive effects in Dictation and Text Reading Level.

Reading Materials

The *Reading Writing Group* used the same instructional materials as *Reading Recovery*, that is, short, simple, high interest books, levelled in a gradient of difficulty.

Teacher Qualifications, Education and Support

The teachers involved in the *Reading Writing Group* were all certificated *Reading Recovery* teachers who had received at least the year long specialized *Reading Recovery* training course and who had participated in further continuing contact sessions in subsequent years. As they had been asked to use their expertise to find new ways of working, specific training in respect of the small group intervention was not given.

Eligibility Criteria

As *Reading Writing Group* was a research experiment, eligibility was tightly controlled by the design. Children who were eligible for *Reading Recovery* , that is, the lowest performers in the first grade cohort, were randomly assigned to one of four treatments, one of which was *Reading Writing Group.*

Comparison of Four Successful Early Intervention Programs

Table 1 compares *Reading Recovery*, *Reading Writing Group, Success for All* and *The Boulder Project* across nine variables; lesson content, instruction, time, assessment and evaluation, reading materials, teacher qualifications education and support, eligibility criteria, teacher expectation, and classroom and family support.

Table 1.

Comparison of Four Successful Early Intervention Programs

	Reading Recovery	Success for All	RWG	Boulder Project
Lesson Content	Reading, Writing, Word and letter level activities	Repeated Readings, Writing Word and letter level activities	Reading, Writing, Word and letter level activities	Repeated Readings, Writing Word and letter level activities
Instruction	Child driven, includes metacognitive strategies	Content driven, closely integrated with structured classroom program, includes metacognitive strategies	Child driven, includes metacognitive strategies	Content driven, includes metacognitive strategies
Time	30 minutes daily maximum 20 weeks	20 minutes daily as long as required	30-45 minutes daily full year	30 minutes daily full year
Assessment /Evaluation	Initial Observation Survey then ongoing daily. Evaluation shapes the program	Initial Informal Reading Inventories then 8 week cycle	Initial Observation Survey then ongoing daily. Evaluation shapes the program	Initial text level reading and writing assessments and word level knowledge then daily and quarterly
Reading Materials	Trade books graded into levels of difficulty	Individual reading books with controlled vocabulary	Trade books graded into levels of difficulty	Trade books graded by difficulty and word patterns. Word pattern booklets
Teacher Qualifications Education and Support	Certified reading teachers. Initial training in assessment procedures Half days weekly or bi-weekly for one year. Individual in-school support. Continuing Contact in subsequent years. Teacher Handbook	Certified teachers. 3/4 days initial training. Extensive ongoing follow up. Detailed Teacher Manual	Certified *Reading Recovery* teachers. Teachers asked to use their *Reading Recovery* training and improvise to meet the group situation	Certified teachers and teacher aides. Monthly meetings plus weekly and bi-weekly individual visits with written feedback

	Reading Recovery	Success For All	RWG	Boulder Project
Eligibility Criteria	Lowest first graders	Lowest first and second graders	Lowest first graders	Lowest first graders
Teacher Expectation	Children will be returned to average levels of performance in 12-20 weeks and will continue to make appropriate gains without further support	Children will become readers and writers and the program will support them as long as necessary for this to occur	Children will learn self extending strategies that will lead to independence	Children who are initially low performers will be brought to grade level literacy
Classroom and Family Support	Regular liaison with classroom teacher. Book sent home daily for further reading	Integrated with classroom program. Wide support on a range of issues to enable families to become involved in children's schooling	Regular liaison with classroom teacher. Book sent home daily for further reading	Creation of home libraries

As each of these programs provides for success in different ways it was seen as important to look more closely at certain variables to ascertain if these could be refined, and/or redefined, to provide a framework on which to base future successful interventions.

Lesson Content

Before readers can be said to be reading text they have to be able to both decode the words on the page and make sense of what is being read. Therefore an overall framework of reading development needs to take into account both comprehension and word recognition. Following the Simple View of Reading (Juel, Griffiths, & Gough, 1986; Gough & Tunmer, 1986) it is suggested that reading is the product of listening comprehension and decoding.

An analysis of the content of the four early intervention programs suggests important similarities. That is, each program focuses on both comprehension and word recognition. The lesson content of each program includes opportunities for repeated reading of familiar and not so familiar texts, reading of a new book, independent writing with teacher assistance when required, working with alphabet letters and sounds, the analysis of words into syllables, onsets and rimes and phonemes, and the learning of metacognitive strategies and how, when and where to apply them.

Instruction

The instruction in *The Boulder Project* and *Success for All* appears to be more content driven than *Reading Recovery* and *RWG* whose content is derived from, and built on, the perceived needs of the children. In each of the programs there is provision for short sharp drills, for teacher conversation and questioning, and for independent responding. All four programs contain opportunities for children to receive explicit instruction and for children to develop implicit understandings.

Reading Recovery and *RWG* take a Vygotskian view of instruction (Vygotsky, 1978). Working with what the children already know, the *Reading Recovery* teacher provides a scaffold to learning at the cutting edge of the child's assisted competence. In this way the teacher is able to continually change the zone of the child's actual independent performance.

Time

Programs typically run for 20-45 minutes daily and each intervention allows time over and above the classroom program for this extra tuition.

Assessment and Evaluation

Each program includes some form of initial, formative and summative assessment and evaluation. Although initial screening may be by way of standardized testing, each program also has its own beginning assessment procedures. These procedures range from a full survey of beginning reading and writing skills and strategies, to an observation of reading behaviour on informal reading inventories. Those programs focusing on content include benchmarks of content acquisition and are checked at regular intervals. Those programs focusing on children evaluate daily and adjust the program accordingly. In each of the programs, final testing ensures that children are performing at average or above average levels of performance for their school or district.

Reading Materials

Each program uses short interesting books for the children to read. Each program uses different criteria in order to level these books into a gradient of difficulty which will support beginning readers.

Teacher Qualifications Education and Support

All four early interventions use qualified teachers although *The Boulder Project* also has a non qualified paraprofessional teacher aide component. Teacher education both prior to and during the program is seen to be both necessary and effective (Lyons et al., 1993; Pikulski 1994; Pinnell et al., 1994; Wasik & Slavin, 1993). All four programs provided teacher education.

Eligibility Criteria

All four programs are designed to assist the lowest performers in the first grade. Those programs funded in the United States by Title 1 have to meet the federal criteria for inclusion. In general this means that any child who scores below the 50%ile on a recognized standardized test may be serviced, and those scoring below the 25%ile should be serviced. *Success for All* and *The Boulder Project* continue to support in the second grade, should it be necessary, and *Reading Recovery* has the flexibility to provide short booster sessions, subsequent to the program being discontinued, for any child who does not continue to make the expected progress back in the classroom.

Children Excluded.

Although all programs are inclusive rather than exclusive, there are many children who are excluded for various reasons. In school districts where there are large populations of children scoring below the 25%ile, funding may determine how many of those children can receive extra tuition through an early intervention program. Some districts with limited resources also prefer to choose children who need a boost to get them underway in literacy learning, rather than the lowest performers, who it is felt, may require a longer program. Districts feel that by not helping the very lowest performers, they will be able to help more children.

Other groups of children excluded may be those who have been referred for Special Education and who are already working from individual educational programs. Children may also be excluded because inclusion may lead to a compromise or a conflict with the intervention program. This is especially true of *Reading Recovery.* In many school systems in the United States, children repeating first grade may also be

excluded. There is also a tendency, although not documented, for some school districts to exclude children who change schools often and have irregular patterns of attendance.

One may assume therefore that although these early intervention programs are designed to assist the lowest performers, in reality many children who could have been helped by such programs are excluded. If the aim of the program is to reduce the incidence of reading failure in the school or system in which the program operates, then the lowest children would always need to be considered.

Children From Non English Speaking Backgrounds.

Of the children who may be excluded, one group requires special mention. These are the children from non English speaking backgrounds who may have English as their second or third language. There is a tendency to exclude these children even if they are not receiving another program to assist with English language acquisition. The rationale is that these children do not have enough English to benefit from the program and therefore it will take longer to catch them up. This in turn, will deny other children places in the program. The best documented evidence to support the inclusion of these children comes from *Reading Recovery*. *Reading Recovery* accepts children from non English speaking backgrounds into the program provided they have sufficient English to understand the instructions of the Observation Survey (Clay, 1993a) which is the initial assessment on which each child's *Reading Recovery* program is based. Follow up studies (Clay, & Watson 1982; Hobsbaum, 1994; Pinnell, et al., 1988; Smith, 1994) show positive results for such children. Smith (1994), questioning both the suitability and the long term results of *Reading Recovery* for English speakers of other languages (ESOL) children, found that those children" are successful in and continue to succeed after *Reading Recovery* without further assistance" (Smith 1994, p. 149).

Smith, however fails to address the relative amount of time that the ESOL children took to complete their program compared to the time taken by the non ESOL children. Smith-Burke and Jagger (1994) suggest that in New York "children who are less proficient in English can successfully participate in *Reading Recovery* but may take somewhat longer than native English speakers" (p. 72). They cite Clay (personal communication) as suggesting that this may also be true in New Zealand.

Teacher Expectations

In 1968, Rosenthal and Jacobson proposed that teachers' expectations could become self fulfilling prophesies for the children they teach. However, the mere presence of an expectation will not automatically ensure its fulfillment. To become fulfilled, expectations "must be translated into behaviour that will communicate expectations to the students and will shape their behaviour towards the expected patterns" (Good & Brophy, 1981, p. 273).

For many children having difficulty with literacy acquisition, classroom expectations are lowered and responsibility for progress is channeled to an out of class compensatory intervention program. Traditionally, the expectation of both classroom teachers and those responsible for providing the compensatory program has been that once a child has been labeled as requiring extra support, this support will be long term (Chapman & Boersma 1980). "Chapter 1 teachers were initially skeptical that most children could become proficient readers by the end of grade 1" (Hiebert, 1994b, p. 89). Commenting on effective schools, Purkey and Smith (1983) suggest that to be effective, teachers need to have realistic expectations of high performance by even the poorest children.

Teachers in each of the four interventions expected that most of the children would return to average levels of performance. All but *Success for All* suggested that this would happen within the first grade, with *Reading Recovery* statistics showing consistently that this occurs for most children within 12 -20 weeks (Clay, 1985, 1993b; Iversen & Tunmer, 1993; Pinnell et al., 1988).

Classroom and Family Support

Each program encourages support of both the classroom and the home. In many cases this is problematic because classroom teachers "excuse themselves from the responsibility for the education of low achieving students" (Walmsley & Allington, 1995, p. 25). In other instances both parents and the classroom teacher do not know how to provide such support even if they want to give it.

The *Success for All* intervention is completely integrated with the classroom program, and is often taught by the classroom teacher. It also offers a wide range of support techniques and systems to enable poor families to become involved in their children's schooling.

Further Intervention Variables

To assess the success of early intervention programs, two further questions need to be asked. Are the programs cost effective and are the results durable over time?

Cost Effectiveness

Reading Recovery has the best published data regarding the cost effectiveness of its program (Bracey, 1995; Dyer, 1992; Dyer & Binkney, 1995; Lyons and Beaver, 1995). Although there is debate as to the actual costs from outside the *Reading Recovery* fraternity (Hiebert, 1994a; Rasinski, 1995, Wasik & Slavin, 1993), proponents of the program suggest that it costs less than half the cost of retention, traditional Title 1 programs and Special Education programs. The key question is not whether the one-to-one tutoring of *Reading Recovery* is effective, but whether it is effective enough to justify the costs. If not, perhaps the effectiveness of the program can be increased. Iversen and Tunmer (1993) found that by modifying the *Reading Recovery* lesson to incorporate systematic training in phonological processing skills, children could be returned to average levels of performance in shorter time, thus further increasing cost effectiveness.

Both Hiebert and Rasinski question the cost effectiveness of *Reading Recovery* when compared to group instruction. Given the results of *The Boulder Project* and the *RWG*, albeit it over a year, rather than the 12-20 weeks of the *Reading Recovery* program, Wasik and Slavin (1993) ask the question, "Could not one-to-two or one-to-three instruction be nearly as effective?" (Wasik & Slavin, 1993, p. 197). Could not the already proven *Reading Recovery* and *RWG* programs be modified and refined further to make for a more cost effective intervention?

Pinnell, Lyons and Jones (1995) suggest in an argument for one-to-one rather than group instruction, that "it is like saying to the ward nurse 'Don't issue individual medication. Mix all the drugs together and give each patient the same dose'" (Pinnell et al., 1995, p. 20). What Pinnell et al. fail to appreciate is that if all the children in the

ward are identified as having malaria, the nurse would certainly not provide a different drug for each child. Clearly there are some procedures in the daily *Reading Recovery* lesson that need to be conducted on an individual basis, such as taking a running record of a child's reading performance. There is overwhelming evidence however that some strategies, for example, knowing how to use phonological information, need to be controlled by all children (Adams & Bruck, 1993; Tunmer & Chapman, 1993).

Durable Results

Research findings from all four intervention programs suggest that children who have received appropriate instruction within the program continue to make progress after their program has been discontinued and they have been returned to the regular classroom. Documented results by Clay (1985), Clay and Watson (1982), Smith (1994), and Pinnell et al. (1991), suggest that children who receive a complete *Reading Recovery* program continue to make progress for at least the next three years. Critics of the durability of *Reading Recovery* results (Glynn et al., 1989; Hiebert, 1994a; Tunmer, 1989; Wasik & Slavin, 1993), suggest that apparent initial large gain scores diminish over time to show little effect some two to three years later. Challenges have also been made (Hiebert, 1994a) to the method of assessing gain through oral text reading in which no measure of comprehension is included.

Summary

Traditional remedial and compensatory education programs for children at risk have not addressed the issue of returning children to average levels of performance, but have tended only to keep such children from falling even further behind their age peers.

However some intervention programs have particular factors which appear to make them successful. These factors include:

- reaching the children early before cumulative effects of failure become chronic
- time given over and above the regular classroom program
- teacher education
- balanced content
- quality instruction
- ongoing assessment and evaluation of student progress
- high expectations
- regular classroom and family support

Four successful early intervention programs which serve the same population, that is, the lowest performers after a year at school, were discussed in full. *Reading Recovery* and *Success for All* were chosen as examples of one-to-one interventions, and *The Boulder Project* and *Reading Writing Group* (*RWG*) were chosen as examples of small group interventions. Each of the four programs provides for, although differently, all of the factors mentioned. These factors fit into two general categories. The first category contains those factors related to the teacher. These include teacher qualifications, education and support, expectation and expertise, and communication with and support from the regular classroom teacher and the family. The second category contains instructional factors. These include reading materials, lesson content, efficacy of the instructional model, assessment and evaluation, lesson and program time. It is clearly a combination of these two categories that accounts for success. As Juel (1994) suggests, "it is clearly the interaction between the academic activities and the social context of the tutoring situation, that yields the positive results" (Juel, 1994, p. 60).

Two further questions need to be asked when assessing success. These are the cost effectiveness of delivering the program and the durability of the results over time. It is here that the program initiators differ. Questions are asked by Hiebert, and Wasik and Slavin as to whether the one-to-one model of *Reading Recovery* is effective enough to be cost effective, and whether the initial accomplishments are maintained through fourth grade that is, three years later.

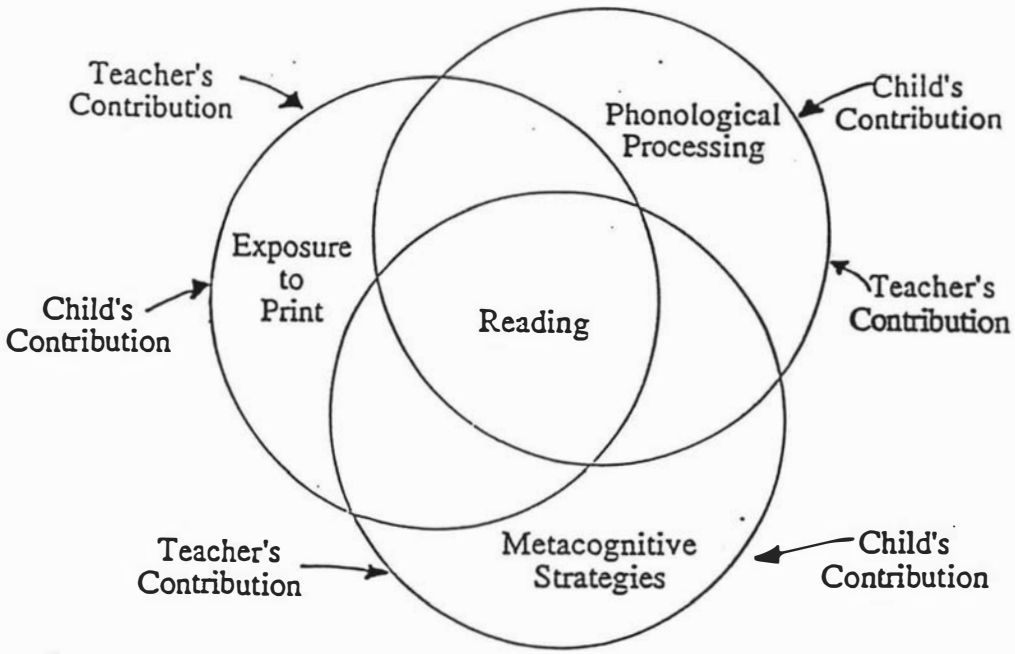
A Framework of Factors Influencing Reading Development

Two instructional factors of the successful intervention programs were chosen for further analysis, namely the lesson content and the instructional model. It was hypothesized that a closer investigation of these may lead to a particular theoretical underpinning for developing further successful programs for beginning readers and writers. Figure 1, provides a synthesis of the important lesson content factors that underpin the success of the early intervention programs.

This framework of lesson content factors influencing reading development has three major intersecting and overlapping components all of which are seen as necessary for reading acquisition and development. These are phonological processing, exposure to print through reading mileage and metacognitive strategies. The contention is, that for reading skills and strategies to develop appropriately, all three aspects of the framework need to be in place as each is dependent on and will provide a bootstrapping or snowballing effect for the other two.

Figure 1.

A Framework of Factors Influencing Reading Development



While addressing content factors, the framework also allows for differences in theoretical underpinning, and the varying emphases at the program and the teacher level, by allowing for and acknowledging the respective contribution of both teacher and child. The weighting given any one aspect of the framework will be governed by the teacher's theoretical stance and the current level of expertise of the learner. Those programs which are more content driven, such as *Success for All* and *The Boulder Project*, may place more emphasis on the teacher contribution while those programs which are more child centered, like *Reading Recovery* and *RWG*, may allow for and proceed from the child's contribution.

The framework also allows for flexibility within the program, because the components are not fixed or discrete, and offer user choice depending on needs. This instructional flexibility is a significant aspect of the *Reading Recovery* and *RWG* programs.

Cognitive Factors in Reading Development

There are undeniably many cognitive and linguistic factors associated with the acquisition of literacy which manifest themselves as skills and strategies needed by beginning readers and writers to enable them to extract a meaningful message from a series of print cues and to produce unfamiliar words in message writing.

Two important cognitive factors are syntactic awareness and phonological awareness (Tunmer & Hoover, 1992). Syntactic awareness leads to the use of language prediction skills and sentence context cues for solving unknown words in text, while phonological awareness leads to the use of graphophonemic cues. Current research (Adams, 1990; Byrne & Fielding Barnsley, 1991; Ehri, 1986,1987; Foorman, Francis, Novy & Lieberman, 1991; Goswami & Bryant, 1990; Gough, Ehri & Treiman, 1992; Just & Carpenter, 1987; Nicholson, 1991; Perfetti, 1985; Rayner & Pollatsek, 1989; Rieban & Perfetti, 1991; Stanovich, 1986a, 1986b, 1991; Tunmer & Hoover, 1992, 1993; Vellutino, 1991a, 1991b) suggests that to become skilled readers, children need to learn how to process virtually all the words they encounter in text, rather than relying on contextual cues and merely sampling minimal amounts of text as previously suggested by Smith (1978) and Goodman (1967).

By being exposed to print in the environment and by being read to, some children will undoubtedly learn how to recognize a few words. However it appears that if children are to rapidly develop a reading vocabulary, strategies other than guessing from context

and learning words logographically have to be employed for learning new words. While using language prediction skills is helpful in word recognition for beginning readers, without the use of the alphabetic code they could be expected to predict no more than 10% of content words and 40% of function words (Tunmer & Chapman 1993).

Emphasis on Language Prediction Skills and Phonological Recoding Skills

Currently, different emphasis is placed on the use of language prediction skills, and phonological recoding skill by reading specialists, dependent on their theoretical bias. Those teachers following a perspective that assumes that learning to read is essentially learning how to use minimal word level information to confirm language prediction skills, will engage in little teaching of phonological processing. Those teachers who view the acquisition of reading as being fast accurate word recognition, will teach a variety of phonological processing skills and strategies making use of the alphabetic system.

Tunmer and colleagues (Tunmer, 1990; Tunmer & Hoover, 1992, 1993; Tunmer & Chapman, 1995) suggest that both language predictions skills and phonological recoding ability are important in contributing to word recognition, but stress that emphasis should be placed on phonological recoding skill even for irregularly spelled words (Tunmer & Chapman, 1995). They suggest that

> " language prediction skill facilitates the development of word recognition ability by enabling beginning readers to combine sentence context cues with incomplete graphophonemic information to identify unfamiliar words. This in

> turn increases children's word specific knowledge and provides them with the basis for inducing further spelling sound correspondences" (Tunmer & Chapman, 1995, p. 36-37).

Tunmer and Chapman (1995) recommend that when children come to an unknown word, they should be encouraged, first to look for familiar spelling patterns, and then to use the context to confirm, rather than to use sentence context cues to predict the unknown word and then use letter/sound knowledge to check the prediction. Children who rely on contextual guessing in this way, and who do not possess the required phonological processing skills, will soon be severely limited, as books become harder and picture support enhances, rather than predicts meaning, or disappears altogether.

Phonological Processing Factors

The Phonological Processing component of the framework of reading development comprises four related factors. These are phonological awareness, cipher knowledge, onset/ rime sensitivity, and orthographic analogies, all of which contribute to children using different strategies for solving unknown words in reading and spelling unknown words in writing.

Phonological Awareness.

Phonological awareness is the ability to reflect on and manipulate the phonemic segments of speech. The development of phonological awareness relates to the child's ability to stand back from and control his/her intellectual processes. Thus, it is a metalinguistic ability requiring "control processing" (Tunmer, 1990; Tunmer & Hoover, 1992 1993; Tunmer & Rohl, 1990).

Phonological Awareness and Reading Acquisition.

The body of literature related to phonological awareness (Ball & Blachman, 1991; Blachman, 1984; Bradley & Bryant, 1983,1985; Bryant & Bradley, 1985; Byrne & Fielding-Barnsley. 1989; Cardoso-Martins, 1991; Cunningham, 1990; Goswami & Bryant, 1990; Hatcher, Hulme & Ellis, 1994; Iversen & Tunmer, 1993; Jorm & Share, 1983; Juel, 1988; Juel, Griffiths & Gough, 1986 ; Griffiths, Klesius & Kromrey, 1992; Lundberg, Frost & Petersen, 1988; Lundberg, Olofsson & Wall, 1980; Mann, 1984,1993; Olofsson, 1985; Perfetti, Beck, Bell & Hughes, 1987; Shankweiler & Liberman, 1989; Share et al., 1984; Stanovich, 1986a, 1986b; Stanovich, Cunningham & Cramer, 1984; Stanovich, Cunningham & Feeman, 1984; Tunmer, 1990; Tunmer & Hoover, 1992; Tunmer, Herriman & Nesdale, 1988; Tunmer & Nesdale, 1982, 1985; Vellutino & Scanlon, 1987; Wagner & Torgensen, 1987; Williams, 1984) suggests that it is a reliable predictor of beginning reading ability and that it is causally, consequentially and reciprocally related to reading. Once readers are underway, a reciprocal relationship between learning to read and phonological awareness leads to a snowballing or bootstrapping effect for both processes.

Phonological Awareness and Differences in Reading Acquisition.

Over the past decade it has been suggested that phonological awareness accounts for much of the difference shown in early literacy behaviours (Bradley & Bryant, 1983, 1985; Iversen & Tunmer, 1993; Juel, 1988; Pratt and Brady, 1988; Stanovich, 1986a; Stanovich, Cunningham & Feeman, 1984; Tunmer & Nesdale, 1985; Vellutino & Scanlon, 1987). Those children who continue with logographic strategies and do not learn how to productively map phonemes onto graphemes in order to learn new words and to assist with the searching for and checking on information in text, will soon find

reading too difficult, especially when picture support is withdrawn. They will also be impeded in the speed and automaticity with which they can recall from, and incorporate new words into, their store of known vocabulary. However, in cases where specific phonological awareness training has been given, improved literacy performance has resulted for both normal and poor readers (Ball & Blachman, 1991; Bentin & Leshem, 1993; Blachman, 1991; Bradley & Bryant, 1983,1985; Bryant & Bradley, 1985; Castle, Riach & Nicholson, 1994; Cunningham 1990; Gaskins et al., 1991; Greaney, Tunmer & Chapman, 1996 in press; Griffiths & Olsen, 1992; Haskell, Foorman & Swank, 1992; Hatcher, Hulme & Ellis, 1994; Iversen & Tunmer, 1993; Lundberg, Frost & Petersen, 1988; Slocum, Connor & Jenkins, 1993; Torneus, 1984; Treiman & Baron, 1983; Wallach & Wallach, 1979; White & Cunningham, 1990). If one accepts that phonological awareness is both a cause and consequence of learning to read, it is clear that the low progress reader will soon experience difficulty in reading, unless explicit instruction is incorporated into support programs for those children.

Cipher Knowledge

In order to employ any strategy for learning new words other than contextual guessing or learning words logographically, children need to know how to map phonemes onto graphemes. Phonological recoding skill or cipher knowledge is the ability to translate letters and letter clusters into phonological forms. Children need to be conceptually aware of the interrelatedness of visual patterns and sounds shared by different words, or "grasp that there is a system of correspondences to be mastered" (Gough & Juel, 1991, p. 51). In order to become skilled readers, children not only have to give up trying to memorize words by some selective association, but also to understand and internalize that there is a code to be broken. To become what Gough Juel and Griffith (1992, p. 40) call "cipher readers", children have to possess "cryptanalytic intent", that

is, the understanding that there is a code to be broken. They also need to understand, and be able to use, the relationship between letters in written words and phonemes in spoken words.

Studies (Bryant & Bradley, 1985; Liberman, Rubin, Duques & Carlisle, 1985; Morais, et al., 1979) suggest that it is hard to attain cipher knowledge without some knowledge of alphabet letters. Letter name knowledge itself has been shown to be one of the best predictors of reading performance. Studies by Ehri (1983), Ehri and Wilce (1985), Mann (1986), Masonheimer, Drum and Ehri (1984), and Walsh, Price and Gillingham (1988), for example, have shown that alphabet knowledge is essential for the acquisition of reading and writing. It is by using the alphabetic code in producing such examples as *L* to represent *elevator* that children are able to make their first real connections between the spoken and written word. It is the development of cipher knowledge that allows children to progress beyond this point to a stage where they are able to approximate a spelling such as *tabl* for *table*.

Onsets and Rimes

Full blown phonemic processing is a difficult task for most beginning readers and appears to be a later developing skill (Tunmer, Pratt & Herriman, 1984). However, Treiman (1985, 1987, 1988) has suggested that there is an intermediate level of phonological structure between the segmentation of words into syllables, which may not need metalinguistic ability (Tunmer & Rohl, 1990), and the segmentation of words into phonemes.

This intermediate step allows for the segmentation of a word into an onset and a rime, where the onset is the initial consonant or consonant cluster, and the rime is the vowel

and any following consonants. Treiman (1992) maintains that this distinction is an important one as it helps us to understand the relationship between phonological awareness and literacy. She contends that because many of the onsets accessible to beginning readers often comprise a single phoneme (e.g., *c at*), a focus on word families may facilitate the process of isolating and recognizing individual phonemes. Likewise, as many of the rimes are dependable, (e.g., *at, it),* the ability to segment words into onsets and rimes is in fact advantageous when related to the recognition of regular spelling patterns (Bryant & Goswami, 1987; Goswami, 1986, 1994; Goswami & Bryant, 199O; Wise, Olsen & Treiman, 1990)

In support of onset rime theory, Goswami (1986, 1988,1991) and Wise, Olsen and Treiman (1990) found that children learnt more words when they were segmented into onset and rime units rather than when they were segmented after the vowel, even if the shared spelling units were larger in the latter case. These findings confirm that phonological knowledge at the onset and rime level in fact precedes full-blown phonemic awareness.

Other studies (Bryant & Bradley, 1983; Cunningham, 1990; Haskell, Foorman & Swank, 1992; Iversen & Tunmer, 1993; Kirtley, Bryant, MacLean & Bradley, 1989; White & Cunningham, 1990) clearly support Treiman's view that the onset rime distinction is important in children's phonological awareness and word recognition development, especially between the ages of five and seven, and that the ability to rhyme and to use onset - rime units, relates strongly to young children's ability to read.

Further confirmation of the hierarchical nature of onsets and rimes to phoneme segmentation can be found in children's ability to make orthographic analogies to solve unknown words in reading. Using analogous reasoning to make links from the known

to the unknown is a strategy often used by competent learners to help solve learning problems. Goswami (1992) has found that very young children are able to reason by analogy provided that the relations they are asked to reason about are not too difficult for them.

Analogies and Learning New Words

Work with beginning readers (Goswami, 1986, 1988, 1991,1993; Goswami & Mead, 1992) has shown that children aged five and six are able to use orthographic analogies to solve unknown words in reading, especially those words with a shared rime spelling pattern (e.g., *c at, h at, m at,*). Typically Goswami taught the children a clue word (e.g., *beak*) and then asked them to read words that either shared the same initial spelling pattern (e.g., *bean, bead, beat),* or the same rime (e.g., *peak, weak, squeak).*

Evidence from these studies (Goswami, 1986, 1988, 1992; Goswami & Bryant, 1990) showed that the easiest analogies for young children to make were those that involved the use of onset and rime, particularly where the rime segment remained constant. That is, it was easier for children to solve *peak, weak* and *squeak* than *bean, bead,* and *beat.* Results also showed that children's rhyming skills were related to their ability to decode new words using such analogies.

The ability to make such orthographic analogies can lead to the rapid accumulation of words into the mental lexicon. This is not the product of the development of the ability to make analogies, as children appear to be able to use this type of analogous reasoning when they start to learn to read, but rather a product of the growing number of words that children have to make analogies from (Goswami, 1986; Mustafa, 1991). For example, Wyllie and Durrell (1970) identified 37 dependable rimes occurring frequently

in primary readers. To be called dependable, the rime segment of the word needs to retain the same pronunciation, regardless of the onset and regardless of whether or not it is a regular spelling pattern. For example, *at* as in *cat, fat, rat, mat,* etc., has a regular spelling pattern and is dependable. Likewise *ight* as in *light, right, fight*, etc., is dependable although it has an irregular letter to sound correspondence. Alternatively *and,* though a regular spelling pattern, is not a dependable rime (e.g. *sand, wand*). From Wyllie and Durrell's list of 37 dependable rimes, some 500 primary grade words can be derived using the process of analogy transfer.

Stanback (1992), working on the same premise, analyzed 17,602 high frequency words in order to find syllable and rime patterns. She found 616 rimes that provided the building blocks for some 43.000 syllables of words. Of these, 436 were both regular and consistent in pronunciation except where a single exception occurred. A further 55 were consistent but not regular. Of the remaining 125 all but 86 had more than 90% level of consistency. From these two studies it can be seen that if very young children are able to break words into syllable and onset and rime units, and if they are able to use orthographic analogies, they have access to a substantial beginning reading and writing vocabulary.

An Interactive Analogy Model

In light of the forgoing evidence regarding analogies, Goswami (1994) has proposed an interactive analogy model of learning to read. This model proceeds from onset rime sensitivity to rime based orthographic analogies, to phonemic awareness, to phoneme based orthographic analogies. Goswami suggests the children are using the same strategy of lexical analysis at each level of reading development. "The model is

interactive because phonological knowledge and orthographic knowledge are seen as influencing one another throughout development" (Goswami, 1994, p. 21).

Alternative Views of Orthographic Analogies

While Goswami suggests that the ability to use rime based orthographic analogies precedes full blown phonemic awareness, alternative views suggest the contrary (Ehri & Robins, 1992; Muter et al., 1994: Rack et al., 1992). The opposing view suggests that children's ability to derive the rules of analogy from larger chunks of information, for example onset/rime, comes after some phonemic awareness and sight word knowledge has been established. However, as Mustafa (1995) points out, Ehri and Robbins used single phoneme onsets, and therefore their choice of terminology may be more significant than the difference in argument. What is important is that children need some knowledge of letter sound correspondence in order to be able to make use of the orthographic analogy principle. Therefore a child given the word *cat* and asked to read the word *bat*, has to know at least another word that has the same rhyme, or have *at* in their bank of known words, in order to extract the rule for the rime. They also need to control the letter sound relationship of *b* and /b/, or know another word that starts with /b/ to extract the onset rule. Consistent with this view is research by Bowey and Hansen (1994), which suggests that knowledge of rime units and grapheme phoneme correspondences develop simultaneously during beginning reading instruction.

Analogies and Children Experiencing Difficulty with Reading

Lovett et al. (1990, 1994) suggest that children who are experiencing difficulty with reading do not spontaneously use rime based analogies, but that this skill can be successfully taught. What is not clear from Lovett et al., is whether these children are

experiencing difficulty because they lack sufficient onset rime segmentation ability, or whether they possess, but do not know how to use, the knowledge. Greaney, Tunmer and Chapman (in press), devised two experiments to ascertain whether older disabled readers lacked the phonological skills to make the rime based analogies, or whether they lacked the metacognitive strategies to use the information effectively. Their results suggest that the children did have the prerequisite knowledge, and "that a combination of skills training and metacognitive training in the use of rime spelling units provides the basis for an effective intervention program for these children" (Greaney, Tunmer & Chapman, in press).

Phonological Processing and the Intervention Programs

It is evident when analyzing the content of the four intervention programs that each addresses phonological processing especially as it applies to cipher knowledge and word patterns. The *Reading Recovery* and *RWG* lessons provide many opportunities for exploring sounds and words through reading and writing. Of the 12 general *Reading Recovery* procedures, six may be said to have aspects of phonological processing as their main focus. These procedures are; Learning to Look at Print, Writing Stories, Hearing and Recording the Sounds in Words, Assembling Cut Up Stories, Linking Sound Sequence with Letter Sequence, and Taking Words Apart in Reading (Clay, 1993b).

In Learning to Look at Print and Taking Words Apart in Reading, children learn how to manipulate plastic magnetic letters to extend their knowledge of words and the letter combinations that make up words. In Linking Sound Sequences and Letter Sequences children are exposed to a range of activities that will help them make links between the sounds in the words they need to spell when writing or check in reading, and also to

analyze the letters and letter clusters in the words they are reading with the words they are trying to say. The Cut Up Sentence provides further opportunities for making the links between the written and spoken word. There are three emphases in story writing. The children need to know how to write some words correctly in every aspect, know how to hear and record sounds in words, and know how to use what they already know to get to new learning, for instance knowing *and* and *s* to write *sand*. Hearing and recording sounds in words is taught specifically by encouraging the children to stretch words out so that they can hear, and then record, the constituent phonemes.

The Boulder Project has as one of its goals for proficiency, " Guidance on the words in texts, emphasizing phonemic awareness and word patterns" (Hiebert ,1994b, p. 89). It also provides instructional material and teacher guidance to ensure that the children "pick up on these patterns at the point where the information would be most helpful to them" (Hiebert, 1994b, p. 92).

Success For All suggests that children not only need to learn how to read in a meaningful context, but also need to have a "systematic presentation of word attack skills" (Slavin et al., 1994, p. 128). This is facilitated through the choice of text, and also the lesson format which allows for the same skills to be taught and practiced in many different ways through reading and writing activities, and also short, sharp drills.

What is not discussed in depth in the literature pertaining to the four intervention programs is the quality of teacher interaction in the teaching of the metacognitive strategies required to assist children not only to know how to make rime based analogies, but also how and when to apply them.

Lyons et al. (1993) provide some insight which suggests that *Reading Recovery* teachers are focusing more on cipher knowledge at the initial letter level, and blending phonemes rather than encouraging children to use rime based analogies. An example is offered of a child reading The Poor Saw Paw, (Cowley 1987) at level 16, which is near to the average discontinuing level for most *Reading Recovery* children. The last sentence on the second to last page of the book says

The poor saw paw came out.

Dog was free.

The teacher child interaction is as follows:

Matthew "*Wood...wood of the bridge*" (Matthew continued reading).

"*The, the poor sore paw came out of the friend.*"

Teacher "*You're starting it. It begins like friend. Let's see what would make sense. Stretch it out with me.*

Matthew "*Free.*"

(Lyons et al., 1993, p. 80)

One would expect a teacher teaching for the use of rime analogies to ask the child to look for something in the print that would assist with the independent decoding of *free,* or to offer a prompt such as "You know a word that sounds and looks like this one that will help you here." It would be expected that a child nearing the completion of his/her *Reading Recovery* program would have had lots of practice making rime based analogies and would know the sight word *see.*"

Metacognitive Strategy Factors

Even though the importance of phonological processing cannot be overemphasized in reading acquisition, reading is also a problem solving activity which requires learners

not only to possess knowledge, but also to know how and when to apply such knowledge. This type of metaknowledge, or metacognition, in relation to learning to read and write, implies "control processing" (Tunmer, 1990; Tunmer & Hoover, 1992; Tunmer & Rohl, 1990). It implies that children are able to stand back from, and control, their intellectual processes. Clay (1991) describes this metacognitive knowledge as the child acquiring "not merely a set of information but a network of strategies for operating on, or with, text" (Clay, 1991, p. 326).

Metacognitive Knowledge

Metacognitive knowledge embodies three essential types of knowledge, declarative knowledge, procedural knowledge and conditional or contextual knowledge (Marzano et al., 1988). Declarative knowledge is factual knowledge. In essence it is the sense of knowing that something exists. Procedural knowledge is knowing how to use that which is known, and conditional or contextual knowledge is knowing why a given strategy may work and when to apply it.

A practical example of this is evidenced by a child in the early stages of learning to write. The child wishes to write a sentence containing the unknown word *cake*. This child has certain options available, each requiring a different strategy. At the declarative level the child may know that s/he can sound out the word and write what s/he hears. The child may also know that if s/he can say a known word that rhymes with cake, that word will probably be spelled the same way. The child thus knows two methods for getting to the spelling of *cake*. This is declarative knowledge. The child then needs to use procedural knowledge to spell the word using the chosen method. If the child chooses to sound the word out and write what is known, the child has to know how to segment the word into its constituent phonemes and write the graphemes which

correspond to the given phonemes. If the child chooses to use a rhyming analogy s/he has to know how to write the known word, how to segment the onset from the rime, how to substitute a new onset using a phoneme-grapheme correspondence and how to combine the new onset with the existing rime to form the new word. These are examples of procedural knowledge. To use conditional knowledge the child has to know which of these strategies is the most appropriate to use in this situation. Once again there are options. If the child does not know how to spell any word that rhymes with cake, although s/he knows that this procedure is available to him/her, that option is not available. If s/he uses the sounding out strategy it may lead to a spelling of *kak* or *cak,* whereas using a rime analogy from a known word *make* will probably result in a correct spelling. The rime analogy option however, would not hold true for words with the same sound but different spelling patterns, for example *care, bear, hair.*

Teaching Metacognitive Strategies

The teaching of metacognitive strategies in literacy implies more than an alternative to a skill and drill approach. It implies helping children to become conceptually aware and teaching them how to use declarative, procedural and conditional knowledge in order to build a "self extending system" (Clay 1991). The term self extending system, implies that children have in place a network of metacognitive strategies which enables them to take advantage of the bootstrapping effect of learning more about reading and writing each time they read and write. These processes may not be naturally acquired but can be successfully taught.

Metacognitive Strategies and Children At Risk

The importance of metacognitive knowledge to reading acquisition for children at risk has been variously described as it relates to phonological processing (Cunningham, 1990; Hatcher Hulme & Ellis, 1994; Iversen & Tunmer, 1993). In each instance beginning reading performance has been improved by the inclusion of specific, explicit training in phonological processing tasks especially where training in procedural knowledge has also been included.

Emphasis on strategic teaching as against a skill and drill approach for children at risk has been demonstrated in several successful training and early intervention programs, especially where children are being taught strategies for reading unfamiliar words in texts (Cunningham, 1990; Gaskins, et al. 1988; Goswami & Bryant, 1990; Greaney, Tunmer & Chapman, 1996 in press; Hatcher Hulme & Ellis, 1994; Iversen & Tunmer, 1993; Taylor, Strait & Medo, 1994). Hatcher, Hulme and Ellis (1994), in proposing their "phonological linkage hypothesis", reported that children at risk who were taught reading combined with phonology training performed better on comprehensive posttests measures of reading than did a phonology training alone group. However, the skill and drill phonology alone group scored higher on the phonological measures, suggesting that it is not only training in phonology that benefits poor readers, but also the knowledge of how to use this knowledge when exposed to the printed word in authentic reading situations.

Metacognitive Strategies and the Intervention Programs

In each of the four intervention programs, emphasis was placed on strategic learning. Success For All places the emphasis on comprehension strategies. "Tutors are trained

to explicitly teach metacognitive strategies to help the students monitor their comprehension" (Wasik & Slavin, 1993, p. 189).

The Boulder Project places emphasis on metacognitive strategies to help children use word patterns while *Reading Recovery* and *RWG* take the broader view that children need a network of strategies across all reading behaviours that they may draw on.

What is not clear is the level of metacognitive strategy training that intervention teachers engage in as there is little documented evidence of instructional conversations. Lyons et al. (1993) provide another example of Matthew endeavouring to solve reading problems while reading The Poor Sore Paw (Cowley, 1987) .

Text	*Sam moved the wood on the bridge.*
Matthew	"*Sam move the*"
Teacher	"*What did he move?*"
Matthew	"*Move the*"
Teacher	"*Get your mouth ready.*"
Matthew	"*Moved the*"
Teacher	(Pointing the picture of the wood), "*What do you call this?*"
Matthew	"*A wall*"
Teacher	"*I don't think it would be a kind of wall. It starts like wall, though. What did he move right here? What is this?*"
Matthew	"*Moved the*"
Teacher	"*Could the word be wood?*"
Matthew	"*Yeah, wood.*"

(Lyons et al. 1993, p. 80)

Lyons et al. suggest that this child is able to monitor his own reading as he stopped when it didn't make sense, and that he is able to analyze words visually because elsewhere in the text he made a prediction using the *f* and *r*. It is suggested, however that these metacognitive strategies are low level and inefficient for processing text at this level of difficulty and stem from an inappropriate theoretical perspective. What this child needs to be able to do is to search for information contained in his prior knowledge of language and the print on the page, and to know how to apply this knowledge appropriately, rather than rely on contextual guessing using initial letter cluster knowledge.

Exposure to Print Factors

Because so many of the phonological processing skills and metacognitive strategies interact with reading in a snowballing or bootstrapping way (Perfetti, Beck, Bell & Hughes, 1987; Tunmer & Rohl, 1990), it is important for beginning readers to engage with as much print as possible to facilitate the acquisition of reading. It is while engaged with print in a meaningful way that the teaching, learning and application of metacognitive strategies becomes possible.

Exposure to Print and Reading Achievement

Early interaction with print leading to greater amounts of independent reading has been shown to promote reading achievement (Pikulski & Tobin, 1989: Cipielewski & Stanovich, 1992; Stanovich 1992). Stanovich (1992), in reporting the importance of reading mileage, suggests that "exposure to print is efficacious regardless of the child's cognitive and reading abilities. We do not have to wait for prerequisite abilities to be in place before encouraging free reading" (Stanovich, 1992, p. 18).

Although most of the research into the cognitive benefits of exposure to print through reading mileage has been conducted with older children and young adults (Elley, 1985, 1989; Nagy, Anderson & Herman, 1987; Nagy, Herman & Anderson, 1985; Nagy & Herman, 1987; Stanovich, 1992; Stanovich & Cunningham, 1992), exposure to print has also been shown to be critical in the formation of a literacy set in the preschool years (Mason, 1992).

Exposure to Print and Literacy Learning

In the first year of formal instruction, exposure to print can take place in two ways for beginning readers. The first occurs when text is read to and with children. The second is through independent reading. Both these types of exposure to print provide vehicles for incidental and deliberate learnings about literacy. These learnings include: expanding listening vocabulary through knowledge of new concepts and word meanings, learning about the conventions of printed language, learning book language and syntax, and learning some phonological segmentation skills, some reading vocabulary and some aspects of letter name and sound knowledge.

Listening Vocabulary Acquisition and Concept Formation

Many new word meanings can be learned in the course of reading and being read to. Although most of the research in this area has been done with older children (Elley, 1985,1989; Nagy, Anderson & Herman, 1987; Nagy, Herman & Anderson, 1985; Nagy & Herman, 1987; Stanovich, 1992) it is no different for beginning readers (Peterman, 1988; Wells, 1985). Elley (1985, 1989) found that listening to stories was a powerful way for children to learn new words. He found that children from different ethnic backgrounds showed increased listening comprehension, knowledge of concepts

about print, and improved their listening vocabulary by learning the meanings of many new words even when the teacher gave no additional explanation.

The important conclusion from the research in this area is that exposure to new vocabulary through reading it in context is a "very very important component of vocabulary acquisition" (Adams, 1990, p. 50). For children who are not yet able to read for themselves, exposure to new vocabulary through listening to and joining in stories would appear to be essential.

Conventions of Print

Learning the conventions of printed language takes place slowly (Clay, 1979b; Downing, 1970; Holdaway, 1979) while children are exposed to, and engaged with, the printed word. During the course of being read to children often gain insights into important concepts about print. For example, children may learn concepts such as letter, word and illustration. They may also learn about order and direction, at the book, page, sentence, and word level. Some children may also come to understand hierarchical concepts such as that letters make up words, that words make up sentences, which make up paragraphs, which make up stories.

Oral And Book Language Expectation

By involving young children in the process of reading books through a shared bedtime-like story situation, teachers increase the children's ability to expect and to use book language (Chafe, 1982; Chomsky, 1979; Sulzby, 1985; Tannen, 1982). Mason, Peterman and Kerr (1989) found that kindergarten teachers reading picture books, story

books and informational text, all engaged in dialogue with the children which led to improved general oral language and book language on the part of the children.

Purcell Gates (1989) points out the difference between children's oral language and the decontextualized nature of the language found in books. She contends that this differentiation is important in beginning reading. Children need to be able to use language prediction skills to help anticipate text, and knowledge of the type of vocabulary and syntax used in books will greatly assist language anticipation.

Phonological Awareness

The strong view of a causal relationship between phonological awareness and learning to read suggests that phonological awareness not only facilitates the acquisition of literacy, but that some minimal level is required to get readers underway (Gough & Hillinger, 1980; Gough & Tunmer, 1986; Jorm & Share, 1983; Juel, Griffiths & Gough ,1986; Stanovich, 1986a; Treiman & Baron, 1981; Tunmer, Herriman & Nesdale, 1988; Tunmer & Hoover, 1992; Tunmer & Nesdale, 1985; Tunmer & Rohl, 1990). Early phonological awareness ability is shown by the ability to produce rhyme and alliteration (Bradley & Bryant, 1983, 1985; Bryant et al., 1990; Calfee, Chapman & Venezky, 1972; Doehring, Trites Patel & Fiedorowiez, 1981; Kirtley et al., 1989) and such ability is often fostered by exposure to print, namely the repeated reading of rhyming and alliterative texts such as nursery rhymes, songs and jingles.

Letter Name And Cipher Knowledge

In the same way as early aspects of phonological awareness may be learned by listening and watching as stories are read, so too may some letter names and their corresponding sounds also be learned.

Vocabulary Acquisition

Children initially learn to read and spell words quite differently (Goswami & Bryant, 1990). Frith (1985), Gough and Juel (1991) and Seymour and Elder (1986) suggest that children may learn to read their first words logographically by selecting a feature by which this word is remembered. This feature may be a character, the type face used, a known letter name, the length of the word or even its resemblance to a known object. *Zoo* and *yellow* are two such words which, though not occurring regularly in written language, are quickly recognized by many children. In the course of participating in stories, children have opportunity to learn some new words without using graphophonemic information.

The Reciprocal Relationship of Learning to Read and Exposure to Print

Research into high and low progress readers shows consistently that children experiencing difficulty in reading are exposed to significantly less print than their more able peers. They receive differential instruction and soon meet text that is too difficult and are therefore unable to take advantage of the reciprocal benefits of reading and learning to read (Allington, 1980, 1983, 1984, 1994; Beimiller, 1977, 1978; Clay, 1979b, 1991; Juel, 1988; Stanovich, 1986a, 1992).

Clay (1979b,1991) suggests that in the first year of instruction high progress readers read in excess of 20,000 words whereas low progress readers read less than 5000. As many important reading skills interact in a reciprocal relationship with amount of free reading, for example phonemic awareness, vocabulary acquisition and the ability to use the cipher to solve increasingly difficult words, it is important to provide many opportunities for all children to read even the simplest texts independently. A lack of exposure to the printed word combined with weak phonological processing skills effectively denies children who are having difficulty with reading the advantage of the bootstrapping effect of reading and learning to read. This in turn can lead to the downward spiral of negative Matthew Effects (Stanovich, 1986a; Juel, 1988).

Exposure to Print and the Intervention Programs

Reading Recovery, Success for All, Reading Writing Group and *The Boulder Project* recognize the importance of reading mileage, and incorporate many opportunities for reading stories into the daily lesson format. Time is allocated in each program for the re-reading of previously seen text as well as reading of a new and slightly more difficult book.

Reading Recovery places emphasis on the re-reading of familiar, already seen material, whereas *The Boulder Project* emphasizes repeated readings of the newly introduced text. Each program introduces a new book to the children daily either through read aloud, shared reading or a teacher introduction followed by independent reading.

Success for All uses a shared reading technique where the teacher reads aloud small type sections of a book and the children read the sections with larger type and

phonemically controlled language. Most of the tutorial component of the program is devoted to this.

In *The Boulder Project,* the children are asked to predict the story line from the title. They then take turns at reading individual pages assisted as necessary by the teacher. This introduction is followed by repeated re-readings of the story. In the course of the sessions the children read more that 50,000 words, ten times more than that expected of low progress readers.

In *Reading Recovery* and *RWG*, each lesson starts with the re-reading of familiar books and concludes with the reading of the new book. The teacher introduces the new book to the child, to ensure that the child has the prior knowledge of the story line, the language structure and any particularly difficult vocabulary before being asked to read independently. The teacher is guaranteeing that the child "has the language s/he needs to produce when prompted by a series of print cues" (Clay, 1993b, p. 37).

In analyzing typical *Reading Recovery* lessons, Lyons et al.(1993) found that children with higher outcomes read an average of 5.22 books each lesson, and that the time spent on this reading was 60% of the total lesson time. Children with lower outcomes spent only 49% of the time reading. While not disagreeing with Lyons et al. that reading mileage is important, it could also be argued that there are other factors, for example phonological processing skills at the outset of instruction, that may have contributed to group differences.

In all cases, it is while the children were engaged in reading connected text, that teachers were able to facilitate the strategies necessary for the children to monitor their

ongoing reading comprehension through the use of both phonological processing skills and language prediction skills.

Summary

Three content factors, all of which need to be in place, were identified as contributing to successful development of reading. These were phonological processing, exposure to print through reading mileage and metacognitive strategies. A framework showing the interrelatedness of these three factors allows for different theoretical underpinning and different contributions by teacher and pupils. The relative emphasis placed on language prediction skills and phonological recoding skills is determined by the teacher's theoretical persuasion.

The phonological processing factor contains elements such as phonological awareness, cipher knowledge, onsets and rimes and orthographic analogies. These elements were discussed in relation to both beginning readers making normal progress and children experiencing difficulty in reading. It was suggested that very young children are better able to segment words into onsets and rimes than phonemes, and that they are able to use this information to make orthographic analogies provided that they also receive instruction in phoneme-grapheme correspondences. Although able to make orthographic analogies, children experiencing difficulty with reading do not seem to do so spontaneously, but this strategy can be successfully taught.

It was suggested that there are three types of metacognitive knowledge: declarative, procedural and contextual or conditional knowledge. Children need the latter types of knowledge to enable them to go beyond knowing, to knowing how, when and where to apply certain skills and strategies when problem solving in reading and writing.

Many studies suggest that for children experiencing difficulty these metacognitive strategies may not be acquired naturally but can be successfully taught. The most viable way of teaching metacognitive strategies is while children are engaged in interaction with print while reading text.

Exposure to print through reading mileage is a very important part of beginning reading as phonological processing skills interact with reading to provide a bootstrapping effect for both phonological processing skills and reading. Great amounts of free, independent reading or reading to and with young children has been shown to assist with the formation of concepts and reading vocabulary. During reading children also come to learn some print conventions and book language. Certain phonological processing skills may also be learned during independent interaction with print. It is particularly important for children experiencing difficulties with reading to be exposed to massive amounts of print, as it has been shown that they would generally read less than a quarter of the words read by high progress readers.

All four intervention programs include phonological processing, exposure to print through reading mileage and metacognitive strategies in the daily lesson. However, the documented evidence regarding the teaching of metacognitive strategies, suggests that this often occurs at a low, inefficient level.

Instructional Settings

The teaching of phonological processing skills, metacognitive strategies and providing for reading mileage is an integral part of an overall instructional setting. It is suggested that for beginning readers and readers experiencing difficulty, a model of assisted learning provides the optimum setting for learning.

The Model of Assisted Learning

The model of assisted learning is underpinned by the theoretical perspective on instructional settings of Vygotsky (1972, 1978). Implicit in this framework of learning are the concepts of the zone of proximal development (Vygotsky, 1978) and teaching as assisted performance which incorporates entities such as modeling, questioning, and feedback (Tharp & Gallimore, 1988). Implicit in such a model is the understanding that teachers will find out what children know by prior observation and testing so that they can tailor instruction to needs. As Vygotsky's theory of the transmission of knowledge, that is, that children learn from more capable peers and adults in social situations, is essentially a theory embedded in language, the dialogue between teacher and children is crucial. It is during these "instructional conversations" (Tharp & Gallimore, 1988, p. 111) that exchanges between teacher and children lead to new understandings being internalized and fossilized and result in independent performance on the part of the children.

The Zone of Proximal Development

The zone of proximal development is defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86). The zone of proximal development implies a collaborative, interdependent activity during which the more capable peer or adult:

- finds out what the child can do
- assists performance through

    providing think aloud demonstrations

explicit teaching

providing contexts and structures for problem solving

asking leading questions to assist and assess learning

providing specific positive feedback

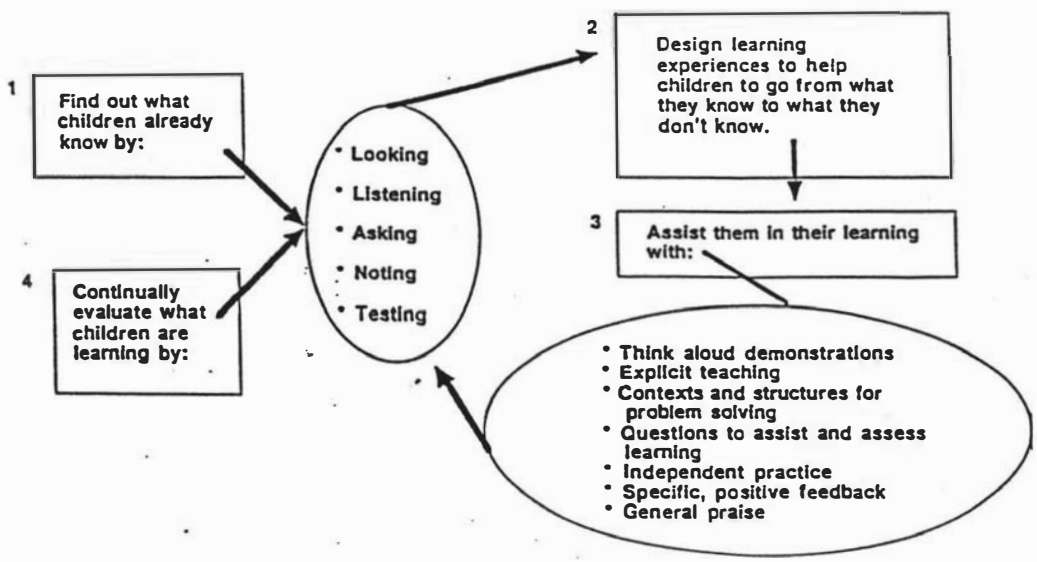
giving general praise

- transfers the task to the child by allowing the child to assist his/her own performance
- provides for practice so that the task can become secure and habituated and the child can perform it independently
- redefines the zone.

Figure 2 shows this instructional sequence as a model of assisted learning.

Figure 2.

A Model of Assisted Learning



It is within such an instructional setting that children can learn and apply metacognitive strategy knowledge as it applies to learning to read and write.

Interaction Between the Instructional Setting and Content Factors

Clay suggests that knowledge of "a few items and a powerful strategy might make it very easy to learn a great deal more" (Clay, 1991, p. 331). This supposition aligns well with the concept of cryptanalytic intent (Gough, Juel, & Griffiths, 1992), that is, that children have to know how to use the cipher. It also fits with Goswami's contention that when children have a strategy for making orthographic analogies, there can be a rapid increase in reading vocabulary as more words become available for making orthographic analogies. Goswami contends that very young children are able to make orthographic analogies given certain performance factors including hinting that analogy is an appropriate way to solve problems, the presentation of more than one analogy and providing explicit prompts on when to use the analogy. In essence, children need to know not only how, but also when, and where to use analogies (Goswami, 1992).

It appears then that young children, given the required training are able to make orthographic analogies, that is, they have the declarative and procedural knowledge. What is not yet clear are the optimal conditions which foster the use of conditional knowledge, that is, conditions which help children to know when to use such knowledge appropriately to solve unknown words in reading and spelling. One such condition would be for teachers to prompt for the use of analogy by providing the contextual structure. For instance, at an unknown word that has a dependable rime, a teacher might say, "This would be a good time to use what you know from working with the plastic letters/the word wall. Look at the word and see what you know that might help you".

Another condition that has been effective even with children experiencing difficulty with reading and/or from minority and low socio economic groups has been the duration of the analogy training (Gaskins, Downer & Gaskins, 1986; White & Cunningham, 1990). White and Cunningham worked in regular classroom settings establishing a program that lasted over one year. During this program the children were introduced to making orthographic analogies which included words with regular rimes. A year later these children performed better on tests of both reading comprehension and decoding than those children who had not been exposed to the analogy teaching program.

A practical example of the interaction between the instructional setting and the content factors required to use orthographic analogies can be seen in the following transcript. It includes the basic elements of the zone of proximal development and assisted performance, and the important learning conditions for analogy knowledge. The teacher has ascertained that the small group of children she is working with have some cipher knowledge and can recognize the word *at* (providing a context for learning and problem solving that the children can participate in):

Teacher "*I'm going to show you something that you can use to help you solve unknown words when you are reading.*" (Hints that analogy can help solve reading problems).

She makes the word *at* with plastic letters.

Teacher "*What does this word say?*"

Children "*At.*"

"*That's right it says* ***at.*** (Provides specific feedback).

Now watch what I do. I'm going to put the letter ***c*** *in front of* ***at*** *to make a new word* ***cat.*** (Provides demonstration and explanation).

What did I do with my letters?"(Questions to assess understanding).

Child 1 "*You put the letter* ***c*** *in front of* ***at***"

Teacher "*Good thinking,* (general praise) *and then what new word did I have ?*" (Asks a leading question to assist learning).

Child 2 "***Cat***".

Teacher "*That's right. I made the new word* ***cat*** *by putting the letter* ***c*** *in front of* ***at.*** (Provides specific feedback).

Now look what I am doing. I am going to make it back into ***at*** *again.* (Provides demonstration). *Now watch me make another word. I am going to put* ***h*** *in front of* ***at*** *and make another new word,* ***hat.*** (Provides a demonstration and explanation). *Did you see how I made a new word by adding a different letter to at ?*" (Asks a leading question to assist learning).

Children "*Yes.*"

Teacher "*Now I'm going to do it again. I'm going to change it back to* ***at*** *, and then I'm going to put another letter in front of* ***at*** *to make another new word. I'm going to make fat* (Provides another demonstration).

Now I want you to take your letters and make the word at" (Allows children to assist in their own learning).

Each child works with his/her own set of plastic letters and makes ***at.***

Teacher *"Now I want you put the letter* ***c*** *in front of at and make* ***cat.*** (Gives explicit instruction). *What did you make?* (Asking for declarative knowledge). *How did you do it?"* (Questions to assist learning by having the children articulate what they did - asking for procedural knowledge).

Child 1 *"Cat . I made at and put* ***c*** *in front of it."*

Teacher *"Good, and that turned at into* ***cat*** *didn't it?* (Provides specific feedback). *Now make* ***hat.*** (Gives explicit instruction). *What will you need to do first though?"* (Questions to assess learning).

Child 1 *"Change it back to* ***at*** *and then make* ***hat.***"

Teacher *"Good thinking. Go ahead and make* ***hat*** *then. (Gives general praise and an explicit instruction).*

The children each manipulate their own letters while the teacher watches and assists if necessary.

Teacher *Now what do you think I'm going to ask you to do?"* (Questions to assist learning).

Child 3 *"Make* ***fat.*** "

Teacher *"When you made the new words, what stayed the same all the time?"* (Questions to assist with, and to assess learning).

Child 2 *"****At.*** "

Child 3 *"****A*** *and* ***t*** *."* (Uses alphabet letter names).

Teacher *"That's right at, and a and t spells at doesn't it?* (Provides specific feedback). *And you know what else? All those words you made rhyme. Listen,* ***at, cat, hat, fat.*** (Provides demonstration). *They look alike and they sound alike.* (Provides explicit teaching). *I wonder if you could make another word using any of these letters?"*

The teacher lays out ***b s p*** . (Provides the context for independent problem solving and a further opportunity to see multiple analogies).

The children each take a letter and make a new word.

Teacher *"Tell me what new word you have made, and then tell me how you did it?"* (Questioning for both declarative and procedural knowledge).

Child 1 *"**Bat.** I took the **f** away and then I put the **b** there."*

Child 3 *"**I made sat.** I took the **f** away from **fat** and put a **s** there."*

Teacher *"Good for you. You all made new words didn't you? What did you have left when you took the **f** away? And what did you do to make the new word?"* (General praise, questioning to assess).

Child 3 *"**At.**"*

Child 2 *"Put a new letter in front of **at.**"*

Teacher *"Now look. I'm going to make a row with* ***c, h, f, p, b, and*** *s under each other. Then I'm going to move at next to each one and say the new word I have made.* ***Watch me cat, hat, fat, pat, bat, sat.*** (Provides explicit teaching and a demonstration). *What stayed the same?"* (Questions for declarative knowledge to assist and assess learning).

Children *"At."*

Teacher *"Yes that's right at. It looks the same and it sounds the same doesn't it?* (Providing specific feedback and instruction). *Now you do the same with your letters.* (Allows children to participate in their own learning) *What stayed the same?* (Questioning to assess declarative knowledge). *Didn't you work hard today learning how to work out new words from what you already know?"*

Later in the day the children were reading "Cat on the Mat" by Brian Wildsmith. One child read *"The cat sat on the rug"*. Another child read *"The cat sat on the ..."* and paused because he did not know the word *mat.*

Teacher *"This would be a good time to use what you learned this morning when we were working with the plastic letters.* (Sets the context for problem solving and provides a prompt to see the analogy and use it). *What do you know that might help you to sort out a word you don't know or to fix one that might not*

look quite right?" (Asks for independent problem solving using metacognitive knowledge of analogies).

After the children solve the problem the teacher reinforces the use of the story context by saying, "*And rug is another word for mat isn't it, but we couldn't say rug this time because it didn't look right, did it?*" She also reinforces the use of contextual knowledge by saying, "*This was a good time to use what you learned this morning wasn't it?*"

There is no need for children to learn how to do this with every set of letters. What is important is the process. The expert teacher will provide a memorable example for the children to enable them "to establish further examples by strategies of comparison" (Clay, 1993b, p. 14). For example, a child wishing to read the word *hand*, who knows *and*, would use the same strategy as generating *hat* from *at*. Although in some instances the dialogue within the instructional setting may appear casual to the onlooker, the expert teacher will take this opportunity to make ongoing judgments about the child's increasing competence and adjust his/her dialogue accordingly.

Instructional Settings and The Intervention Programs

All four intervention programs proceed from what children already know as evidenced by prior assessment, and have the expectation that the children will leave the program reading independently at grade level. To this end they all employ, to some degree, a scaffolding approach to instruction (Wood, Bruner, & Ross, 1976). Clay and Cazden (1990, p. 219), addressing the nature of scaffolded instruction in *Reading Recovery*, suggest that "the nature of the scaffold provided in the instructional setting must

change, continuing the support offered, always at the cutting edge of the child's competencies, in his or her continually changing zone of proximal development."

In order to find out why some *Reading Recovery* teachers seemed to be even more effective than others, Lyons et al. (1993) analyzed *Reading Recovery* lesson videotapes and categorized teachers' actions. They found that teachers with higher student outcomes assisted performance through incorporating explicit teaching, problem solving, questioning and specific praise into the daily lessons. Evidence from the other intervention programs suggests similar findings.

Summary

A model of assisted learning was presented as being the best instructional situation for beginning readers and children at risk to gain the necessary skills and strategies required for effective reading. The model is underpinned by a Vygotskian theoretical perspective of the transmission of knowledge, where the dialogue between the teacher and child is seen as crucial. It is during this dialogue that the teacher scaffolds the task for the child, while always encouraging independent processing of metacognitive strategies at the cutting edge of the child's ability. Each of the four intervention programs used some degree of assisted/scaffolded instruction as their instructional model.

Conclusion

Successful early intervention programs for children at risk of failure in reading and writing focus on a variety of factors. These include time, teacher qualifications, education, expectation and support, the nature of the lesson content and the

instructional setting. Four successful early intervention programs with different approaches to remediation were analyzed across a number of variables to ascertain if any variable could be isolated as being more powerful than others in contributing to their success.

It was suggested that a closer investigation of two instructional variables may lead to greater insights. These were the lesson content and the instructional model. The lesson content consists of three overlapping interacting components, all of which, it is suggested, need to be in place for successful reading development, as each is dependent on, and will provide a bootstrapping or snowballing effect for the others. These components are phonological processing, exposure to print through reading mileage and metacognitive strategies. Phonological processing includes phonological awareness, cipher knowledge, onsets and rimes and orthographic analogies. The ability to combine some cipher knowledge with the ability to make orthographic analogies using onsets and rimes is seen as important for reading development especially for children at risk. In order for children to learn how to use such knowledge when reading, it is suggested that they need to be taught metacognitive strategies of how, when and where to apply such knowledge, rather than just skill and drill. The best context for such learning to occur, and which facilitates the learning of more vocabulary from which further orthographic analogies can be made, is during substantial exposure to print while reading actual texts. The amount of text available for reading, and able to be read by the reader, characterizes the differences between good and poor readers.

It is suggested that the optimum instructional setting for the transfer of the lesson content is one of assisted learning which leads the children from dependence on the teacher to independent processing. The importance of teacher dialogue is stressed. It is within an instructional conversation, that teachers can provide demonstrations, engage

in explicit teaching, question to assist learning, provide for independent problem solving and give specific feedback on the children's increasing competence. The interaction between the instructional setting and the lesson content factors can lead to greater understanding of the reading process, and therefore the better use of metacognitive strategies by the child.

Questions Unanswered

Lyons et al. (1993) suggest that three factors make *Reading Recovery* successful. (1), the one-to-one nature of the instruction, (2), the lesson framework, and (3), the teacher education. They lean towards teacher education being the most important: "...the staff development model is the key to success in the program" (Lyons et al., 1993, p. 38). This being the case, how is it that *Success for All* and *The Boulder Project*, with a much less rigorous teacher education and support program, can produce similar results, that is, the lowest performing children reading on grade level by the end of first grade?

If teacher education is not the key factor, as Lyons et al. suggest, then is it the one-to-one nature of the instruction? The answer must be no, because *The Boulder Project*, like *RWG*, is a small group intervention.

Could it be in the relative amount of instructional time allocated individuals and groups? Rasinski (1995) suggests not, and in fact when posttest scores between *Reading Recovery* and the *RWG* were equated for differences in instructional time, the gains for *Reading Recovery* were at best only marginal.

Could it be the theoretical base on which *Reading Recovery* is founded, that is, the reliance on language prediction skills for solving unknown words? In light of current

research (Adams & Bruck, 1993; Goswami, 1994; Tunmer & Chapman, 1993,1995; Tunmer & Hoover, 1993), it is suggested that the theoretical base of *Reading Recovery* is more likely to hinder, rather than contribute to success. *Reading Recovery* suggests that children need to acquire the ability to use information from a variety of sources, semantic, syntactic, visual and phonological. Emphasis is placed on children learning to predict what text might say by using semantic and syntactic cues and checking responses using visual and phonological cues if meaning breaks down. This approach fails to acknowledge the overwhelming amount of scientific evidence that visual/phonological information is pre-eminent.

It is suggested that the most important factor is the lesson framework. It is argued by *Reading Recovery* proponents that the importance of the lesson framework is the instructional setting from which it proceeds and that this is dictated by the individual child's responses. However, this argument may be nullified by the fact that both *Success for All* and *The Boulder Project* appear to be more content-driven than child-driven and place relatively more emphasis on phonological factors. What is common to all four programs is the lesson content, namely the teaching of phonological processing skills, metacognitive strategies and providing for masses of exposure to print or reading mileage.

The Present Study

Working on the premise that children experiencing difficulty with reading acquisition and development require certain skills and strategies to become independent, competent readers, and that these skills and strategies are best taught through assisted learning, this study sought to develop a small group early intervention program that would facilitate children returning to average levels of performance in as little time as

documented for one-to-one instruction. As previously discussed, there is ample evidence that one-to-one tutorial models can be effective in remedial situations, but one must balance this effectiveness against the cost of implementation. Researchers are now starting to question whether small group interventions could be nearly as educationally effective as the one-to-one model, and therefore be more cost effective. (Hiebert, 1994a; Rasinski, 1995; Wasik & Slavin, 1993).

The argument that each child needs an individual tailor-made program, as with *Reading Recovery*, bears some investigation. First, because documented results from a study on the adaptations of *Reading Recovery* (Pinnell et al., 1994) show that end-of-year testing for the small group intervention (*RWG*), had the largest positive effects on the standardized Gates-MacGintie (ES=+.34). Secondly, the supposition that group, rather than individual, instruction is " like saying to the ward nurse, 'Don't issue individual medication. Mix all the drugs together and give each patient the same dose'" (Pinnell et al., 1995, p. 20), is clearly flawed. If all children are diagnosed as having malaria, clearly the nurse would not provide a different drug for each child. Likewise, there are elements, such as lack of phonological recoding skill, that are common to many children who require an intervention program to assist with reading development. In these instances it makes sense, educationally and financially, to devise an effective small group intervention program to teach children these skills.

The major question addressed in this study is:

> Could a successful early intervention program based on the *Reading Recovery* format, be developed for a small group of children, that would allow them to make accelerated progress similar to that experienced in the one-to-one tutorial?

On the basis of the review of the literature, the following hypotheses were formulated

Hypothesis 1

Reading Recovery will be able to be adapted for small group instruction provided that the lesson format maintains provision for reading mileage though exposure to print, explicit teaching of phonological processing skills, and the teaching of metacognitive strategies.

Hypothesis 2

Small group instruction will be as effective as one-to-one instruction provided that the instruction is based on a model of assisted learning, in that the teacher: models through think aloud demonstrations; engages in explicit teaching; provides contexts for problem solving; questions to assess and assist learning; provides specific feedback and general praise, and allows time for independent practice.

Hypothesis 3

Small group instruction will be more cost effective than standard *Reading Recovery.*

It is envisaged that two separate studies will be required to answer this research question. First, a small scale pilot study to ascertain whether the one-to-one, *Reading Recovery* tutorial can be adapted for small group instruction. Secondly, a larger experiment to clarify, verify and extend the findings of the pilot study across educational settings and ethnic groups.

The *Reading Recovery* one-to-one tutorial was chosen for modification because it has the most documented evidence on which to base adaptations, it employs a model of assisted learning and the researcher is a trained *Reading Recovery* Teacher Leader (Tutor).

CHAPTER 3

THE PILOT STUDY

Introduction

The main purpose of this small scale pilot study was to ascertain whether the existing *Reading Recovery* one-to-one tutorial procedures (Clay, 1985), could be successfully modified for use with small groups of two or three children. In addition to testing this, the following research questions were also posed:

Would the teachers require extra training?
What would be the lesson time frame for the small group instruction?
Would other factors worthy of consideration arise out of the lesson modification?

From a review of studies into successful early intervention programs (Clay, 1985,1993b; Hatcher, Hulme & Ellis, 1994; Hiebert, Colt, Catto & Gury, 1992; Hiebert & Taylor, 1994; Lyons & Beaver, 1995; Pinnell, 1989; Reynolds, 1991; Slavin et al. ,1990; Slavin et al., 1992; Taylor, Fyre, Short & Shearer, 1992; Taylor, Strait & Medo, 1994), it was hypothesized that a group of experienced New Zealand classroom teachers, without further specific training, would be able to design effective ways of using the *Reading Recovery* procedures in situations other than a one-to-one model, namely one-to-two or one-to-three.

Studies comparing successful intervention programs (Lyons, Pinnell & DeFord, 1993; Pikulski, 1994, Pinnell et al., 1994; Wasik & Slavin, 1993), have identified certain common characteristics such as the timing of the intervention, the content of the intervention lesson, the expertise and expectation of the teachers and the integral nature of assessment and evaluation. New Zealand teachers were chosen for this pilot study because the traditional method of reading instruction in New Zealand classrooms already incorporates many of these characteristics and is generally based on a model of assisted learning. To modify the existing *Reading Recovery* lesson format, the teachers would need to ensure that the three factors identified in Chapter 2 as contributing to reading development, that is, phonological processing, exposure to print through reading mileage, and metacognitive strategies, would in no way be compromised. The teachers would also need to incorporate all the current *Reading Recovery* lesson components into a time frame commensurate with existing *Reading Recovery* lesson recommendations, and ensure that the children made accelerated progress. It was also hypothesized that the daily small group intervention lesson would be able to be completed in 40-45 minutes in line with the 40 minutes for one-to-one *Reading Recovery* instruction (Clay 1985).

The Existing Format of the One-to-One *Reading Recovery* Lesson

Although each child's *Reading Recovery* lesson may be different, based on individual strengths and weaknesses, there is a recommended format for the daily lesson (Clay, 1993b:14). It is during this daily, intensive, tutoring session that the teacher teaches the child the skills and strategies required for independent functioning back in the regular classroom. A typical *Reading Recovery* lesson would include the following components usually in the order in which they are described.

Rereading of Two or More Familiar Books

The purpose of this section of the *Reading Recovery* lesson is to provide an opportunity for the child to build reading mileage on books that are familiar. During this reading, children are able to practice reading fluently with appropriate phrasing. Because the text is familiar, children have the opportunity to bring together and use the range of reading strategies that they control. These books are chosen from the stock of books that the children have been introduced to over the previous week or two. In each case, the books have already been read by the children on at least three occasions: once, as a novel text, after the teacher had introduced it to them; once, the following day, when the teacher had taken a running record of reading behaviour; and once at home to a parent or other caregiver.

Rereading Yesterday's New Book and Taking a Running Record

Each day the teacher takes the opportunity to take a running record of reading behaviour on text that has been introduced by the teacher and read by the child the previous day. Using a standard set of conventions the teacher records everything that the child says while the child reads independently. (For details on the administration of Running Records see Clay, 1993a). This neutral observation of what the child can control alone helps the teacher make teaching decisions regarding the child's control over the reading process. It is from the analysis of this record that the teacher can tell how well the child is using cues, and which reading strategies, such as monitoring errors, searching for and using cues at unknown words, and checking information from different sources, are becoming secure.

Letter Identification and /or Making and Breaking Words

During the Letter Identification segment of the lesson, the teacher is able to teach unknown letters or assist the child to sort out previous confusions regarding letter identification. When the child has a good grasp of letters, the teacher uses this time to work on making and breaking words using plastic letters or writing. The teacher engages the child in this activity so that the child comes to understand how s/he can use useful chunks of information, or orthographic analogies, to help solve novel words in reading and writing. Iversen and Tunmer (1993) found that when this strategy of how to make and use analogies was made explicit and incorporated into the daily lesson, the children were able to have their *Reading Recovery* programs discontinued much sooner than those children for whom the strategy was taught incidentally. An important factor in the daily making and breaking of words is that, within each teaching sequence, the teacher passes over the control of the task to the child.

A typical instructional sequence may start with the teacher modeling the task, then asking the child to participate, then asking the child to initiate the task. For example the teacher and the child may be working with *at* which is a known word. The teacher makes *at* with the plastic letters, and asks the child to name the word. S/he then jumbles the letters and asks the child to make *at*. The teacher then demonstrates how, by putting *c* in front of *at*, a new word *cat* is made. S/he then removes the *c* and asks the child to make *cat,* and name the word s/he has made. S/he then asks the child to make *at,* and, if necessary, demonstrates the process of removing the onset. The teacher may repeat this process with *mat* and *hat*. In each instance the teacher initiates the making of the new word and demonstrates first. When the child has successfully copied the teacher's modeling, the teacher may arrange the letters *a, t, c, m,* and *h* randomly and ask the child to make *at, cat, sat, hat,* independently. Finally the teacher may arrange the

letters randomly and invite the child to make a word and tell him/her what it is. S/he may then ask the child to make other words that rhyme with the word s/he just made. The teacher will be looking for evidence that the child has understood the consistency of the rime and is able to manipulate the onset to make each new word. For some children *at* may be the largest known chunk of information, and the task would be one of making orthographic analogies by adding initial letters or letter clusters to make a new word. For other children *cat* may be the largest known chunk of information, and the task would become one of making orthographic analogies by substituting initial letters or letter clusters.

As the child becomes more proficient at making and using simple analogies, the teacher increases the difficulty of the task by choosing more complex analogies, and also by asking the child to write the simple analogies rather than manipulate plastic letters. The teacher also teaches for flexibility, and may at times ask the child to use three letters to make a word, to make another word that rhymes with the given word, to change the last letter to make another word, to make a word that looks like the one s/he has made, change the middle letter to make another word etc. As a result the child may, for example, make *big*, then substitute the initial letter to make *pig* then change the last letter to make *pin* then make *tin* which is another word that looks the same and rhymes with *pin*, and then change the *i* for an *e* to make *ten*.

Writing a Message

Daily writing gives the child an opportunity to compose and create a message. It is during message writing that the child learns how to hear and record sounds in sequence in words, how to learn to write some short high frequency and high interest words correctly, and how to make analogies from what s/he knows to help write previously

unknown spellings. The teacher and the child work together on this task with the child writing independently all that s/he is able, and the teacher teaching the above mentioned strategies as opportunities arise.

The Elkonin technique (Elkonin, 1973) is an integral part of the *Reading Recovery* writing procedure. Using boxes to represent the number of sounds in a word, the children are encouraged to say words slowly and to push markers into the appropriate box, in order to identify the letters representing those sounds and their sequential placement within a word. The task moves from the most simple requirement of hearing sounds in the absence of print, to the most sophisticated requirement of understanding the mismatch which occurs between sound and some English language spelling patterns.

The child's independent writing vocabulary is also extended daily by the learning of a new high frequency word which arises in the writing. The child is encouraged the write the word many times in different places, and often using different media, in order to overlearn the word, and commit it to memory for use in future writing. The teacher makes time at the beginning of the next lesson, before the rereading of familiar books, to review the most recently learned words. This provides an extra opportunity for memorization should this be necessary.

During writing, the child is also encouraged to use the strategy of making analogies when this may be the most powerful way of writing an unknown word. For example a child wishing to write *shake* may use what s/he knows about *she* and *make* and what s/he knows about substituting onsets and deleting rimes, to write the word appropriately. This may lead to more accurate spelling than attempting to hear and record the sounds which may lead to either *shak* or *shac*.

Cut Up Sentence to be Rearranged

After the child has written his/her daily message, the teacher copies it onto a sentence strip, and cuts it up for the child to reassemble. By cutting the sentence into linguistic units, for example, phrases, words or syllables, appropriate for the child's control over the reading process, the teacher is able to provide the child with further opportunities to practice one-to-one matching, directional behaviour, word analysis and searching and checking behaviours.

Introducing and Reading the New Book

Each day the teacher increases the level of text difficulty for the child by choosing a new book which encourages him/her to use the reading strategies that s/he already controls, but which also has a challenge or challenges in it which the child, with help, should be able to overcome. The teacher is required to choose and introduce this book very carefully. The introduction ensures that the child has the necessary prior knowledge of the meaning and the language s/he "needs to produce when prompted by a series of print cues" (Clay, 1993b, p. 37). After a discussion of the pictures in the entire book, the child reads the text as independently as possible. This is the book that the teacher will use on the following day to check the child's reading by taking a running record.

Method

Sample

The Children

The 13 children chosen for this study came from the available pool of children that the teachers had access to for teaching purposes, and who were considered by their schools to be at risk. These children had been diagnosed as being at risk because of their low scores across the range of tests in the Diagnostic Survey (Clay, 1985) which was administered within a month of their sixth birthday. All but two of the children in the at risk population were in the age band, that is 6.0 years - 6.6 years, for consideration for *Reading Recovery*, but for whom no *Reading Recovery* program was available. In each case the schools had other children within the age band with lower scores on the Diagnostic Survey test, and insufficient funding to provide a *Reading Recovery* program for all their needy children. The two older children had already received a *Reading Recovery* program for 20 weeks, and had been referred on to the Resource Teacher of Reading for further long term support. Most children came from minority ethnic groups, and many had English as their second language. Half of the children had attended more than one school, and one child, now aged 6.3, had already attended four schools. Table 2 shows the age, gender, ethnicity, first language and class placement of the children selected for the pilot study.

Table 2.

Pilot Study Children

Name	Age	Gender	Ethnicity	Language	Class
A	7.3	M	Tongan	Tongan•	J2
B	6.3	M	Samoan	Samoan	J1
C	6.1	F	European	English*	J1
D	6.4	M	Chinese	Cantonese	J1
E	6.3	F	Tongan	Tongan	J1
F	6.3	F	Maori	English	J1
G	6.3	M	Maori	English	J1
H	6.0	M	Indian	Fijian+	J1
I	6.3	F	Indian	Fijian*	J1
J	6.1	M	Indian	Fijian*	J1
K	6.4	M	Nuiean	Nuiean	J1
L	6.2	M	Maori	English	J1
M	7.1	M	Samoan	Samoan•	J2

Note.

* These children are considered by their teachers to be fluent in English.

\+ English is this child's third language.

• These children have already received a *Reading Recovery* Program and have been referred to the Resource Teacher of Reading for further long term assistance.

The Schools

The children were drawn from the schools in which the teachers worked and were all in the greater metropolitan area of Auckland. The schools reflected the variety of

architectural layout and organizational patterns of New Zealand schools in general. Table 3 shows the classroom type and size and the ethnic and socio-economic mix that the children were drawn from.

Table 3.

Classroom Types

Name	n	Class Type	Class Size	Ethnic Mix	SES
1	3	Single Cell Vertical Grade	28	96% PI* 4% European	Low
2	3	Variable Space Parallel Grade	26	87% European 9% Maori 3% PI* 1% Other	Low
3	3	Single Cell Vertical Grade	29	27% Maori 25% PI* 24% European 12% Indian 6% Chinese 6% Other	Low
4	2	Single Cell Vertical Grade	30	40% European 30% PI* 20% Asian 10% Other	Mixed
5	2	Single Cell Parallel Grade	12 Hearing/ Hearing Impaired •	93% Maori and PI* 7% European	Mixed

Note.

* Denotes children of Pacific Island descent

• Children in this study were not hearing impaired but were the only hearing children in a special class for children with hearing impairments.

Some children were drawn from single cell classrooms with more than one grade level in that room, while others came from variable space classrooms with two or three classes all of the same grade level. For example, the variable space, parallel grade class contained three classes of J1 children, a total of 87 children with three teachers. The single cell vertical grade classes had one teacher and children from both J1 and J2. Class numbers were consistent with many junior classes in New Zealand, and ranged between 26 and 30 except for the special class for children with hearing impairments. The schools also reflected the ethnic range of the Auckland primary school population at the beginning of the 1990s. The participating schools were not located in predominantly high socio-economic areas.

Design

The Program

The course called "Reading in the Primary School" was offered by the Auckland College of Education in the second semester of the year to allow teachers to participate in a recommended prerequisite entitled "The Reading Process" which was offered in the first semester. In the beginning sessions of Reading in the Primary School, the course outline was presented to teachers. This course covered a broad range of topics from reviewing recent research in reading and writing and how it might be applicable to classroom practice, to using computers and drama as media for literacy learning. Assessment procedures included three major assignments. Teachers were able to choose from a variety of assignment topics designed to reflect the broad scope of the course, and to allow teachers to pursue areas of personal interest. This pilot study was offered in 1993 as part of the assignment loading.

Requirements for Participation in the Pilot Study

Those teachers wishing to participate in the pilot study had to agree to fulfill the following requirements. The had to:

- Identify children at risk in their schools for whom no *Reading Recovery* Program was available.
- Be in a position to teach a small group of two or three of these children daily for no more than 60 lessons.
- Obtain permission and support from their Principal to participate.
- Obtain permission from parents to include the targeted children in the study.

- Test the children at the beginning and end of the program using a variety of observational procedures.
- Discuss and devise a format for daily lessons based on the sequence suggested in *The Early Detection of Reading Difficulties* (Clay, 1985), and the modification to include daily explicit training in phonemic awareness and orthographic analogies (Iversen & Tunmer, 1993).
- Trial this format with their groups of children, modify as necessary, and provide written interim and final reports on effective ways of working, both with children functioning at the same reading level, and children functioning at different reading levels.
- Provide evidence at the end of the program of the progress made by the children, based on initial and final testing, and the number of lessons that the children had received to make this progress.

Materials

The tests chosen for this study were intended to reflect a wide range of beginning reading behaviours, and comprised *The Diagnostic Survey* (Clay, 1985), excluding the word recognition test; a word recognition test (Dolch, 1939); a phoneme segmentation test (Yopp, 1988); a sound matching task (adapted from Bryant, Bradley, MacLean, & Crossland, 1989); an analogical transfer task; and a pseudoword reading test (adapted from Richardson & DiBenedetto, 1985).

The Tests

Testing took place at the beginning and the end of each child's program. The Diagnostic Survey, comprising a battery of testing procedures including a letter identification task,

a check on the child's knowledge of concepts of print, a word recognition test, a writing task, a dictation task and the taking of a running record of a child's behaviour while reading connected text, was used initially to identify the lowest two or three children for inclusion in the program and included all children referred to in Table 2. The 13 target children were then given further tests to provide the teacher with more information regarding phonological processing ability. These tests included a sound matching task, a phoneme segmentation task, an analogical transfer task, and a pseudoword reading task.

The Diagnostic Survey (Clay 1985)

The *Diagnostic Survey* consists of a range of controlled observational procedures, which are all administered on an individual basis. These procedures include a letter identification task, a word recognition task, a concepts about print task, a writing vocabulary task, a dictation task for hearing and recording the sounds in words, and a running record of the child's oral reading as s/he reads selected text.

The Letter Identification Test.

The first subtest of the *Diagnostic Survey* assesses the children's ability to identify alphabet letters by letter name, letter sound or a word starting with that letter. This test was chosen because knowledge of letter names may indicate some minimal knowledge of phonological awareness as most letter names contain the phoneme it represents. For example, the symbol *b* contains the phoneme */b/*. The test was also chosen because phonological awareness has been shown to interact with alphabet knowledge in its effects on early reading and writing development (Ehri, 1983: Ehri & Wilce, 1980,1985; Mann, 1986; Masonheimer, Drum & Ehri, 1984; Walsh, Price &

Gillingham, 1988). Letter name knowledge is one of the best indicators of, yet apparently not causally connected to, reading performance. To use the alphabetic code children have to be able to segment either sound, or letter, or both to make a connection between the letter and the phoneme it represents.

The children were presented with 26 upper case and 28 lower case letters to identify. These letters are listed in Appendix A. Scoring was based on the number of letters correctly identified by alphabet name, sound, or a word starting with that letter. The tester's score sheet is presented in Appendix B

The Concepts About Print Test.

The *Concepts About Print Test*, *Sand* (Clay, 1972), and *Stones* (Clay, 1979a), indicates how sensitive a child is to significant concepts of printed language. Some of these concepts are book handling skills, directional behaviours, visual scanning behaviours, and concepts of words letters and punctuation.

The child was invited to help the tester by indicating certain features of print as the tester read either *Sand* or *Stones* to the child. The test was presented in the standard format which is described in Appendix C. Scoring was based on the number of items correctly scored out of a possible 24. The score sheet and scoring standards are presented in Appendix D.

The Writing Test.

This test of writing vocabulary has been found to be both reliable and valid (Clay, 1985, 1993a), and a good indicator of a child's visual discrimination of print, knowledge of letters and sequencing behaviour. The children were given 10 minutes to write, on a blank piece of paper, all the words they knew, with prompting from the tester if necessary. Each word written accurately, or accurately in exact mirror image was counted as correct. Other words scored as correct were those in which the child had miswritten a letter, but that letter was still recognizable as only the correct letter. For example a child who wrote the word *big* and reversed the letter *g* would be credited as having written the word correctly, but if the child reversed the letter *b* and wrote *dig* for *big*, this would not be scored as correct. Sets of words such as *and*, *band, sand* and *hand* were each scored individually, as were plurals, and word families generated by adding and changing the suffix, for example, *jump, jumps, jumped, jumping, jumper.*

The Dictation Test.

The dictation subtest of the *Diagnostic Survey* tests the children's ability to hear and record sounds in words. The children were read a short passage which was then re-read to them slowly so that they could write down the words. Form A was used for initial testing and Form C for exit testing. These tests and the scoring standards are described in Appendix E. Scoring allowed one point for each phoneme correctly identified out of 37. Phonemes recurring in the sentence were not scored.

A dictation test was chosen because it combines the ability to segment words into their constituent sounds aurally, with the ability to recode the sound segmented, to the appropriate alphabetic symbol graphically. This behaviour is commonly observed in

young children who are inventing their own spellings in beginning writing. It taps the cognitive processes of hearing stimulus items, holding them in memory while segmenting them into constituent sounds, identifying the sounds in given positions within the word, making a judgment about which alphabet symbol matches the identified sound, and then recording that symbol.

The Word Recognition Test (Dolch, 1939)

This test contains a list of 220 short, high frequency and short, high interest words and is used frequently in American schools to teach new vocabulary and to test word recognition knowledge. The words, listed in Appendix F, are arranged in levels corresponding to basal reading material levels. Teachers using basal programs frequently teach these specific words prior to text reading. The tester proceeded to present words until the child had offered no response or offered an incorrect response to 10 consecutive words. The child was then asked to scan the list for further known words, which, if correctly identified, were added to the score.

The Sound Matching Task

The sound matching task was separated into two distinct parts: rime matching and onset matching.

The Rime Matching Task.

After some examples to ensure that the child knew that rhyming words sound the same and non-rhyming words sound different, the teacher asked the child to listen carefully to a set of three words and say which two words sound the same. As the teacher said

the words, s/he pointed to a corresponding picture. The child responded by saying the rhyming words and pointing to the appropriate pictures. If the child hesitated, the item was repeated. If the child still did not respond s/he was encouraged to guess. Corrective feedback was given on the two proceeding practice items, but only general encouragement on the test items. A point was given for each correct response.

The Onset Matching Task.

The onset matching task was similar in structure and administration to the rime matching task except in this case the child was asked to identify words which started with the same sound rather than rhymed. The sound matching task and instructions for administration and scoring may be found in Appendix G.

The Phoneme Segmentation Task

In the phoneme segmentation task the children were asked to break 22 short words into their constituent phonemes orally. The teacher explained and modeled the task, and gave the child three practice examples with corrective feedback. The children were then asked to respond independently to the task items. The teacher gave non-specific positive feedback for correct responses, and provided the correct response without comment after incorrect responses. The teacher recorded exactly what the child said, but only scored as correct the words that the child responded to accurately. The Phoneme Segmentation Task and instructions for administration and scoring may be found in Appendix H.

The Analogical Transfer Task

The analogical transfer task was included to see how well children could use analogy to solve new words from known words. The test comprises eighteen sets of words with four words in each set. The first word in each set was deemed to be the sight word, and, if not known by the child, would be supplied by the teacher. Each of the other words in the set contained the same rime but a different onset, for example:

cat	*hat*	*bat*	*fat*
back	*sack*	*pack*	*tack*

The teacher exposed only one line of the test at a time and asked the child to read the first word. If the child could not read the word or read the word incorrectly, the teacher supplied it. The child was then asked to read the remaining words in the line independently. The teacher supplied encouragement but not feedback.

A point was given for every word read correctly and separate scores were recorded for sight words - the first word in each row - and non sight words - the remaining three words in each row. The analogical transfer task and the instructions for administration and scoring may be found in Appendix I.

The Pseudoword Reading Task

This task was included to ascertain how well children were able to use knowledge of spelling-to-sound patterns to pronounce novel words. To ensure that all words would be unfamiliar to the children, pseudowords following the same pattern as regular English orthography were used.

The children were told that the words were the names of children in a far away land that they were going to pretend to visit. The children were told that the only way to read the names was to sound them out. The teacher gave two practice items with specific, corrective feedback, for example "This letter makes an /e/ sound and this letter makes a /z/ sound, so the name is *e - z, ez*. The children were then invited to read the rest of the words independently. Encouragement, but no corrective feedback, was given. If the child read the word in syllables, s/he was encouraged to "say what name it makes." The test was discontinued if the child failed to respond to any item on two consecutive word lists. The maximum possible score was 30. A copy of the pseudoword reading task, instructions for administration and scoring may be found in Appendix J.

The Books

The books used in this study were short, single story books which reflect a wide range of authors, illustrators, stories and language patterns. They were arranged in a gradient of 20 levels of difficulty each offering further challenges to the beginning reader.

The books are not levelled using any readability formula. Instead, the children are asked to read the books, and using the running record procedure (Clay, 1985), the teacher is able to calculate the percentage accuracy of the reading. The initial trialling and leveling of books was undertaken in New Zealand where the teachers were able to use a graded series of books known as *Ready to Read* as a benchmark when observing children's reading behaviour, thus enabling them to compare which books from that series and which other books the children could read at a 90%-94% accuracy level. In this way teachers assessed the instructional level of new material.

Books available in any one geographical area are printed in a book list which is available to *Reading Recovery* teachers to use when selecting books for the children to read. This list was used by the Pilot Study teachers. The list serves as a guide only, as a child's ability to read any text is subtly influenced by many variables. These influences may include background experience with books and the concepts contained within them, interest in and attitude to the chosen book, control over book language and concepts about print, and the child's increasing control over the integration of cues from the context, the language and the print, which enables him/her to search for and monitor ongoing comprehension. Particular attention is paid to the daily selection of a new book for the child to read. The aim is for the child to be presented with a text that, while allowing for the integration of his/her current reading strategies, also presents some new challenges. With teacher support, and the child's developing control over the reading process, this book, after an initial reading by the child on the day it is introduced, should be able to be read by the child the following day at 90% or above accuracy.

The Running Record

The running record is a neutral observation procedure during which the observer uses a standard set of conventions to record a child's reading behaviour as s/he reads a given passage. An analysis of the running record gives the observer insights into the types of reading strategies, for instance locating, and searching and checking behaviours, that the child is using. An examination of the error and self-correction behaviour also provides evidence of how well the child is integrating cues from the context, the language structure and the visual information. Using a mathematical formula, the observer is also able to ascertain whether the material the child is using is at an easy,

95%-100% accuracy level, an instructional, 90%-94% accuracy level, or frustrational, below 90% accuracy level.

At initial testing the tester gave the child an overview of a simple, one line caption book which had a high level of picture support. The child was then asked to read this book independently. The tester took a running record. If the child scored 90% or above accuracy s/he was credited with being able to read at Level 1. The tester then repeated the procedure with more complex books until s/he reached the highest level book that the child could read with 90% or higher accuracy. This became the child's initial instructional reading level. If the child scored below 90% accuracy on the Level 1 book, s/he was invited to draw a picture and tell a one line story about it which the tester scribed underneath the picture. The child was then asked to read this sentence back to the tester while the tester took a running record. If the child was unable to read this sentence back at 90% or above accuracy, the child was assigned Level 0. If the child was able to read this sentence back at 90% or above accuracy s/he was credited with being able to read at Level 0*. In this instance, the instructor then asked the child to tell the next part of the story and scribed another line of text. If the child was able to read both lines at 90% or above accuracy, the instructor changed the rating from Level 0* to Level 00.

At the end of the program the child was asked to read his/her current instructional text. If the child scored at a 95%-100% accuracy level, the tester continued to test using more difficult material until s/he found the child's highest instructional reading level. This level is the highest level that the child can read with 90% accuracy or above. If the child scored less than 90%, the tester found easier material until s/he found the child's instructional level. An appropriate instructional level at the end of the program is purely arbitrary and benchmarked to the average reading level for the population from which

each child is drawn. However, for a tester to be confident that a child has been exposed to texts complex enough to ensure the use of higher level reading strategies, a level of 17 or above would be optimal. The running record form is presented as Appendix K, the notations for recording reading behaviour in Appendix L, and the formula for converting raw scores to accuracy percentages is in Appendix M.

Procedure

The Teachers

As noted previously the teachers who participated in this pilot study were part of a group of 20 teachers who had enrolled in an Advanced Diploma of Teaching Course at the Auckland College of Education in the second semester of 1993. Several teachers expressed interest in taking part, and subsequently checked with their school Principal before making a commitment. Six teachers finally decided that they wished to take part, had suitable children to work with, and were able to find the 40 minutes per day to teach the children. Table 4 shows the experience, position and qualifications of the participating teachers.

Table 4.

Pilot Study Teachers

Name	Years Of Service	Current Position	Reading Recovery Training	Highest Teaching Qualification
A	19 broken	Relieving	No	TTC*
B	23	Relieving	Yes	TTC*
C	25	RTR•	Yes	TTC*
D	24	AP°	Yes	TTC*
E	10	Relieving	No	BEd
F	23	Deaf Education	No	TTC*

* Trained Teacher Certificate
• Resource Teacher of Reading
° Assistant Principal

The teachers all had at least ten years teaching experience. Three had permanent positions while the other three were employed by schools as long term relievers. The three relieving teachers had all held permanent positions previously, but had relinquished these positions to travel overseas, or to move to Auckland from other parts of New Zealand. Only one teacher held a senior position in the school. In this school, both she and another teacher, trialled the program. One teacher was a Resource Teacher of Reading who worked in a group of schools meeting the needs of the children referred to her for reading remediation. One teacher was employed to teach hearing impaired children, and had completed a postgraduate year of study in Special Education at the Auckland College of Education. Half of the teachers had received *Reading Recovery* training, the other half had not.

The Weekly Meetings

The teachers met weekly for three hours on Monday evening from mid July until the beginning of December. During this time those who elected to take part in the Pilot Study followed the same course outline as those who did not. One entire session in late July was devoted to outlining the program and its requirements so that all teachers could make decisions about taking part. Although the choice of assignments was optional, all 20 teachers chose an assignment which required them to test two children in their schools using the full battery of diagnostic and phonological processing tests, as they felt that the results and interpretation of such testing was useful to their general programs. All 20 teachers also indicated that they would like to take part in the initial brainstorming of a suggested lesson format for adapting standard *Reading Recovery* procedures to small group instruction, whether they would subsequently take part in the Pilot Study or not.

Initial Brainstorming Session

The initial brainstorming sessions in which the entire class participated produced the following suggestions as to how a typical tutoring session could be modified for small group instruction.

Fluent Writing Review

Although the Fluent Writing Review is not part of the *Reading Recovery* procedures *per se*, it is standard practice in most *Reading Recovery* lessons. It is not listed as a specific procedure and is not calculated in the 30 minutes time allocation for the lesson. The basis for its inclusion comes from Clay (1993b, p. 30), who suggests that teachers "Take a few seconds at the beginning or end of a lesson to review the most recent words that you have taken to fluency." The teachers adapting the *Reading Recovery* procedures for small group instruction felt that this review was important and should be incorporated into the daily lesson plan.

Rereading Two or More Familiar Books

- The number of books read by the children should be limited to two.
- When the children in the same group were reading at the same level of difficulty, the books should be the same book, although each child has his/her own copy. This suggests that the teacher chooses the books.
- When children are reading at different levels of difficulty, the books should be different.
- The teacher should divide her time equally between the children, so that each child reads one book entirely independently and the other book with teacher attention and involvement,

  or

  the teacher should follow both children reading both books as she would in a classroom small group situation,

  or

  the teacher should work with Child A only, while Child B reads independently. The teacher should alternate the child she works with each day.

- When the children in a group are reading the same book:

  one child reads aloud and the teacher takes a running record while the other child follows along in his/her copy of the book reading silently. After the reading the teacher should teach some new and important points including both children in the dialogue.

- Where children are reading different books:

  Child A works with the teacher for the running record while Child B continues with familiar reading,

  or

  Child A works with the teacher for the running record and Child B remakes yesterday's cut-up sentence and then continues with familiar reading. The teacher should take a quick running record of the cut up sentence when she finishes working with Child A,

  or

  Child A works with the teacher for the running record and Child B practices the words s/he can make with the magnetic letters and/or in writing and then continues with familiar reading.

Letter Identification and/or Word Making and Breaking

- From the results of the initial testing the teacher should determine which items of letter knowledge are common to the children in the group and which letters still need to be learned.
- The teacher should focus on those letters that all the children still needed to learn. S/he should teach those letters required by individual children only, later in the program, incidentally as the need arose in text reading and/or writing.

- If the children know more than 35 letters, all remaining letters should be taught incidentally, and the teacher should use this time for working with analogies.
- The teacher should know from the initial testing which children could identify onsets and rimes and which children could break words into onsets and rimes, and should teach children how to make analogies using this information.
- The teachers should start their program by taking words known by both children from the familiar reading book for analogy practice using plastic letters.
- As the children become more proficient, the teachers should choose words from a list of dependable rimes and high frequency words (Iversen, 1993).
- As the children progress, the teachers should work for flexibility in manipulating words changing rimes as well as onsets. S/he should also ask the children to write these chunks of visual information rather than ask them to manipulate plastic letters.
- The teacher should work with both children during this segment of the lesson.
- Each child should work with his/her own set of plastic letters,

  or

  the children should take turns working with one set of plastic letters.
- Whenever possible, the children should be working with the same words, as it is the strategy of knowing how to use the information that is important, rather than the item of knowledge. Working with the same words would make it easier for the teacher.
- If the children are working at different levels of analogical transfer ability, the teacher should still work with both children each day, giving instructions to each child separately.

Writing a Message.

- The children should each generate their own message and the teacher should work with Child A, while Child B writes independently. The teacher should quickly check this message at the end of the writing time as she would in the classroom. The teacher should alternate who she works with daily,

or

the children should each generate their own message and the teacher should work with both children as she would in a typical small group classroom situation,

or

the child who had worked with the teacher on the running record, should chose the message for the day and both children should write it,

or

the children should each write the same message, and the teacher should work with one child while the other works independently, listens, watches and copies as appropriate,

or

the children should each write the same message, and the teacher should have both children attending to the same practice page to help solve unknown words,

or

one child should choose the message and both children should write it cooperatively. One child contributes predominantly each day.

Cut Up Sentence Rearranged

- Each child should have his/her own cut up sentence to reassemble. The teacher works with both children,

or

the child whom the teacher has worked with has his/her sentence cut up.

- The children collaborate to put together one cut up sentence,

or

one child puts the cut up sentence together while the other child monitors.

Introducing and Reading the New Book

- When children are working at the same level the teacher should choose a book that will have supports and challenges for both children. The teacher should introduce the new book to both children together. Both children should read the book at the same time, but independently, and the teacher should listen to and assist both, as she would in a small group situation in the classroom,

or

the teacher should introduce the book to both children. The children should read aloud alternate pages. The child not reading aloud should follow the text by reading silently.

- When children are working at different levels the teacher should introduce a new book to the child whose turn it is to have the running record taken the next day. The other child continues with either familiar reading or writing. Each child gets a new book every other day,

or

the teacher introduces a new instructional book to the child who is to have the running record taken the next day and works with this child. The other child reads a previously unseen, easy book with minimum introduction. The teacher takes a moment at the end of the lesson to check out any difficulties with this child.

Starting the Program

After the testing was completed, the results analyzed, and the initial brainstorming session had taken place, the teachers began teaching their children daily. Only one teacher worked with three children. The others all worked with groups of two. For the first days of the program the teachers did not introduce any new learning , rather, they revised those items which the tests indicated that the children already knew. The purpose of this was to allow children to become very fluent in the areas of reading and writing that they already controlled, and to allow time for more behaviours, not evident in the testing, to surface. It also allowed the teacher and the children to get to know and trust each other, which provided a firm foundation for the future teaching interactions. Clay, (1985, 1993b) refers to this period of time as "Roaming Around the Known". The teachers recorded what they did, how the children responded, and made notes about group positioning and group dynamics. They were also asked to time the components of the lesson daily when they started instruction. Some teachers had completed this phase of the program just before the August/September school holidays and were ready to commence instruction in the new term. Others decided that it would be more beneficial to wait until the beginning of term three rather than start just before a two week break. At the time of this study the New Zealand school year commenced in February and ended in December. The period from February to December was divided into three terms each separated by a two week break.

Reports

In the first week of October, the teachers furnished interim, written reports. These reports covered the progress of the children, ways of recording the children's progress,

ways of working with groups, group dynamics, and the timing of the lesson as a whole as well as the timing of the components within the lesson.

Interim Reports

During the first few instructional weeks, teachers reported that they had made changes to the standard *Reading Recovery* lesson procedures and sequence. These changes were made because of time constraints and manageability with a small group. The interim reports which were furnished at the beginning of October, showed that the children were making progress. The teachers were still experimenting and had adapted the standard *Reading Recovery* lesson format in the ways described below.

Roaming Around the Known

The teachers who already had previous contact with the children they were working with, that is the Resource Teacher of Reading, the teacher in the Deaf Education Unit, and one other teacher who worked all day with small groups of children, found that five, instead of ten lessons, was enough time to "Roam around the Known." In these cases the teachers moved into the instructional phase of the program in the second rather than the third week. During the Roaming Around The Known phase, all teachers worked on having children respond fluently to all that they already knew, and noted any new behaviours that had not surfaced in the testing. They looked for further common points in children's item knowledge and understandings that they could build on in the later instructional phase of the program. The teachers also spent time in establishing routines that would help in the lessons to come. For example, they set expectations that each child would take a book and start reading the moment they arrived, rather than waiting for the other child to get settled. If the children were reading

the same book, they did not need to wait for the other child to turn the page before continuing themselves, if they happened to be able to read a certain book faster than the other child.

The teachers introduced and read with the children at least two new books daily to build up the stock of books that the children could read independently. The children also wrote daily with teacher or peer help as required. The children worked with magnetic letters daily, making and remaking the words that they knew. As a result of the initial testing, the teachers had noted that while the children were reasonably good at the onset matching task, they had not scored well on the rime matching task, so each day the teachers included some activities to help the children hear rhymes. These included sharing poems with the children, and engaging in oral cloze tasks to help children predict and supply the rhyming words. For example "Humpty Dumpty sat on the wall, Humpty Dumpty had a great _____"

Teachers also played some word games with the children. For example the teachers might say "I'm thinking of a word that rhymes with flag. I bring it to school everyday. It's called my _____".

All teachers commented on, and made reference to, the power of this procedure in their interim reports. Comments included

"Both children thoroughly enjoyed the rhyming activities."

"R was quicker to pick this up although he had scored lower to start with. This really boosted his confidence."

"The word games were also good vocabulary extenders for both the children as they have English as their second language."

"E was too quick with his responses at first and gave words that started the same rather than rhymes. It taught him to slow down, think and check before responding."

Fluent Writing Review

Teachers incorporated this review into the body of the lesson. Most reported that they had also asked the children to read words in isolation so that they were building up a bank of known words in both reading and writing vocabularies. They preferred to call the procedure "Fluent Reading And Writing Practice," because they had explained to the children that practicing was a good way to help them remember.

Rereading Two or More Familiar Books

The teachers reported that they had found it necessary to choose the books for the children in the familiar reading segment rather than offering any choice at all. Some teachers worked with both children on both books at the same time while other teachers worked with each child on one book while the other child read independently. The group dynamics worked well either way, but teachers had to be sure that if a child was reading independently the book had to be well within his/her control. The teachers explained this procedure to the children in terms of building reading mileage.

Rereading Yesterday's New Book and Taking a Running Record

The teachers listened to one child each day and took a running record of that child's reading behaviour. The other child followed in his/her copy of the book, monitoring the reading behaviour. The teacher alternated daily which child she took the record on. The group dynamics here worked well, but teachers found that they had to ask the child who was monitoring, not to interject when the child who was reading encountered a difficulty, unless given the signal by the teacher. An example of this is as follows.

Child A is reading aloud to the teacher who is marking the running record. Child B is monitoring from his/her own copy of the text silently. Child A comes to an unknown word and stops. The teacher says "You try it" inviting a response. The child makes no response. The teacher waits to allow child A some time to initiate some reading behaviour, and then turns to child B and raises an eyebrow. Child B supplies the word and the teacher records T (told) on the running record sheet.

The teaching at the end of the running record also included both children with the teacher directing her validation of appropriate responding, and her questioning for strategies, to the child who had been reading aloud but also including the other child in the discussion according to his/her strengths. For example, Child A's running record showed that she had mastered one-to-one matching in most instances and at two points of confusion had cross-checked her language and the movement of her finger, and self-corrected her reading. After the running record the teacher turned to the appropriate page and said to the child: "You did a really good thing on this page. Do you know what it was?" The child made no response. The teacher then turned to Child B who had more control over one-to-one matching and asked: "What was the good thing she did on that page." If Child B responded correctly the teacher would expand on this response by saying "That's right, you matched up the words you were saying with your finger and when it didn't match you went back and made it match." If Child B hesitated the teacher would provide an immediate explanation.

Letter Identification and/or Word Making and Breaking

The teachers moved the letter identification/ making breaking of words with magnetic letters segment of the lesson from after the running record to after the familiar reading. They found this more appropriate as they were taking the unknown letter to work on,

or the known word for making and breaking, from the familiar reading. This enabled them to show the children where they were taking the word/letter from and return it to its context after working with it out of context. In the initial weeks, those teachers working with children who had little letter knowledge worked with what they termed "heavy duty" letters, which they described as those that occurred frequently and often began the words that the children would meet in their writing. These letters included *Rr , Ss, Tt , Ll, Nn, Ww, Bb,* and *Mm.* Those teachers working with making and breaking words chose words known to the children from the familiar reading. These words were typically short high frequency words such as *and, me, my,* or short high interest words such as *dad, cat, dog.*

Writing a Message

Another justification for moving the letter identification/making and breaking segment of the lesson to after the familiar reading rather than after the running record was that the teachers found it more productive to ask the children to write their daily message from the book just read, that is the running record book. They felt that in the small group situation, as well as being a productive way to elicit a sentence, it also provided a shared experience for each child to write about. In effect, the child who had just read aloud for the running record composed the message that both children would write that day.

The teachers found that the writing segment was the hardest part of the lesson for them to work effectively with both children. The preferred option was that the teacher worked daily with one child, incorporating the Elkonin technique, while the other child worked independently, listened, watched and copied as appropriate. When the children had a bank of known words and the teacher began to teach words incidentally as they

arose in the writing, both children learnt the same word. Some teachers worked with both children as they would in a small group situation.

Cut Up Sentence Rearranged

Most teachers found that they did not have time to write and cut up two sentences daily, so they wrote one sentence and cut it appropriately for the child they had worked closely with on the writing. The other child helped with the reassembly or took the role of the teacher and monitored silently.

Extending the Known Set

In the early stages of the program the teachers found it necessary, not only to assist the children with their control over reading strategies and use of cues, but also to extend the set of words that both children would know how to read and write. The teachers did not choose a word from the child's message writing for the child to learn to write fluently. Instead, after the cut up sentence, and before the introduction of the new book, the teachers included a short teaching segment, which they called Extending the Known Set. This procedure included some of the suggestions in the *Reading Recovery* procedures "Suggestions For Extending His Knowledge Of Words" (Clay, 1985, p. 69-70). Clay (1993b, p. 27), expands on this, but at the time of this study, this information was not available to teachers. The teacher's justified adopting this procedure in two ways. First, they had found that those children experiencing difficulty with reading, were not learning short high frequency words, because the types of books that were available as instructional readers in their schools concentrated on exciting stories which did not necessarily repeat the same short high frequency words. Secondly, they felt that the prevailing philosophy of reading held by classroom teachers

was a top down philosophy, which based major emphasis on meaning, to the detriment of word knowledge.

Each day the teachers chose a book from those available in their schools that had a short high frequency word repeated many times. On the following day, whenever possible, they chose a book that contained a new high frequency word but also contained the one they had taught the previous day. Tables 5 and 6 show the different books chosen and the words taught by two different teachers in one week.

Table 5.

Books Chosen and Words Taught During One Week (Teacher A)

Day	Book	Series	Level	New Word	Word Reviewed
Monday	Baby Gets Dressed	Sunshine	1	the	
Tuesday	Stripes	Twig	2	on	the
Wednesday	Ouch	Literacy 2000	1	my	on
Thursday	In the Mirror	Storybox	2	see	my
Friday	The Ghost	Story Box	1	I	see the

Table 6.

Books Chosen and Words Taught During One Week (Teacher B)

Day	Book	Series	Level	New Word	Word Reviewed
Monday	The Birthday Party	Sunshine	1	The	
Tuesday	Down to Town	Sunshine	2	go	The
Wednesday	Yuk Soup	Sunshine	2	some	go
Thursday	The Great Enormous Hamburger	Sunshine	3	it	some
Friday	I am a Bookworm	Sunshine	3	up	see the

The first teacher had more than one series of little books available for her use, and was teaching children who needed a lot of consolidation in matching one spoken word with one written word. She chose her books from Levels 1 and 2, which are the easiest of little readers, and typically contain a one or two line sentence with strong picture support and a predictable language pattern. This enabled the children not only to learn new words, but also to practice their one-to-one matching. The second teacher had only one series of books available to her. She was working with children who had one-to-one matching under control and were starting to use some of their known words and letters to monitor their reading. She was choosing books that would enable the children to practice these strategies and also introduce them to more new vocabulary.

Procedure for Extending the Known Set.

In this segment of the lesson the teacher chose a new word from the set of short high frequency words that neither child could recognize. She made the word out of magnetic

letters as the children watched and then had each child make, jumble and remake the word using their own sets of magnetic letters, each time saying the word that they had made. The teacher then wrote the word on a card and asked the children what the word was. The teacher then put the card face down and asked the children to write the word on a blackboard with chalk, or a white board with dry erase markers. They were allowed to peep if they needed to in order to ensure a correct response. The children were encouraged to write the word many times, reading it after they had made it and erasing it between each response until they could write the word fluently and correctly without referring to the card. Each time the teacher asked the children to check that their response was correct by looking at the card. The teacher took a short time at the beginning of the lesson each day for reviewing these words from the cards and asking the children to write them.

The teachers felt that by following this format the children would have many opportunities to see the new words as they read a book as a new text, as a less familiar text during the running record, and as familiar reading material. They felt justified in asking the children to locate these known words after they had read the text, and they felt that they should review the words quickly at the beginning of the lesson. The teachers also suggested that the children should be asked to write the most recently learned words daily at the beginning of the lesson. As the children were writing the sentence based on the running record book, the chances of the new word arising naturally, yet again, in their writing was very probable. This provided yet another opportunity for the teacher to see whether the children could write the word, and/or provided an opportunity for further fluency practice on the working page of their writing books if necessary. In all, it was felt that providing links across the lesson in this way, provided more powerful learning opportunities for beginning readers and writers with few items of knowledge. The teachers also found that by teaching these

words, both children had a small bank of known words that they could draw on for daily analogy practice using onsets and rimes.

When the children had learned to read and write 20 short high frequency words, the teacher dropped this segment of the lesson and worked with an appropriate word from the children's daily writing until fluency was reached. In this context, an appropriate word would be one that the child could use regularly in his/her writing.

Introducing and Reading the New Book

Each day the teachers introduced a new book to the children using the format suggested in the *Reading Recovery* procedures (Clay, 1985:68). They did not suggest to the children that the new word they had just learnt was in the book, nor did they ask them to locate it before the reading, as they wanted the children to concentrate on the meaning and the language structure of the text. Most teachers worked with both children at the same time for the introduction of the book, and then asked the children to read the book as independently as possible. The teachers found that they were able to monitor the reading behaviours of the children reading the entire book together at the same time, as they did with small groups of children in a classroom situation. Table 7 shows a sample lesson of children working at the same level of text difficulty a few weeks into the instructional part of their program.

Table 7.

Sample Lesson: Children Working at the Same Level of Text Difficulty

Component	Child A	Child B	Teacher
Fluent Reading/Writing Practice	Practices known and nearly known words in reading and writing.	Practices known and nearly known words in reading and writing.	Works with both children. Prompts for writing.
Familiar Reading-Reading Mileage	Reads two books to the teacher, or one book independently and one book to the teacher.	Reads two books to the teacher, or one book independently and one book to the teacher.	Chooses books. Works with both children for both books or one child for each book.
Letter ID and/or Analogies Training	Works on one letter using plastic letters, letter books etc. or Works on onsets and rimes using plastic letters.	Works on one letter using plastic letters, letter books etc. or Works on onsets and rimes using plastic letters.	Works with both children together. Chooses a letter from a word in familiar reading. Works with both children. Chooses a known word from familiar reading.
Running Record - Monitoring Progress	Works with teacher.	Monitors reading from own copy of the same book.	Works with child A only. Involves Child B as appropriate.
Writing	Writes message from running record text.	Writes child A's message, listening, watching, copying and working independently or writes the sentence with teacher support as needed.	Works with child A only helping child A hear and record sounds and make analogies or works with both children in a small group situation.
Reassembling the Cut Up Sentence	Reassembles the cut up sentence.	Monitors silently and/or helps as able.	Works with Child A involving Child B whenever possible.
Extending the Known Set	Makes/breaks and writes a new word.	Makes/breaks and writes a new word.	Chooses a new word for both children.

Component	Child A	Child B	Teacher
New Book	Reads the new book independently.	Reads the new book independently.	Chooses the new book with the new word in it. Introduces the new book to both children. Monitors and assists each child reading.

On day 2, Child B has the Running Record and generates the sentence.

Final Reports

In the last week of November, the teachers retested the children and furnished their final written reports. These reports covered the progress of the children, modifications to ways of working as the children progressed, group dynamics and any other factors that the teachers judged to be important.

Three teachers found that the children they were working with progressed at the same rate and that they were able to keep them reading the same books as each other throughout the entire program. They modified their interactions so as to address the particular strengths and weaknesses each child exhibited at different times during their program. The other teachers found that after an initial consolidation period, one of their children started to make progress at a rate faster than the other child in the group. In these instances, the teachers modified the lessons further in order to accommodate this, so that instruction would still be powerful for both children. These modifications are discussed below.

Fluent Reading/Writing Practice

At the beginning of each lesson teachers took three minutes to review known and almost known words. The children worked side by side at the blackboard, or at the table with white boards, and wrote the words that the teacher asked for. The teacher was able to individualize this task either by asking both children to write the same word if this was appropriate, or asking each child to write a different word. The teacher used the eraser to wipe away the words each time the children wrote them. Some teachers kept a check on each child's words by writing them on cards and penciling the child's name on the back. After asking for the word she placed the card face down in front of the child and asked the child to check after s/he had written the word to see if s/he had it correct.

Rereading Two or More Familiar Books

When the children were reading at different levels of difficulty, the teachers always chose two books for each child to read. The teacher worked with one child for one book and the other child for the other book. The teacher made sure that the book she placed in front of the child who was working independently was well within his/her control. She also had a pile of very familiar books available for each child to read if they completed the independent book she had chosen before she had finished working with the other child. In some instances children read up to four books independently during this time.

Letter Identification and/or Word Making and Breaking

Often the teachers found it was appropriate to work with both children on the same analogy even though they were reading at different levels. In instances where this was not appropriate, for example, if one child was ready to make more difficult analogies by substituting final or medial sounds, or was making a transition from using plastic letters to using writing to make analogies, the teacher would work with this child, while the other child used a set of teacher predetermined letters to work within his/her current competencies. For example, the teacher is working with Child A helping this child to see differences within words. She is using *want* and *went* and *come* and *came* as examples. She has given Child B the letters *a, b, c, f, h, l, t, t,* and asked him to make one word with two letters, to add a different letter on the front to make three different words with three letters, and then to add two letters on the front to make two different four letter words.

Rereading Yesterday's New Book and Taking a Running Record

The teachers continued to work with only one child during this component of the lesson. When the children were working on different books, the teachers found that it was not appropriate to ask the other child to monitor the reading as it was unproductive, that is, it was either too hard or too easy for the child doing the monitoring. The teachers then supplied different activities for the child not reading. These included continuing with familiar reading, writing their known words and remaking yesterday's cut up sentence. The teachers found the most productive way for this child to work independently was using a combination of these activities. Most teachers first had the child remake yesterday's cut up sentence and then continue with familiar reading. One teacher had the child leave the cut up sentence out on the table and she quickly checked

it with a running record after she had finished working with the other child. The teachers alternated the child they worked with daily in the same ways as they did when the children were reading the same book.

Writing a Message

The child who had just read aloud for the running record continued to compose the sentence for both children to write that day. The other child continued to work independently, watching, listening and copying as appropriate. The teachers found that the child who was ahead on reading was usually ahead on writing, and could work with increasing independence on the writing when the teacher was focusing on the other child. The teachers also found that they could ask this child to participate in the teaching of the less able child as appropriate. The less able child relied more on watching, listening and copying when not working directly with the teacher. When the children were reading different books, and therefore did not have a common experience to bring to the writing task, the teachers asked the child who had not generated the sentence to repeat it, to make sure s/he had it in his/her head, before the children started writing. Children worked on either the same or separate words that arose from the writing until fluency had been achieved.

Cut Up Sentence Rearranged

The teachers continued to work with only one cut up sentence, making the cuts appropriate for the child who had generated the message. These cuts could be at the phrase, the word, the syllable or the letter cluster level. When the cut up sentence activity did not provide the child with any opportunity for consolidation or revision, it became redundant and was dropped from the lesson.

Extending the Known Set

By the time the teachers split their groups of children for instructional purposes, this component of the lesson had been dropped, and the teachers were taking words to fluency from the writing.

Introducing and Reading the New Book

The teachers continued to choose a new book for each child each day. The child whose turn it was to have the running record and generate the sentence the following day, worked with the teacher. The teacher introduced a new instructional level book to this child in the normal way and assisted the child with the first reading as and when necessary. The child who had had the running record and generated the sentence that day worked independently. The teacher chose a new book for this child at his/her independent reading level. She told the child the title and then followed the *Reading Recovery* procedure for introducing the book with minimal help (Clay, 1985, p. 68), but changed the instructions to say " I want you to look at all the pictures and tell yourself what the story is about. Then I want you to read it all by yourself." When the child had finished reading this book, s/he continued with other familiar reading from his/her book box. This new book was read to the teacher the next day as familiar reading. Table 8 shows a sample lesson of children working at different levels of text difficulty during the instructional program.

Table 8.

Sample Lesson: Children Working at Different Levels of Text Difficulty

Component	Child A	Child B	Teacher
Fluent Reading/Writing Practice	Practices own nearly known words in writing.	Practices own nearly known words in writing.	Works with both children providing separate prompts.
Familiar Reading -Reading Mileage	•Reads yesterday's new familiar book with teacher. •Reads one other teacher chosen familiar book independently. •May read other self chosen books independently.	•Reads one teacher chosen book independently . •May read other self chosen books independently. •Reads one teacher chosen book with the teacher.	•Chooses two books for each child. •Works with each child separately for one book.
Analogies	Works on analogies using plastic letters or writing as appropriate to increasing control of the task.	Works on analogies using plastic letters or writing as appropriate to increasing control of the task.	•Works with both children on the same analogy if appropriate. •Works with one child only, having provided the other child with the letters and instructions for independent work.
Running Record	•Reassembles yesterday's cut up sentence. •Selects and reads familiar books and/or stories from own writing book.	Reads yesterday's new instructional book to the teacher.	Works with Child B only.
Writing	•Writes Child B's message, working independently, listening, watching, helping and copying as appropriate.	Composes and writes a message from the Running Record Book.	•Works with Child B only. •Elicits child A's help as appropriate.

Component	Child A	Child B	Teacher
Cut Up Sentence Reassembled	Monitors silently and/or watches and helps as appropriate.	Reassembles cut up sentence.	•Works with Child B only. •Elicits child A's help as appropriate.
New Book	Reads a new instructional book with the teacher.	Reads a new easy book independently.	•Chooses a new book for both children. •Works with Child A only.

On day 2, child A has the Running Record and generates the message.

In all cases, at the interim reporting date and the final reporting date, the teachers ensured that their modifications did not compromise the important components of the lesson, that is, allowing time for reading mileage, explicit teaching of phonological processing skills and the teaching of metacognitive strategies. Table 9 shows the time line of the Pilot Study.

Table 9.

Timeline of Events

Date	Event
July	•Teachers begin participating in the Reading Course •Teachers opt into the Pilot Study •Teachers brainstorm ways of adapting *Reading Recovery* procedures to small group instruction
August	Teachers select and test children

Date	Event
August/September	Teachers teach children and discuss ways of working within the adaptations to the *Reading Recovery* procedures they had brainstormed in July
Early October	Teachers submit interim written reports
October/November	•Teachers discuss and refine the program •Children have their programs discontinued as appropriate
End November	•Teachers retest children •Teachers submit final written reports

Seating Arrangements

Seating arrangements varied across the teachers and also within the lesson. All teachers were confined by the space and available furniture. One teacher sat the children on the floor for the entire lesson. Another teacher moved them from the floor to a table at writing time. Three teachers sat between the two children while another teacher sat the children next to each other and positioned herself at the end. All teachers found that they had to move during the lesson. Each teacher commented on the fact that she would have liked more flexibility to experiment with seating arrangements.

Methods of Recording

The teachers who were *Reading Recovery* trained teachers used their *Reading Recovery* lesson plans at the beginning of the program, while those who were not *Reading*

Recovery trained, noted in diary form as much as they could each day. All teachers felt the need for a specific recording sheet appropriate to more than one child. A sample recording sheet is attached as Appendix N.

Results and Discussion

It was hypothesized that this small scale pilot study would produce an adapted format of the *Reading Recovery* one-to-one intervention that could successfully be used in a small group situation. Interim and final reports from the teachers validated this hypothesis. The modified lesson format was workable and contained the following explicit changes.

The Incorporation of the Fluent Writing Review into the Main Body of the Lesson

Clay suggests that teachers take a "few seconds at the beginning or end of a lesson to review the most recent words you have taken to fluency..." (Clay, 1993b, p. 30). This was modified to read "Take a few **minutes** at the beginning of **each** lesson to **practice** the most recent words that you have taken to fluency **in both reading and writing"**. These changes ensured, not only that sufficient time was given each day to practicing new and/or partly known words and cement them into long term memory, but also to provide children with a strategy for improving their skills. One way of improving a skill is by way of repeated practice until the desired response is automatic. In this instance, one way of building a reading and writing vocabulary was to practice the words regularly until the children could read and write them fluently without a prompt. This segment of the lesson, rather than taking seconds as suggested by Clay, took 2-3 minutes.

Letter Identification and/or Word Making and Breaking

This component of the standard *Reading Recovery* lesson was moved from **after** the taking of the running record, to after the children had completed their familiar reading and **before** the taking of the running record. There were two reasons for this. First,

the teacher would take a letter or a word, that was to be used for analogy practice, from a book that the children had just read. As the teachers initially wanted to help the children make links from known to unknown information, it was deemed more appropriate to take the word or letter from text more familiar, rather than less familiar, to the children. The second reason, which is discussed in full below in Writing a Message, was that the teachers did not want a break between the book that the children had read for the running record and the message writing section of the lesson.

Because most of the children demonstrated reasonably good alphabet letter knowledge on initial testing, teachers began teaching children how to make orthographic analogies using onset/rime segmentation fairly early in the program. Clay suggests that the time for this component of the lesson should be, "one to two minutes initially and no more than three minutes in later lessons" (Clay, 1993b, p. 44). The teachers found that initially this segment of the lesson took five minutes but as the children became more familiar with the procedure they were able to cut the time to four minutes.

A second modification concerned the use of contextual knowledge as it relates to using orthographic analogies in solving new words in reading and spelling. It is clear that the *Reading Recovery* procedures teach the children both declarative and procedural knowledge in respect of orthographic analogies using onset and rime. What is not clear is the amount of contextual or conditional knowledge that is taught. During the course of a program, children will work at analogy making in different ways, proceeding from the very simple to the more complex. Most children will need to start by manipulating tangible objects such as plastic letters. With these they will make analogies using very simple words, for example *go* and *no*. It is during this early stage that children are learning that they can manipulate letters to make new words (declarative knowledge),

and how to do this (procedural knowledge). As the children become more competent, a shift can be made to more difficult analogies including clusters of letters, and to writing the words, rather than manipulating the plastic letters. A shift can also be made towards having children use contextual knowledge.

Clay, in describing changes to "making and breaking" that occur over a program, suggests a movement from "1.... a little making and breaking of words but only those already known" to " 11 .... making and breaking using onsets and rimes and analogy" to "111.... as in 11 but embedded in words (and occurring while the child is reading text)" (Clay, 1993b, p. 17). This assumes that as the children become more experienced with making and breaking words, that particular segment of the lesson will become redundant and will be replaced with incidental making and breaking, as and when necessary, to solve new words during text reading.

It became obvious during the pilot study that children quickly became very proficient at making orthographic analogies using onset and rime. However the children were not using this information to solve unknown words in reading and spelling. In essence, they had become very good at the procedure, but not very good at knowing under which conditions or in which context to apply the strategy they had learned. For this reason, instead of breaking the flow of reading to work a similar example with magnetic letters, the children were reminded of the strategy that they had been learning, and were invited to apply it to the new problem to be solved. For example, if an unknown word in reading was *bent,* the teacher might ask the children to apply the same rule as they had used when changing *wig* to *big* during the making and breaking section of the lesson. That is, keep the rime ending constant and manipulate the onset. Obviously the teacher would only ask for this kind of response when s/he knew that the children knew a word with the same rime ending, or that they could pronounce the rime

ending in isolation. By working in this way the teacher was able to convey multiple messages to the children. First, "This is another context in which you can apply that rule" (contextual knowledge). Second, "I know that you know a rule that will apply here and have every confidence that you can apply it." Third, "I am teaching you to make links across different pieces of information." Fourth, "By working in this way, I am making you self-reliant and independent of me." A similar procedure to this was used very effectively with older children having difficulties with reading. (Greaney, Tunmer & Chapman, 1996).

The second major difference between standard and modified *Reading Recovery* was that the analogy training section of the lesson continued until the end of the program. As the children became more proficient, the teachers changed the manipulation task to a writing task and increased the scope of the analogy making to include clusters of letters embedded within words. The teachers continued to ask the children to apply their developing knowledge when reading books and writing messages.

There are two further aspects of this procedure that were made more explicit than the corresponding procedures in *Reading Recovery* (Clay, 1993b). It is suggested that the *Reading Recovery* procedures could be open to a misinterpretation, which may lead teachers to teach word families, for example *bet, met, set,* rather than to teach children the strategy of how to use orthographic analogies to move from known to unknown words. Although Clay states that the child will be manipulating letters "in order to become aware of how to work with what he knows, to get to new words" (Clay, 1993b, p. 44), her suggested methods of working do not make the instructional sequence explicit. On the other hand, the teachers in the pilot study were given explicit instructions. These instructions made it clear that the child should return to the initial

chosen example each time s/he made a new analogy rather than merely generating a string of words with the same rime ending.

It is also not clear from the *Reading Recovery* procedures that the teacher should pass over the control of the task to the students each time they worked on analogies. The pilot study teachers took care to include demonstration, explicit instruction, provision for practice, and independent initiation of the task in each teaching segment.

Writing a Message

The message writing section of the lesson was positioned directly after the running record, the only break between book reading and message writing being some quick, short, pertinent teaching that arose from the taking of the record. The pilot study teachers found that because some of the children had English as their second or third language, and few were fluent and competent in English, most had trouble composing a message to write. For this reason, it was decided that each day, the children would be asked to generate a message telling about the part of the book that they had just read that they liked best. Other reasons to support this decision were that it provided a shared experience for the children to write about; it would reinforce reading vocabulary as the children re-read their stories during composition; it would provide opportunities for learning to write reading vocabulary; it would extend the children's English language vocabulary; it would provide appropriate models of English language structure, and it would enhance conceptual development, in that the children would understand that they had read a story and now they could write about it. Towards the very end of their programs, some children started to write their own stories from their own experiences.

Extending the Known Set

This procedure has it's basis in the *Reading Recovery* procedure called "Learning to Look at Print", specifically, "Suggestions for Extending a Meagre Knowledge of Words" (Clay, 1995, p. 27). Whereas Clay suggests that "the same new things **should** pop up in different contexts"(Clay, 1993b, p. 27), the modified procedure ensured that the same new things **would** arise in different contexts. To ensure this, the teacher decided on which new word would be learned each day, taught that word, and ensured that it appeared in the new book that s/he chose. The next day the teacher asked the children to read and write the word in the fluent reading and writing practice. The children also had other opportunities to recognize the word during subsequent readings of the book. Another opportunity to write the word arose in message writing, as the sentences the children composed from the part of the book they liked the best invariably contained the new word. During this writing time, the teacher had yet another opportunity to assess whether the children had mastered the spelling. If not s/he was able to provide further practice in the context of "getting fluency". When the children could recognize and spell 20 short high frequency words, and had strategies for learning new words, for example, memorizing and learning by analogy, this segment was dropped from the lesson. From then on, words that the children needed to know how to spell were taken from the child's writing and practiced during the writing segment and during the fluent reading and writing practice. More complex high frequency words such as *who*, *this*, *because, which,* were learned as they arose in reading and practiced during the fluent reading and writing practice.

Specific Modifications for Small Group Instruction

When the teachers were working with children in pairs, some lesson components required further modification.

Children Working On the Same Level of Text Difficulty.

When the children were working at the same level, it was reasonably easy for the teacher to manage the two children without wasting valuable time. The teacher approached the familiar reading, and the introduction and reading of the new book, with two children as s/he would manage a small group in the regular classroom. Letter identification, analogy practice, extending the known set and fluent reading and writing practice, took place with each child working on the same words. Each child had his/her own magnetic letters, and wrote on paper, a chalk board, or white dry erase board as appropriate. While the teacher worked with one child to take the running record, the other child read silently at the same pace, monitoring the reading of the child who was reading aloud.

The teachers found that their greatest difficulty was managing the writing and cut up sentence component of the lesson. It was soon obvious within the time constraints of the lesson, that the teacher could not possibly work with both children writing separate sentences. It was therefore decided that the child who had read the book aloud for the teacher to take the running record would choose the sentence for both children to write. The teacher would work closely with that child while the other child worked independently, listened, watched and copied as appropriate. Unless both children were sitting next to each other, to one side of the teacher, this required one child to move from the place s/he had been sitting for the rest of the lesson.

Children Working at Different Levels of Text Difficulty

At some points during most programs, one child began to learn at a different rate from the other. This meant that it was no longer possible for the teacher to keep the children working together for the entire lesson. Teachers then had to modify the procedures even further to accommodate this change. In every case the teachers found that they had to spend time ensuring that the children completely understood the tasks required of them when they were working independently. They also had to make sure that all the books and/or equipment required were checked and ready before the lesson. For example, one of the activities that the children were required to do independently was to remake yesterday's cut up sentence. Before the lesson began, the teacher had to ensure that the children had brought the cut up sentences back to school and that all the words were in the envelope. The children then had to be taught procedures for remaking the sentence on their own. The following example shows the explicitness of the instructions that were required:

Read the sentence on the outside of your envelope.

Open the envelope and take out the words.

Put the envelope face down at the top of the table.

Put the words face up so that you can see them all.

Make the sentence.

Read the sentence.

Turn the envelope over and check that you are correct.

Teachers found that if they did not take the time to give clear instructions in the early stages, the children wasted valuable time.

A modification which was seen to be particularly effective and valuable in terms of creating independence was giving a new, easy level book to the child who was not

reading a new, instructional level book aloud to the teacher. Each day the teacher alternated which child s/he worked with on a new book. Initially, many teachers in the pilot study resisted giving a child a new book that had not been previously introduced and discussed. However the teachers soon realized that if they chose the book with extreme care, and gave the child explicit instructions about what to do, this became a very worthwhile activity.

Teacher Training

As hypothesized, New Zealand trained teachers were able to implement this program without further explicit training. However, those teachers already *Reading Recovery* trained, found the program easier to implement than those without prior *Reading Recovery* training. It was suggested by all teachers that training would be advantageous, and allow them to teach the program more effectively.

Lesson Time

The question regarding the time frame of the small group lesson was important if children were to be withdrawn from their regular classroom program. The teachers teaching two children found that they were able to complete their lessons in an average of 41 minutes. The teacher teaching three children took 48-50 minutes. All the teachers commented in both their interim and final reports that timing was tight and allowed for no unnecessary activities. However, they also suggested that the 41 minutes allowed for flexibility in different areas so that they could spend more time on certain components if the need arose. All teachers agreed that 50 minutes out of the regular classroom could not be justified, and that modifications to the existing classroom guided reading program would be more appropriate for groups larger than two. Table

10 shows the lesson format that the teachers teaching two children were using in the early weeks and later in the program, and the average time that each segment of the lesson was taking.

Table 10.

Lesson Format and Timing

Lesson Component	Average Time In Minutes -Sept/Oct	Average Time In Minutes - Oct/Nov
Fluent Reading/Writing Review	3	3
Familiar Reading	5	5
Letter ID/Making Analogies	5	4
Running Record	5	6
Message Writing	6	10
Cut Up Sentence	3	3
Extending the Known Set	4	0
New Book Introduced and Read	10	10
Total time	41	41

Other Issues

It was hypothesized that other issues may arise in the course of the pilot study that could would be worthy of consideration in terms of the efficacy of the program. One factor that was mentioned by all teachers was the dynamics of the small group. All

teachers reported favourably on the group dynamics and mentioned the essential nature of appropriate group interactions to the type of concentrated learning that was taking place. They identified three attributes that surfaced spontaneously and consistently. These attributes were competition, cooperation and support.

One teacher summed up the interactions by saying: "There's competition to do things first, but they also help each other and bounce off each other." A practical example of this was reported by another teacher who said: "It woke up E when R on a lower reading level would get more rhyming words than him and correct his oral reading. He (E) started to focus, monitor and self correct. When R realized that he could "win", he tried very hard to do so all the time. As his self-esteem grew he would frequently correct E's careless errors in reading and writing, but was also always prepared to ask E for assistance and accept his help readily. E was always prepared to help."

Although the children were both supportive and competitive across different elements of the lesson, it appeared in most instances that the children were competitive when learning new items of knowledge, and supportive when endeavouring to control increasingly more complex reading strategies. The teachers reported competition when the children were learning to write new words fluently, each trying to get the word written correctly before the other. The children also competed to see who could write the most words correctly in the fluent writing review, and who could make the most new words when working with analogies. Later in the program, when the children were writing most of their messages independently, there was often competition to see who could get the sentence written faster and who could get the most correct elements of a new word that they needed to write. This latter activity was invariably followed by discussion and negotiation.

Supportive and helping behaviours surfaced spontaneously during the running records when given the signal by the teacher, and also during the articulation of sounds in words in writing. Teachers reported that the children were so keen to be supportive that they had to curb this behaviour in some instances to allow each child his/her own processing time.

The children cooperated well with each other. They would often tell each other what was wrong and then help to put it right. If they were both stuck they would try and then agree and disagree They also respected each other's personal teacher time and willingly stayed on task with independent work while the teacher worked with the other child alone.

One teacher, commenting on the group dynamics, stated: "I thought the program worked well for S. But I felt that for a child like C with her impulsive and scatty behaviour that one-to-one teaching would be better. However, after S came off the program, she missed working with him, and asked for someone else to work with. Her behaviour was much the same so I've changed my mind."

Results of Pre- and Post-Treatment Measures

The children were tested using the full battery of tests at the beginning of the program. They were also tested when they no longer required the program and it was discontinued, or at the end of November, as the teachers had to submit final reports to satisfy course requirements. At this stage, no child had received more than 60 lessons. Two children were omitted from the final testing figures as the teacher had been unable to fulfill the teaching requirements of the study due to personal illness. Of the remaining children being taught in groups of two, five were discontinued on or before the final

testing at the end of November and three remained in the program. The five children who had had their program discontinued had received an average of 37.4 lessons. Of those children remaining, two were reading at level 10 and one at level 9. These children had received an average of 35 lessons. The children who were being taught in a group of three had had 45 lessons at testing time and were all reading at level 14. Their teacher was confident of discontinuing their program before the end of the term. Each teacher commented on the amount of progress made by the children in both reading and writing, on their bank of item knowledge, and their use of strategies. Table 11 shows pre and post treatment measures for the Pilot Study children.

Table 11.

Pre and Post Treatment Measures

Task	Pre Test Mean (n = 13)	Post Test Mean (n = 11)
Text Level	3.3	14.5
Letter Identification	46.3	52.9
CAP	14.0	21.2
Word Test	5.4	13.9
Writing Vocabulary	18.7	50.0
Dictation	19.5	33.8
Phoneme Segmentation	8.4	17.8
Onset Matching	7.3	8.7
Rime Matching	5.4	8.2
Analogical Transfer	15.7	53.3
Pseudoword Naming	1.3	13.1

The average age of the children at the beginning of the study was 6 years and 3 months. The average number of lessons each child had was 40.3.

Conclusion

This small scale pilot study was initiated to assess whether the standard one-to-one *Reading Recovery* procedures could be successfully adapted for small group instruction. The results showed that, without compromising the integrity of the lesson content, and working within a model of assisted learning, small groups of two children could reach average levels of performance in less than 60 lessons. These results point to certain key findings.

- The *Reading Recovery* program is able to be modified without compromising any of the components of the framework of factors influencing reading development, that is phonological processing, reading mileage through exposure to print and teaching metacognitive strategies.

- Teachers may be able to implement this program without further training provided they have a good understanding of the theoretical perspective and the instructional model which drives the teaching and learning.

- The modified program is suitable for children from different ethnic, social, linguistic, and cultural backgrounds.

- The inclusion of tests that measure ability in phonological processing and analogical transfer provides teachers with more comprehensive knowledge of the children's control over vital aspects of the reading process. It also extends the base from which teachers are able to formulate children's programs.

- The nature of the instructional conversation between teacher and child is crucial in raising metacognitive awareness. Whereas children appear to learn declarative knowledge and procedural knowledge quite quickly, they may not learn under which conditions or in which context to apply this knowledge without teacher guidance.

- Group dynamics appears to be important to the success of the program. Three characteristics surfaced in all lessons. These are competition, cooperation and support. The competitive element was noticed most on tasks related to skill, whereas support was demonstrated most on tasks where new understandings were being formulated.

The Resource Teacher of Reading who was working with two children who had been referred from *Reading Recovery* for further long term support commented on the importance of the paired situation. She found the "paired lesson particularly useful for one child who apparently did not cope well in a one-to-one situation, and can get left behind in a full class because of slower processing. It also made the other child more focused, having the 'slower' child correct his reading errors and beat him with many rhyming sounds... I was impressed with the progress both boys made. E moved as quickly as I think he would have if he'd had individual lessons. R moved far more quickly and happily than when he'd been on an individual *Reading Recovery* Program. R's progress filtered through all aspects of schooling quite dramatically. Not only did his reading and writing improve but his whole attitude. He began to participate in class and to be cooperative and positive. There was a total change in his attitude from a supposedly sullen, stubborn, uncooperative pupil to one

who participated readily, moved up a couple of reading groups in class and worked well with others. This was all due to this paired reading instruction."

- The paired situation provides extra opportunities for children to show that they have internalized and habituated certain reading and writing skills and strategies. This occurs in two separate ways. First where the teacher invites one of the children to take the role of teacher and assist the other either by providing a demonstration, or by taking the role of the teacher in an instructional conversation. Secondly when one child works independently while the teacher works with the other. It is suggested that these are more powerful demonstrations of awareness than merely responding to the teacher question "How did you know?" (Clay, 1993b, p. 42), which often leads to a standard, memorized response. Both these situations give teachers opportunities to assess children's actual and assisted levels of performance, and change the zones of proximal development accordingly.

- Two children can be taught effectively in a time frame of 41 minutes, which compares more than favourably with the mean lesson length of 40 minutes reported for one-to-one instruction in the 1978 *Reading Recovery* Field Trial Research (Clay, 1985:88). 50 minutes are required to enable a group of three children to make the same progress as a group of two.

- The program appears to be cost effective. Although cost effectiveness was not calculated in relation to this study it is likely that those children who participated would have required long term remedial support had this program not been available to them.

This pilot study goes a long way to supporting the premise that the lesson content and the instructional model combined, rather than one-to-one instruction, leads to successful early interventions.

CHAPTER 4

THE EXPERIMENTAL STUDY

Introduction

This experimental study was undertaken to clarify, verify and extend the findings of the pilot study. The focus of the pilot study was to ascertain whether the *Reading Recovery* procedures could be modified for small group instruction within a similar time frame to the existing *Reading Recovery* lesson. This experimental study sought to build on that qualitative information and make its focus quantitative. To this end, the emphasis of this investigation was on comparing the results of children taught one-on-one and children taught in groups of two. Although such comparisons had been favourable in the pilot study, the progress of children had not been the main focus. As the pilot study results had shown a benefit for children of ethnic minority cultures for whom English was not the first language, it was decided to undertake this experiment in a school system that also included different ethnic minority groups. It was hypothesized that this study would show that there was little difference at the end of the program between children taught one-to-one and children taught in groups of two.

Method

Sample

The Children

The children were all first grade children in Collier County, Florida who were eligible for the federally funded Title (Chapter) 1 services. The Title 1 program provides federally funded instructors for reading, mathematics and language arts. It covers children from kindergarten to grade 12 who must be below the 50th percentile when tested with a standardized test. Funding determines the percentage of children that can be serviced from that group. Traditional support has been in the form of small group pullout programs by trained teachers, and full-time paraprofessional tutor in-class support for class room teachers.

The children were chosen from five Title 1 schools who agreed to take part in the study. One school was situated in the town of Naples and the other four schools were situated in Immokalee, a rural community some 35 miles inland from Naples.

The children had all been designated as requiring extra services in reading and writing at the end of the kindergarten year. This decision had been made on the basis of the results from the Metropolitan Reading Test which is administered in kindergarten at the end of each April. The children who qualified for Title 1 services, and therefore were eligible for the intervention program, were the children who had scored below the 50th percentile on the Metropolitan Reading Test which had been administered in kindergarten in April 1994. Also eligible were the children who had been retained in

first grade, and had scored below the 50th percentile on the Stanford Achievement Test, also administered in April 1994. Of all those kindergarten and first grade children who had been assessed with a standardized test in April, 63% or 237 children were eligible for the intervention in September 1994 because they had scored below the 50th percentile.

Other children who were eligible for the intervention were children who had been classified as LEP (Limited English Proficiency) A, in April 1994. At the time of classification, these children had no English at all and therefore had not been given the standardized tests. By September 1994, some of these children had made sufficient progress with spoken English to be reclassified as LEP B, and therefore eligible for the intervention program.

All children who speak a language other than English are classified on the basis of a test administered on enrollment. Classification depends on the child's mastery of the English language when asked to respond to simple questions and directions from the tester. The children have to answer questions such as, "What is your name?" and, "How old are you?", and respond to directions asking them to point to a picture after being given a prompt in English. For instance, the tester may ask the child to indicate from a set of three pictures, which one is of a dog. LEP A children speak no English at all, LEP B children have very limited English proficiency. Children are re-evaluated on enrollment each year and also at mid year and end of year. Classification is amended at these points as appropriate.

Selection of the Target Group

To select the target children from this cohort, the teachers involved in the program, and specially trained paraprofessional tutors, administered the Letter Identification and Dictation Tests (Clay, 1993a), and ranked the children in order, using the stanine scores, from highest to lowest. The stanine scores are spread over a nine point scale, 1 being the lowest and 9 being the highest. The highest possible score would be represented as 9.9 indicating that the child had a raw score of 54 on the Letter Identification Test and a raw score of 36-37 on the Dictation Test. The lowest possible ranking would be 1.1. representing the child who had a raw score of 0-46 on letter identification and 0-13 on dictation. The Ohio stanine, raw score correlations for Letter Identification and Dictation (Clay, 1993a) are shown in Table 12.

Table 12.

Ohio Stanine/Raw Score Correlations

Stanine	1	2	3	4	5	6	7	8	9
Raw Score									
Letter ID	0-46	47-49	50	51	52	53	53	54	54
Raw Score									
Dictation	0-13	14-19	20-23	24-26	27-30	31-32	33-34	35	36-37

At the conclusion of the testing and ranking, the following groups of children were excluded:

- Children classified at the beginning of the school year as LEP A.

- Children who had already been identified as needing extra support because of a specific learning disability and/or emotional disability and who were receiving an additional or alternative specialist individual educational program.
- Those children, classified as LEP B who failed to score, or had exceedingly low raw scores, on the Letter Identification and Dictation tests, because extremely limited proficiency in English made it difficult for them to understand and respond to the directions given by the tester. Those children were also receiving a small group structured tutorial program in oral language, reading and writing, from a paraprofessional tutor.
- Those children who had attended kindergarten the previous year but had not yet enrolled for first grade because of the transient nature of the migrant population. Many of these children do not return to school until late September and October.

The remaining 15-20 lowest scoring children in each school were then tested by the teachers who would be involved in the program, with the Observation Survey (excluding the Word Test; Clay, 1993a), a word recognition test (Dolch, 1939), and four tests which measured various aspects of phonological processing and the ability to make analogies. From this group of children the teachers then chose the lowest responders as their target population. This group of 75 children included:

- LEP B children who, although very limited in English language, understood the requirements of the tests and were able to respond appropriately.
- Children who were repeating first grade.
- Children who appeared to have some form of learning or emotional disability, but who had not been formally classified at the time of testing.

The Target Children

The 75 target children ranged in age from 5-11 to 7-11 on the first of September 1994. The mean age was 6.6. Their mean Metropolitan Reading Test score put them at the 19th percentile, range 3-25.

Background of Target Children.

Most of the target children came from backgrounds common among children who receive early intervention programs. That is, as well as being the lowest performers on standardized tests and literacy tasks, these children often come from low socioeconomic groups, live in dysfunctional and/or single parent families, have poor health, are absent from school frequently, move often and receive little parent support for their literacy endeavours.

In addition to exhibiting these traits there are certain qualities that made this group of children unique. Most of these children had parents who were poor migrant farm workers, and of necessity moved seasonally to find work. 99% of the children in the target population received free or reduced cost lunch and breakfast.

Ethnic Background of Target Children.

The parents of the target children came from varied ethnic and cultural backgrounds. Many did not speak, read, or write English, and were also unable to read and write in their first language. 64% of the target children were Hispanic which included those children from Mexico, Puerto Rico and Guatemala. Many of these children have Spanish as their first language. Some Guatemalan children have English as their third

language after Canjobal, a Guatemalan Indian dialect, and Spanish. 12% of the target children were Haitian, all of whom had Haitian Creole as their first language. In total, 65% of the cohort spoke a language other than English as their first language.

Of the children who had English as their first language, that is 26 or 35% of the target children, 23% were African American, 4% Native American, 42% Anglo American and 31% were Hispanic. Only 11 children, or 15% of the total cohort, were found to be competent and fluent when speaking English. This ethnic, social and cultural composition of the target group closely reflected the composition of the total population of the five schools from which the children were drawn.

English Language Ability of Target Children.

Although 26 of the target children spoke English as their first language, the teachers reported that only 11 of the 75 children in the program (15%) were competent and fluent when speaking the English language. Five of the fluent English speakers came from homes where English was not the first language. Many of the children were unable to use language prediction cues to assist with their early reading, as they did not control the relevant English language vocabulary and structure. Table 13 shows various aspects of the English language proficiency of the target children.

Table 13.

Aspects of English Language Proficiency of Target Children

English Language Proficiency	Percentage of Target Children Affected
A. Labels for Common Items	
Has English labels for all common items which occur in the little books they are reading	14%
Has English labels for many common items which occur in the little books they are reading	52%
Has first language labels but no English labels for many common items which occur in the little books they are reading	21%
Has no first language or English language label for many common items which occur in the little books they are reading	13%
B. Control Over Oral English Language Structures	
Has oral control over, but is not fluent with regular, simple English language structures e.g. plurals, tenses, pronouns	59%
Does not yet orally control regular, simple English language structures	41%
C. Ability to Use English Language Structure to Assist With Reading.	
Is able to use some English language structure to assist with predictions in reading	59%
Is unable to use English language structure to assist with predictions in reading	41%
D. Ability to Use English Letter Sound Relationships.	
Is able to use letter sound relationships to help with predictions in reading	78%
First language has letter sound relationships different to English which impedes predictions on occasions e.g. Yy Jj Gg Hh Sh Ch	38%

To assign children to the various categories, the teachers used a combination of their own, and the classroom teacher's judgment and some test results. The test which proved most valuable for this purpose was the Running Record. Where children had a LEP (Limited English Proficiency) classification, this was also taken into account. Table 14 shows the gender, ethnicity, language, and English language proficiency, of the target children.

Table 14.

Gender, Ethnicity, Language and English Language Proficiency of Target Children

	Anglo American	African American	Native American	Hispanic/ Mexican Guatemalan, Puerto Rican	Haitian	Number & %	
A. Gender							
Boys	5	3	1	20	4	33	44%
Girls	6	3	0	28	5	42	56%
B. English as First, Second, Third Language							
English First Language	11	6	1	8	0	26	35%
English 2nd/ 3rd language	0	0	0	40	9	49	65%
C. Competent/Fluent in English							
Competent /Fluent in English	6	1	0	5	0	11	1%

Classroom Programs of Target Children

The target children were influenced both by the kindergarten program that they had experienced in the previous year, and the first grade program that ran concurrently with the intervention program.

The Kindergarten Program.

The kindergarten program to which the children had been exposed in their first year at school was heavily project oriented with much emphasis on cutting, pasting and colouring in of duplicated materials. Letters, sounds and words were systematically taught through themes following the County Curriculum. Commercially produced "big books" were available in some classes and used to read to children in conjunction with the themes. No kindergarten class teacher held the expectation that any children would learn to read or write during the kindergarten year.

First Grade Programs.

The children were drawn from 24 classrooms across the five schools. Twenty of these classrooms used a basal reader as their main reading instruction material and one teacher used it as support material. Three classrooms used trade books for reading instruction. The basal classrooms were all described as teacher centered while the three classrooms using trade books were described as child centered.

Literacy Practices in Teacher Centered Classrooms.

The teachers in the teacher centered classrooms relied primarily on a basal reader series for reading instruction. These teachers used the basal program for instructional reading at the whole class, small group, or individual child level. Instruction emphasized the learning of a particular reading skill or phonic element, followed by seat work to complete workbook exercises. Commercially made big books had been purchased to supplement themes and topics from the County curriculum, and were used to read to the children. A small number of teachers had trade books in their classroom but were unsure as to how they should use them. Writing instruction concentrated mostly on copying and penmanship.

Literacy Practices in Child Centered Classrooms.

Three teachers had a more child centered approach to teaching. This approach reflected the differing needs of children rather than teaching the same program to all children regardless of ability. These teachers used trade books for guided reading and large books for shared reading. Skills were taught through either the "big book" instruction, or an experience story which was written with the children each morning. Children wrote in journals daily, and for the most part this was left uncorrected.

Design

The experiment, a closely matched, intervention study, employed a between subjects group design, in order to examine differential effects of different group size employing the same program.

Children from the target group were matched, as closely as possible, into groups of three. They were matched on their raw scores of tests of letter identification, dictation, and sight word recognition. One of these children was taught individually and the others in a group of two. Each trio was taught by the same teacher, following the same lesson format and using the same materials, so that the child being taught individually could serve as the control for the children being taught in the group of two.

Both groups of children received no more than 60 *Reading Recovery* lessons which included explicit training in phonological processing skills (Iversen & Tunmer 1993). When each child was ready to have his/her intervention program discontinued, or the child had received 60 lessons, s/he was again tested using the full battery of entry tests, and a pseudoword reading test. If the child scored more than 33 points on the dictation test at discontinuing, s/he was also given a spelling test. When one child in the small group had his/her program discontinued before the other child, the remaining child was tutored individually until discontinued.

During the last two weeks in April and the first week in May 1995, all children were retested to assess their continuing progress. Testing was undertaken at this time rather than at the end of the school year to ensure the collection of follow up data on the migrant population.

Materials

The Tests

The tests used were identical to those selected for use in the pilot study and included the Diagnostic Survey (Clay, 1985), revised as The Observation Survey (Clay, 1993a); the Word Recognition Test (Dolch, 1939); the Phoneme Segmentation Test (Yopp, 1988); the Sound Matching Task (adapted from Bryant, Bradley, MacLean & Crossland, 1989); the analogical transfer task; and the Pseudoword Reading Test (adapted from Richardson & Di Benedetto, 1985).

The Dolch Word Recognition test was reformatted after the exit testing. Those words identified by most children were put at the beginning of the test and those not known at the end. The reformatted test appears as Appendix O. The reformatted form of the test was used for follow up testing at the end of the year.

The pseudoword reading task was not administered at the beginning of the program as it had proved to be difficult and caused much frustration for children at the beginning of the pilot study. In this study it was administered at the end of the program and at follow up testing. A spelling task and a text reading task were also included at the end of the program and follow up testing. These tests, except for the spelling task and the text reading task, are fully described in Chapter 3.

The Spelling Task

The spelling task consists of 18 items containing short one syllable words familiar to children, for example, *fat, meat, van.* It was given only to those children who scored

more than 33 points on the dictation test on exiting the program, but given to all children at end-of-year follow up testing. The children were read the target word, then a sentence containing the target word and then the target word again. They were asked to write the word on lined paper with the lower case alphabet printed at the top for reference. The children were not given any assistance or corrective feedback. The test was discontinued if the child failed to respond to six consecutive items.

Two scoring procedures were used: the first, a total score for words spelled correctly; the second, a point score from 0-4 points for each word, depending on the appropriateness of the spelling. A copy of the spelling task, instructions for administration and scoring may be found in Appendix P.

The Text Reading Task

The Text Reading Task was administered at the end of each child's intervention program as part of the posttest discontinuing data. This test required the child to read a story of 150 words. The tester gave the child a standard introduction, and then took a running record of the child's reading behaviour as s/he read the text unaided. If the child scored 95%-100% accuracy on the Text Reading Task, the tester continued to test, using more difficult material, until the child's instructional reading level was found. The instructional level is the highest level a child can read at 90% or above accuracy. If the child scored 90-94% accuracy, the text reading passage was deemed to be at the child's instructional level. If the child scored less than 90% on the Text Reading Test, the tester analyzed both this record, and the record of the child's current instructional reader, to ascertain if the child was processing independently enough to have his/her program discontinued.

The text reading task was chosen rather than a standardized test of reading sub skills, to reflect what children do when they are reading books. This particular passage was chosen because it is at a comparable level to that which schools expect children to be able to read nearing the end of first grade. It is a complete story in itself and the language is not stilted or contrived. It is a manageable length for 6-year olds and 7- year olds and still has some picture support. It has words in it that children cannot decode by sounding out, for example, those starting with a silent "*K*". In these instances the children would have to use their semantic and syntactic knowledge, and their knowledge of other significant visual features to identify the words. It also contains words that the children would not be familiar with and would need to use visual information as well as the surrounding contextual cues to exact the author's precise meaning. Finally, it contains words that require some visual searching beyond the initial and final letters, even though transposition of those words would not affect the meaning or the language structure, for example "ghost" and "giant". The Text Reading passage is presented in Appendix Q.

The Books

Iversen and Capobianco (1993) found it appropriate and necessary to formulate a book list which described the characteristics of, and provided a gradient of difficulty for, short, single story trade books. The List (Iversen & Capobianco, 1993) was designed for classroom teachers in America who did not have access to a *Reading Recovery* book list and wished to use trade books in instructional settings. Iversen and Capobianco arranged the books into 10, rather than 20, levels of difficulty, and benchmarked them against both *Reading Recovery* and Basal Reading Series levels. In each of the levels the more difficult texts are starred (*). The Intervention Program teachers used The List to grade their books.

The Assigned Book Level

Although there is no blueprint for assigning a book to a particular level, Iversen and Capobianco analyzed the trade books available to teachers in New England in 1992, and described the characteristics which provided the basis for their levelling.

Level One. Readiness.

This level includes caption books which describe familiar objects or events and are supported by strong illustrations. The easiest books contain a two or three word phrase or sentence on each page, which describes the object pictured.

Level Two. Readiness.

Books in Level Two are similar to those in Level One, except that the familiar concepts being illustrated tend to be more abstract. There is frequently a change in sentence structure on the last page, and sometimes the text extends over two lines.

Level Three. First Preprimer.

Books from Level Three onwards tend more towards a story line than a caption. The captions included at this level depict abstract ideas and numbers. These books typically have at least two sentence patterns, as well as having two-line sentences, and sentences that extend over two pages. The content continues to revolve around familiar topics, and illustrations provide strong support for the text.

Level Four. Second Preprimer.

Books at this level contain a greater variety of sentence patterns than at previous levels, as well as having sentences that may extend over three or four lines. Many of the books have rhythmic patterns that may extend over two or three pages before they are repeated. The titles tend to contain more new words per page than at previous levels.

Level Five. Third Preprimer.

Oral language patterns continue to dominate at Level Five. Book language that does appear, such as rhyme, the days of the week, and cumulative verse, serve as a predictive device to word identification. Picture cues are still important, but not always as strong as at the previous levels.

Level Six. Primer.

This level contains brief stories that have a beginning, middle and end. Book language, including repetitive rhyme and refrain, is common. Readers need to use prior knowledge, as well as the written information to make predictions.

Level Seven. First Reader.

The stories in Level Seven are longer and more complex than those found at previous levels. There is a greater amount of text and challenging vocabulary, which may include made-up words and onomatopoeia. These books are frequently written in smaller print with a story line that extends over several paragraphs. Dialogue, and monologues, where characters describe their inner thoughts, are prevalent. Illustrations provide only

moderate support due to the amount of text on the page, and the fact that many concepts are hard to illustrate.

Level Eight. Second First Reader-Early Second Reader.

A distinguishing feature of text at this level is the frequency with which the reader is required to make inferences in order to comprehend the message. Text at this level requires close attention to graphophonemic information, as directions, items in lists, and rhyming and rhythmic verses, reduce familiar predictable meanings.

Level Nine. Second Reader.

Books at Level Nine may contain whole pages of material dealing with new or unfamiliar concepts written in a variety of sentence patterns. What pictures are available, enhance, rather than contribute to, the meaning.

Level Ten. Beginning Third Reader.

These books vary in content, style and format. They are longer and more complex than previous text and may not have illustrations on every page.

Table 15 shows the relationship between The List, *Reading Recovery* levels, and the Basal Series levels.

Table 15.

Comparison of Series Reading Levels

The List	Reading Recovery Levels	Basal Levels
1-1*	1	Readiness
2-2*	1-2	Readiness
3-3*	3-5	Pre Primer 1
4-4*	6-8	Pre Primer 2
5-5*	9-11	Pre Primer 3
6-6*	12-14	Primer
7-7*	15-16	1.1
8-8*	17-18	1.2 - 2.1
9-9*	19-20	2.2
10-10*	21+	Third Grade

Procedure

The Teachers

The 10 participating teachers had all been selected by the local Federal and State Grants Office which controls the Title 1 Federal funds for Collier County, and whose initiative allowed for the program to take place. Five of these teachers were specially selected Teachers on Special Assignment (TSA's) who had been released from the classroom during the previous year, 1993, to enable them to work with individual and small groups of children. Four teachers, called Alternative Reading Program Teachers (ARP Teachers), were released from their classrooms in 1994, specifically to take part in the program. The remaining teacher was appointed to the Federal and State Grants Office. As well as taking part in the training, she was required to be the liaison person between the program and the Title 1 Director. All teachers had Bachelors Degrees, three had Masters Degrees, two were studying for their Masters Degrees in Reading and one was

working on a Doctoral dissertation. The teachers worked across the five schools. Nine teachers worked in the four schools in Immokalee and one teacher worked in the Naples school.

Teacher Training for Test Administration

Between August 15th and August 26th 1994, the teachers who were to participate in the intervention study were trained how to administer, score and interpret the observational tests in the Observation Survey, the Dolch Word Test, and the Spelling Test. They also learned how to administer, score, and analyze, the tests of phonological processing, that is, the Phoneme Segmentation Task, the Sound Matching Task, the Analogical Transfer Task, and the Pseudoword Naming Task. This training was conducted by the *Reading Recovery* Teacher Leader and comprised four, two-hour sessions. The teachers were given the opportunity to practice these testing techniques on children who would not be part of the intervention program, and were given specific written feedback on their attempts.

Tutor Training for Test Administration

From August 30th until September 2nd, paraprofessional tutors, employed by the Federal and State Grants Office to work with Title 1 children in schools, were taught how to administer and score the Letter Identification and the Dictation tests from the Observation Survey (Clay, 1993a). These tutors were trained by the *Reading Recovery* Teacher Leader. They first practised the testing procedures with first grade children who had scored above the 50th percentile on the Metropolitan Reading Test, and who would therefore not be part of the target population.

Matching of Children

Following the selection of children for the intervention, the teachers matched these target children into groups of three, using raw scores from Letter Identification and Dictation. Initial matching was done by grouping children with the same stanines, but due to the wide range of possible scores within the stanine, children were matched as closely as possible on the raw scores of their initial tests. These tests were chosen as they are more representative of what children had been taught in the classroom. The Dolch Word Test scores and the Writing Test scores were also considered where decisions had to be made between children with similar Letter Identification and Dictation scores.

Assigning Children to Individual or Group Treatment

Random assignment of which child would be taught individually and which children would be taught in a small group of two was not possible in all instances because of scheduling already in place in the participating schools. Each day children left their classrooms for a variety of reasons. As a class, they attended "specials" with specialist art, physical education and music teachers. They also had library time once a week, and time in the computer laboratory three times a week. Some children left the classroom for extra assistance from a speech therapist, and others worked for blocks of time with a LEP tutor. The County also mandated that children would have one hour maths tuition daily. School began at 8 a.m. and lunch for first graders began at 11 a.m. School dismissed at 2 p.m. Where scheduling could be accommodated, the teachers randomly assigned children, but in most cases children had to be matched to suit existing classroom schedules.

Chronology

Table 16 shows the chronology of events from August 1994, when training commenced, until the completion of the study in May 1995.

Table 16.

Chronology of Events: Significant Dates During the Implementation of the Experimental Study

Date	Action
August 15-26 1994	Intervention teachers trained by Teacher Leader in assessment procedures i.e. the Observation Survey, Dolch word list and the tests of phonological processing and analogical transfer
August 29-Sept 2 1994	•Non certified paraprofessional tutors trained in administering the Letter Identification and Dictation task from the Observation Survey •Intervention teachers and paraprofessional tutors test all first grade children who scored below the 50th percentile on the MRT and SAT in April 1994
September 6-16 1994	•Teachers use initial testing to rough screen children for the program. •Teachers exclude children with no English and those receiving other intervention programs. •Teachers test 20 lowest children from each school with full battery of tests.
September 19-23 1994	•Teachers select children for the program. •Children matched into triplets on basis of Letter ID and Dictation raw scores. Writing and Dolch words were taken into consideration if necessary. •Triplets divided into a single child and a pair for instructional purposes. •Teachers begin attending weekly inservice class on Wednesday afternoon.
September 26-30 1994	Teachers begin teaching children individually and in groups of two.
October 1994	•Teachers begin to critique each other's teaching at the inservice session. •Teacher Leader begins to visit teachers to provide individual feedback on teaching.

Date	Action
November 1994	Teachers adapt their lessons with the pairs as necessary depending on whether the children are reading at the same or different levels of text difficulty.
December 1994 /January 1995	Children are independently tested with the entire battery of tests plus the pseudoword reading test and spelling test as they are ready to leave the program.
April/May 1995	Follow up testing of all children.

The Intervention Lesson for Individual Children

Following selection in the second half of September, the target children received the lessons that had proven to be optimal from the results of the pilot study. The program began with a series of lessons consolidating what the child knew. If the Sound Matching task had revealed that the child was deficient in phonological awareness, the teacher also introduced games and language plays to direct the child's attention to the sounds of onsets and rimes. The lessons then proceeded as follows.

Fluent Reading and Writing Practice

Each lesson began with a quick fluent reading and writing practice session, designed to assist the child build a bank of short high frequency words, that would enable him/her to monitor his/her reading and assist with message writing. During this segment of the lesson, the teacher asked the child to read from separate cards and write quickly on a chalk or dry erase board, known and partly known words. Those words that were known at initial testing formed the basis of these words at the beginning of the program. The teacher added another word daily that had been the focus of the lesson

segment called "Extending The Known Set" (see below). As words became secure in the child's reading and writing vocabularies, the teacher withdrew the cards and did not prompt the child to write them.

Rereading Two or More Familiar Books and Letter Identification and/or Word Making and Breaking

Following fluent reading and writing practice, the child read two or more familiar books. This provided the opportunity for building up reading mileage, and the consolidation and integration of reading behaviours that the child already controlled. Each day the teacher took a word from one of these easy books to teach the child more about language at the onset, rime or letter level. At the beginning of the program, the teacher was always careful to choose a word that the child already knew something about. This ensured that new learning was built on existing knowledge. The teacher and the child worked with plastic letters, attending to alphabet letter names if this was necessary, or, making orthographic analogies by manipulating onsets and rimes. For example, J had just finished reading "Little Pig" (Melser & Cowley, 1981). Her teacher knew that she had a good command of alphabet letter names and recognized the word *pig* in isolation. He chose to show J how to make orthographic analogies using that known information. The typical teaching sequence for this segment of the lesson was described in Chapter 2.

Taking a Running Record and Writing a Message

Following work with plastic letters, the child read a less familiar book, which had been introduced by the teacher and read by the child, the day before. During this reading, the teacher took the role of neutral observer and recorded all the reading behaviours that the

child exhibited, using a standard set of conventions. This is referred to as taking a record of reading behaviour or taking a running record. At the conclusion of this reading, the teacher drew the child's attention to the most important new learning that had been shown by the record, and which s/he believed the child was ready to gain control over. The child was then invited to generate a message, using the previously read text as a reference point and for motivation. The child wrote this message as independently as possibly, while the teacher assisted by helping the child to learn how to hear and record sounds in words using the Elkonin technique (Elkonin, 1973). The teacher also helped the child generate unknown spellings from known words, in this way, building on the strategies that s/he had been teaching in the analogy making section of the lesson. This message writing segment also provided an opportunity for further practice of those partially known short high frequency words which formed part of the fluent reading and writing practice. When the child was able to write approximately 20 short high frequency words unaided, the teacher chose a new short high frequency word from the child's sentence for the child to learn that day.

Extending the Known Set

In the first lessons the teachers extended the child's known set of reading and writing words by introducing a new word each day. This word was chosen because it was a short high frequency word and because it occurred in the book that the child was about to read. The teacher introduced this word by explaining to the child that this was a new word that s/he was going to learn to read and write today. The teacher then made the word with the plastic letters and had the child do likewise, copying from the teacher's model. The child was invited to trace the word with his/her finger and say its name. The teacher then jumbled the letters in the child's word and asked the child to make the word again. The teacher's model was available for the child to peep at if necessary.

When the child could make the word fluently with the letters, the child was asked to write the word over and over, on a dry erase or chalk board, to get fluency. The teacher erased the word each time so that this was a learning rather than a copying task. Finally, the teacher wrote the word on a card and asked the child to read it. This word then became part of the fluent reading and writing review on the following days.

When the teacher introduced the new book, she made no reference to the word that the child had been learning. Rather s/he concentrated on the meaning and the language of the story. After the child had read the book, the teacher asked him/her to locate the word that s/he had been learning. In the following days the teacher also had other opportunities to help the child make links across the lesson and therefore memorize these new words. Table 17 shows the opportunities for children to extend their known set of reading and writing vocabulary in the course of the daily lessons.

Table 17.

Opportunities for Extending the Known Set of Reading and Writing Vocabulary

Lesson Component	Opportunity for learning
Day 1	
Extending the known set	Teacher introduces new word, child practices the new word by: •tracing over with finger, •making and breaking with magnetic letters, •writing the word many times, •reading the word from the card.
New Book	Child •reads the word in context •locates the new word in context after reading the book.

Lesson Component	Opportunity for learning
Day 2	
Fluent reading and writing review	Child •reads the new word from a card •writes the new word on chalk or dry erase board following a teacher prompt •checks correctness with card •rewrites the word until it becomes fluent.
Record of reading behaviour	Child •reads the new word in context •locates the new word in context after reading.
Message writing	Child •chooses the message to write from the running record book. This sentence usually contains the new word. •writes the word in his/her story. •writes the word many times on the practice page if it is not secure.
Cut up sentence	Child reads the word in order to put it in the correct position in the sentence.
Subsequent Days	
Fluent reading writing review	Teacher asks child for fluent reading and writing of the word until s/he is satisfied that it has been internalized.
Familiar Reading	Child reads the word in context in familiar reading book.
Message writing	Child writes the word unaided as required.

When the child had approximately twenty words in his/her reading and writing vocabulary, and had strategies other than memorizing for learning new words, for example, learning by analogy, this segment of the lesson was dropped. The teacher

then taught new short high frequency words incidentally as they arose in reading and writing.

Introducing and Reading the New Book

The new book was chosen because it was within the child's control, but also introduced some new challenge, that the teacher felt the child could meet, with support if necessary. After an introduction, designed to bridge the gap between the child's current level of understanding and expertise and the author's message, the child read the book with minimum help from the teacher. Within this suggested format each child's program was different depending on individual strengths and weaknesses.

The Intervention Lesson for the Children Taught in Small Groups.

The same lesson format was followed by the teachers working with the children in small groups of two. Each lesson began with practice of known and partly known words in reading and writing. This was followed by familiar reading from which the teacher chose a letter or word for further study through analogy. The teacher monitored the children's reading behaviour on less familiar text and then invited the children to write a sentence using this text as motivation. The children's knowledge of words was extended through explicit teaching until they had a bank of approximately 20 known reading and writing words, and after that time such teaching became incidental as the need arose. The lesson concluded with the children reading a new and more complex book.

Children Working on the Same Level of Text Difficulty

Fluent Reading and Writing Practice

The children continued with fluent reading and writing practice daily, the teacher asking the children the same words.

Rereading Two or More Familiar Books

Children read the same, or different, books during familiar reading, with the teacher attending to one child for each text while the other child read independently. The teacher chose these books and always ensured that the child working independently had a book that was well within his/her control.

Letter Identification and/or Word Making and Breaking

Both children participated in the making and breaking of words using magnetic letters. The teacher chose a memorable example from a familiar text that both children had read from which to make analogies. In the early lessons this was always from a known word.

Rereading Yesterday's New Book and Taking a Running Record

Records of reading behaviour were alternated daily. The child not being checked followed the text silently and, if appropriate, was asked to assist with an unknown word. The teacher marked the record "Told" as if s/he had supplied the unknown word. The teaching that followed the record included both children in teacher and learner

situations. Where possible the teacher encouraged the child who had not been checked to respond in the role of teacher. Alternatively, both children were in the position of learners.

Writing a Message

The child who had been checked for the record of reading behaviour chose the message that both children would write that day. The message was always chosen from the book that the record had been taken on to ensure a common experience for both children, and to assist with standard English language production. The teacher worked more closely with the child who had supplied the sentence, and included the other child as teacher where possible. The child working closely with the teacher recorded his/her sentence in a blank writing book, using one page as a practice page, so that the teacher could monitor ongoing expertise. The other child wrote the sentence on a blank piece of paper and practiced on a dry erase board. This child took the sentence back to the classroom to illustrate, and returned it the next day for display. The children shared the cut up sentence task, one child reassembling, the other child monitoring.

Extending The Known Set

The teacher chose a word that neither child could recognize in order to extend their reading and writing vocabularies. These words were always short, high frequency words. The teacher also ensured that these words were contained in the new book for the day, so that children would have the opportunity to recognize them in context.

Introducing and Reading the New Book

The new book was introduced to, and read by both children.

Table 18 shows a sample lesson plan for children working at the same level.

Table 18.

Lesson Plan: Children at the Same Instructional Level

Component	Child A	Child B	Teacher
Fluent Reading/Writing Practice	Practices known and nearly known words in reading and writing.	Practices known and nearly known words in reading and writing.	Works with both children. Prompts for writing.
Reading Mileage	Reads one book with teacher, one book independently.	Reads one book independently, one book with the teacher.	Chooses books. Works with one child for each book.
Letter ID and/or Analogies	Works on one letter using plastic letters, letter books etc. or Works on onsets and rimes using plastic letters.	Works on one letter using plastic letters, letter books etc. or Works on onsets and rimes using plastic letters.	Works with both children together. Chooses a letter from a word in familiar reading. Works with both children. Chooses a known word from familiar reading.
Record of Reading Behaviour	Works with teacher.	Silently monitors reading from own copy of the same book. Assists if requested by teacher.	During the record works with child A only. Involves Child B as appropriate. After the record involves both children as learners and/or teachers.
Writing	Chooses message for the day from yesterday's new text. Writes message in writing book.	Writes child A's sentence, helping, listening, watching, copying and working independently. Takes sentence away to illustrate.	Works with child A predominantly helping child A hear and record sounds and make analogies. Both children learn same fluency word if appropriate. Child B included as teacher whenever possible.

Component	Child A	Child B	Teacher
Reassembling the Cut Up Sentence	Reassembles the cut up sentence.	Monitors silently and/or helps whenever possible or appropriate.	Works with Child A involving Child B whenever possible.
Extending the Known Set	Makes/breaks and writes new words.	Makes/breaks and writes new words.	Chooses a new word for both children.
New Book	Reads the new book independently.	Reads the new book independently.	Chooses the new book. Introduces the new book to both children. Monitors and assists each child reading.

Children Working at Different Levels of Text Difficulty

As in the pilot study, most teachers found that during the course of the program one child began to draw ahead of the other and they had to make allowances for this by teaching the children at different instructional levels. In order to do this, the teachers modified the program in the following ways.

Fluent Reading Writing Practice

Each child practiced a different word depending on needs.

Rereading Two or More Familiar Books

The teacher continued to choose the books for the children. S/he ensured that the book that a child read independently was well within that child's fluent control. The less familiar book was the one read to the teacher.

Letter Identification and/or Word Making and Breaking

Teachers were still able to choose words for both children to work on. Sometimes the teacher asked the more able child to write responses rather than work with plastic letters. Alternatively, the teacher may have asked the more able child for a more difficult analogy, for example, adding or substituting a letter cluster rather than a letter.

Rereading Yesterday's New Book and Taking a Running Record

The teacher continued to alternate the taking of the running record daily. The child who was not working with the teacher worked independently reassembling previously cut up sentences, working with analogies and continuing with familiar reading.

Writing a Message

The teachers continued to alternate the instruction daily. The more capable child was able to help further in the teacher role and also able to write increasingly independently. By the end of the program the children were composing and writing their own messages every other day. Any independent composition was quickly checked by the teacher at the end of the session. The child not closely involved with the teacher continued to write on a sheet of paper which was taken away for illustrating. The cut up sentence was used only as necessary.

Introducing and Reading the New Book

The teacher continued to alternate who s/he introduced the new instructional book to each day. The other child was given a carefully chosen unseen book at an independent

level. The teacher gave the child the title, and a one sentence synopsis of the plot and then instructed the child to

> " look at all the pictures in the book and tell yourself the story before you start to read the words. If you come to a word you don't know, you know what to do to sort it out. If that doesn't work for you, write down the difficult word and we will discuss it later."

When the child had finished reading this book s/he continued reading familiar books from his/her book box. At the end of the session, the teacher quickly checked out any difficulties with the child. This book then became part of familiar reading.

Table 19 shows the lesson format for children working at different instructional levels.

Table 19.

Lesson Plan: Children Working at Different Instructional Levels

Component	Child A	Child B	Teacher
Fluent Reading/Writing Practice	Practices own nearly known words in writing.	Practices own nearly known words in writing.	Works with both children providing separate prompts.
Reading Mileage	Reads yesterday's new familiar book with teacher. Reads one other teacher chosen familiar book independently. May read other self chosen books independently.	Reads one teacher chosen book independently . May read other self chosen books independently. Reads one teacher chosen book with the teacher.	Chooses two books for each child. Works with each child separately for one book.

Component	Child A	Child B	Teacher
Letter ID and/or Analogies	Works on analogies using plastic letters or writing as appropriate for increasing control of the task.	Works on analogies using plastic letters or writing as appropriate for increasing control of the task.	Works with both children on the same analogy.
Record of Reading Behaviour	Reassembles yesterday's cut up sentence/continues analogy practice. Selects and reads familiar books and/or stories from own writing book	Reads yesterday's new instructional book to the teacher.	Works with Child B only.
Writing	Writes Child B's message, working independently, listening, watching, helping and copying as appropriate or writes own message independently. Takes message away to illustrate.	Composes and writes a message from the Running Record Book.	Works with Child B only. Elicits child A's help as appropriate.
Cut Up Sentence Reassembled	Monitors silently and/or watches and helps as appropriate.	Reassembles cut up sentence.	Works with Child B only. Elicits child A's help as appropriate.
New Book	Reads a new instructional book with the teacher.	Reads a new easy book independently then continues with familiar reading.	Chooses a new book for both children. Works with Child A only.

Lesson Length

The length of the intervention lesson varied depending on whether the children were taught individually or in pairs. Teachers were encouraged to use mechanical timers, not only to ensure the time of the total lesson, but also to mark intervals within the lesson, so that adequate time was given to familiar and recent reading, writing, analogy practice and the introduction and reading of the new book. As all the teachers were greatly

constrained by the existing classroom schedules, there was no possibility of them extending *Reading Recovery* time beyond 35 minutes for the one-to-one lesson and 45 minutes for the small group lesson. Table 20 shows the average time and percentage of total time of the one-to-one lesson and small group instruction based on an analysis of 100 lessons.

Table 20.

Average Time and Percentage of Total Time of the One-to-One and Small Group Instruction based on 100 Lessons

Lesson Component	One-to-One Instruction		Small Group Instruction	
Fluent Reading/Writing Review	2 mins	5.7%	3 mins	6.8%
Familiar Reading	5 mins	14.2%	5 mins	11.3%
Letter I/D Making Analogies	3 mins	8.6%	5 mins	11.3%
Running Record	5 mins	14.2%	6 mins	13.6%
Message Writing	8 mins	22.8%	10 mins	22.7%
Cut Up Sentence	2 mins	5.7%	3 mins	6.8%
New Book Introduced and Read	8 mins	22.8%	10 mins	22.7%
Extending the Known Set	2 mins	5.7%	2 mins	4.5%
Total time	33 mins		42 mins	

Group Dynamics

Using recommendations from the pilot study, the experimental study teachers used knowledge of the group dynamics to make learning more effective and to create

independence. For instance, the teachers introduced an element of competition at the beginning of each session. Typically when the teacher went to the classroom to collect the children for their lesson, s/he would tell the children to go ahead and see who could have the most words written on the chalk board before s/he arrived. In another instance, the teacher would ask the children to stand the books they had read during the course of the lesson along the chalk board ledge. S/he found that this visual evidence increased the number of books the children re read each day during the familiar reading component of the lesson or during other components when the teacher was working with the other child.

Supportive behaviour first surfaced during the taking of the running record when the children were reading the same text and during the articulating of sounds in words during writing. During the pilot study, the child not working closely with the teacher often interjected when the other child paused or made an error. The experimental study teachers used this behaviour to advantage by asking the children to remain silent until given a signal by the teacher. At this point the child was able to adopt the role of the teacher and "teach" the other child. All children enjoyed this role and the teachers agreed that by helping the other child in this way, the children were confirming their own developing knowledge. It also provided teachers with an opportunity to assess which new knowledge had been internalized.

All teachers found that they had to give very clear directions about the tasks that the children were to accomplish independently. When routines were established, the children quickly cooperated by not interrupting the teacher when s/he was working with the other child.

The Inservice Class For Teachers

Starting the week after the training in the assessment procedures, the teachers began attending a 2 1/2 hour inservice class weekly. During this class the teachers learnt how to instigate the intervention procedures, how to manage the small groups effectively and how to make the most appropriate teaching decisions in order to aid accelerated learning by their children. Teachers critiqued each other's teaching, as is standard in *Reading Recovery* Inservice classes. They used these lessons to learn how to observe closely children's reading and writing behaviours, how to articulate this behaviour in light of current reading theory, and how to make the most appropriate teaching decisions in light of their observations.

Teachers also learned the practical application of a theory of assisted/scaffolded performance leading to independence, and the power of the instructional conversation that takes place between teacher and children. The instructional conversation interchange included: some modeling, some explicit teaching, some questioning to assist learning, some specific feedback and general praise, and some assistance with the formation of cognitive structures, so that the children knew when and where to apply the strategies that they were learning. The following are two different examples of instructional conversations.

D is having his 6th instructional lesson. Haitian Creole is his first language, and, while not very fluent in English he quickly responds to tasks that the teacher requires of him. Initial testing showed that he could recognize 40 letters by alphabet name and use 12 sounds in dictation. He scored 4/9 on the rhyme task.

His teacher had noticed that during writing he had a strength in hearing sounds in order. During the rime analogy task with magnetic letters he had quickly become fluent at substituting onsets to make new words using the sounds he knew. He found it difficult to generate a personal message in English, so each day for writing, his teacher asked him to suggest a sentence from the book he had just read. She did this in order to help him build up English vocabulary and structure. He chose "*My home can fly," said the spacegirl.* D and his teacher used one page of his writing book for practice and teaching purposes and the other page for his sentence. An analysis of his writing is as follows.

My D wrote this alone.

Home D heard and recorded the sounds using the Elkonin technique and wrote *h o m.* The teacher encouraged him to use an analogy to *like* which he wrote yesterday to help D get *home* to look right. In this instance the teacher wanted D to link the silent *e* on the end of *like* to the silent *e* on the end of *home.*

Can D had used *can* in the rime analogy segment of the lesson using plastic letters. The teacher knew he could read it so she wanted to see if he could write it. She waited. He wrote *can* alone.

Fly D stopped and did not initiate any response. The teacher said "What word have you already written that rhymes with fly?" D said "*my.*" The teacher wrote *my* on the practice page of D's writing book and said "Remember how you just changed the letters to make *can* into *man*? See if you can write *fly* under *my.* "*D* wrote *f* and the teacher asked him to say the word slowly and listen for the next sound. She then asked him what letter he expected. He wrote *L.* The teacher then asked him to finish the word so that it rhymed with *my.* He wrote *y.* The teacher quickly extended his knowledge even further by saying, "I know some

others that rhyme with *my* and *fly*." She wrote *by, cry* and *try* in a line under *my* and *fly* so that all the *y's* were in line. She read them as she wrote. In this instance the teacher could have scaffolded the task even more by using the plastic letters rather than writing, but she judged that the child could go directly to writing.

said D learned to write *said* by over learning. He wrote it 15 times on a small dry erase board, each time erasing and starting over rather than copying.

the D wrote this word independently.

spacegirl. The teacher and D worked on the word spacegirl directly into the sentence, rather than on the practice page, using a sounding out strategy. The teacher asked D to clap the word first to separate *space* from *girl*. She then told him that they would work on *space* first. D heard and recorded *s p a* independently and then said *s*. The teacher said, "It could be, but in this case its *c*." The teacher then asked "What would *space* need to make it look right?" and made an analogy back to *home* and *like*. D wrote the *e* and then the *g* in girl. The teacher wrote *i* and *r* and D wrote the *l* on the end.

This interaction combined specific instruction in phonemic segmentation and making and using orthographic analogies. The rime analogy was appropriate for this child because the child already had a visual image of a rhyming word on the page.

J is more than half way through her program. Her teacher is teaching her options that she can use when she comes to words she is unable to spell in her writing. J's sentence is "*Today I will pick berries with my mom.*" Her teacher knows that she can write all the words except *pick* and *berries*. She opts for using the Elkonin boxes for *berries* and

analogy practice with *pick*. The following is a transcript of the analogy teaching segment.

Teacher *"This would be a good time to use what we have been doing with the magnetic letters"* (providing the context for strategy application - building in the cognitive structure).
"Can you think of a word you know that rhymes with ***pick?****"* (questioning to assist learning).

J *"****Sick****"*

Teacher *"Good* ***sick*** *rhymes with* ***pick****"* (provides specific feedback). *"What does* ***sick*** *look like?"* (questioning to assist - you need a visual image).

J *"I don't know. It starts with s."*

The teacher knows that if she writes ***sick*** (provides a model), J will instantly write ***pick***. She also knows that she could ask J to write ***sick*** and J would write ***sik***.

Teacher *"Can you think of a word that ends the same as* ***sick*** *and* ***pick****?"*

J No response.

Teacher *"I'll give you a clue. It's the name of a colour and a word you can write."*

J *"****Black.****"*

Teacher *"You're thinking. Good girl"* (general praise).
*"****Write black.****"* (explicit instruction).

J Writes ***black.***

Teacher *"Now use what you know to write* ***pick*** *"*(asking for independent strategy use).
"Excellent, see how you can make use of what you know to get to what you don't know when you come to words you want to write" (general praise and specific feedback).

These examples represent only one of many instructional conversations that could have taken place in these situations. The teachers choice of instruction will depend on the expertise of the child/ children. In the latter example the teacher was asking the child to use an analogy rather than sounding out the word. This was difficult because the child did not have a visual image of a rhyming word. Secondly, the rime had three letters but only two phonemes. Ultimately the child had to work at the phoneme rather than the onset and rime level.

Support for Teachers

During the study each of the teachers received four individual visits from the Teacher Leader, during which time they were required to teach children individually and in pairs. They were given specific feedback on their teaching as it pertained to implementing the intervention program appropriately, the power of their teaching decisions based on the children's needs, and the power of their instructional conversation. Teachers were also required to teach for their colleagues on at least three occasions, and to take part in group discussion regarding their ability to respond to the children in the most effective way. The teacher's daily lesson plans and the children's writing books were also regularly reviewed to ascertain the amount of teaching for metacognitive strategies that had occurred. Teachers were also required to submit two videos for analysis of their time management, teaching strategies and instructional conversations. They were given feedback in each of these areas.

Discontinuing the Intervention Program - Post Testing

The decision to discontinue the children's intervention program followed *Reading Recovery* recommendations. First, the intervention teacher decided that the child

/children had a set of strategies in place that would enable them to continue to learn as they read increasingly different material in the classroom situation. In consultation with the classroom teacher, s/he then ascertained that the teacher was in agreement with this decision, that the children were reading at average or above average levels for that class, and that there was a suitable instructional situation that would enable them to continue their learning in both reading and writing.

The children's progress was then discussed with the Teacher Leader who made the decision as to whether or not retesting was appropriate. At this point, the child was retested by another intervention teacher with the full set of tests administered preceding the program, plus a test of pseudoword reading and a text reading test. If the children scored 33 or more on the dictation test, they were also given a simple spelling test.

After weighing all the evidence, the final decision regarding discontinuing the children's intervention program was made by the Teacher Leader. In making this decision the Teacher Leader took into account the following considerations. First, using the 1989-1991 Ohio stanines (Clay, 1993a), she confirmed that the children were indeed at, or above, the fifth stanine across the range of tests in the Observation Survey. Secondly, she interpreted the scores with reference to the behaviours that the children exhibited. In particular she had to be satisfied that the children were able to use metacognitive strategies to continue to increase their control over reading and writing even with a "not noticing teacher" (Clay, 1985, p. 82). Thirdly, she needed to be satisfied that the children were able to function in the classroom. To this end some intervention teachers taught the children their final lessons in the classroom, and incorporated those aspects of the classroom program that the children were not so familiar with, for example, filling in workbook pages in the traditional basal classrooms, and selecting appropriate reading material in the Whole Language classrooms. In all cases, both the testing and the Teacher Leader's considerations

merely confirmed the decision that the intervention teacher had made, and all the children recommended for discontinuing were in fact discontinued. At this point in time the teacher also recorded how many lessons that the child had had, including the initial Roaming Around the Known where no new learning was introduced.

Follow up Support for Children

Because most of the parents of the children involved in the program were unable to assist their children with reading at home, due to illiteracy and length of working day, and the fact that most of the classroom teachers did not have appropriate resources, the intervention teachers set up systems to ensure that the children continued to read to an experienced peer or adult daily. Generally, this meant that once the children were discontinued from the program, they would come to the intervention teacher each day and be given a new book to read. The children took this book away and read it during the course of the day to their reading buddy and also independently. The children were also encouraged to take these books home and read them again at night. The books were changed daily. Intervention teachers also continued to monitor the progress of the discontinued children formally by taking a record of reading behaviour and collecting a sample of the child's writing each two weeks.

Follow up Testing

At the end of April and in early May the children were again tested to assess their progress beyond the intervention program. Tests with a ceiling that the children were expected to reach were not re administered. The tests given at discontinuation were: A Book Reading Test to assess instructional reading level, the Dolch Word Recognition Test, the Dictation task for those children who had scored less than 33/37 at

discontinuation, the Writing Test to assess how many words the children could write in 10 minutes, the Phoneme Segmentation Task, the Analogical Transfer Task, the Pseudoword Naming Task, and the Spelling Task. A sample of the children's independent writing was also collected.

CHAPTER 5

RESULTS AND DISCUSSION

It was hypothesized that the *Reading Recovery* one-to-one intervention would be able to be adapted for small group instruction. The main emphasis of the pilot study was to ascertain whether the current *Reading Recovery* lesson format could be adapted for teaching small groups. The purpose of the experimental study was to validate the qualitative results of the pilot study with empirical data. Two general analyses of variance were carried out on the data, one involving experimental group comparisons, and the other involving comparisons with control groups.

Experimental Group Comparisons

Presented in Tables 21 and 22 are data pertaining to experimental group comparisons. Overall it is clear that there are only small differences between the two groups on all measures at testing points. This suggests that although *Reading Recovery* instruction in pairs requires somewhat longer lessons (42 minutes on average versus 33 minutes; see earlier discussion, Chapter 4) it is equally as effective as one-to-one instruction in terms of outcomes. That is, for a 27% increase in instructional time, the number of children seen by the *Reading Recovery* teacher can be increased by 100%. These general conclusions were confirmed by analyses of variance and *t* tests performed on the data.

Table 21.
Means and Standard Deviations for All Measures as a Function of Type of Instruction and Time of Testing.

		Pretreatment				Discontinuation				End of Year			
	Maximum Score	One-to-One Instruction		Small Group Instruction		One-to-One Instruction		Small Group Instruction		One-to-One Instruction		Small Group Instruction	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Text Level		2.54	1.08	2.22	1.18	16.29	2.10	16.24	2.05	17.72	4.79	18.16	3.29
Letter Identification	54	45.46	6.05	46.82	3.55	53.21	1.50	53.27	1.20	-	-	-	-
Concepts About Print	24	10.83	3.53	11.61	3.16	19.00	3.20	18.90	2.22	-	-	-	-
Writing Vocabulary		5.24	4.02	6.37	4.05	37.75	15.06	42.53	11.75	63.58	22.07	64.35	26.11
Dictation	37	12.24	4.50	12.83	5.58	29.86	5.47	31.38	3.45	35.05	2.50	35.18	2.74
Dolch Word Recognition	220•	6.04	5.30	6.65	7.20	91.33	34.84	83.94	28.00	150.63	47.55	147.24	40.33
Phoneme Segmentation	22	2.88	3.63	3.59	5.21	11.58	6.49	13.69	5.26	17.75	4.13	18.61	3.83
Onset-Rime Segmentation	18	10.71	3.48	11.59	3.04	15.54	2.00	15.80	1.95				
Words with Common Rime Units	72	2.42	2.31	5.12	6.71	42.29	19.71	50.10	13.38	57.75	13.14	60.92	10.68
Pseudo Word Reading													
Total Words	30	-	-	-	-	2.67	2.60	3.04	2.55	7.92	6.22	9.18	8.07
Total Points	101	-	-	-	-	39.71	12.24	48.06	21.32	58.46	22.45	58.20	21.04
Spelling Ability													
Total Words	18	-	-	-	-	-	-	-	-	7.43	4.11	6.92	3.45
Total Points	72	-	-	-	-	-	-	-	-	54.13	0.60	53.00	10.07

Note Dashes indicate data not collected
• Number of Dolch Words to end of 3rd Grade

For each measure in Table 21 that was taken at all three testing points (i.e., text level, writing vocabulary, dictation, Dolch word recognition test, phoneme segmentation, reading words with common rime units), a 2 (Group: one-to-one vs small group instruction) x 3 (Time: pre treatment, discontinuation, end of year) analysis of variance was carried out. Because of floor or ceiling effects, some measures were only taken twice (i.e., letter identification, concepts about print, onset-rime segmentation, pseudoword reading). For each of these measures, a 2 (group) x 2 (time) analysis of variance was performed. Spelling ability was only measured at the end of the year. A *t* test was used to determine whether the means of the two experimental groups were significantly different (see Table 22).

Table 22.

Tests of Differences between Means of Two Experimental Groups on Various Measures.

	One-to-One Instruction		Small Group Instruction		*t* •
Measure	M	SD	M	SD	(df =71)
Pretreatment Age (months)	80.60	6.87	81.10	5.77	.33
Lessons to Discontinuation	52.54	4.73	51.29	7.23	.77
Spelling Ability (End of Year)					
Total Words	7.42	4.11	6.92	3.45	.54
Total Points	54.13	9.59	53.00	10.07	.46

•All *t* tests were non significant, $p > .05$

For all measures entered into analyses of variance, with the exception of the reading words with common rime units measures (see below), the only effects to reach significance were the main effects for Time. There were significant Time effects for the text level, F (2,142) = 1512.19 $p<001$; letter identification, F (1,71) = 162.78 $p < .001$; concepts about print, F (1,71) = 251. 17 $p < .001$; writing vocabulary, F (2,142) = 279.89 $p < .001$; dictation, F (2,118) = 474.63 $p < .001$; Dolch word recognition test, F (2,142) = 584.45 $p < .001$; phoneme segmentation, F (2,142) = 238.44 $p < .001$; onset-rime segmentation, F (1,171) = 161.82 $p < .001$; reading words with common rime units, F (2,142) = 631.32 $p < .001$; pseudoword reading (total words), F (1,170) = 88.30 $p < .001$, and pseudoword reading (total points), F (1,71) = 41.00 $p < .001$. These results indicated that children's performance on the various measures improved over time. The main effect for Group and the Group x Time interactions were non significant, with one exception. For the reading words with common rime units measure, the main effect for Group just reached significance, F (1,71) = 4.18, $p < .05$ (but not the Group x Time interaction). As can be seen in Table 21, at all testing points the children taught in pairs scored somewhat more highly than the children who received one-to-one instruction. Individual comparisons of cell means revealed that the only difference between the two groups to reach significance was at discontinuation (Newman-Keuls, $p < .05$). However, by the end of the year, the difference in performance between the two groups was no longer significant.

Overall, the results indicate that, although the performance of the children in both groups significantly improved throughout the year (as one would expect), there were no major performance differences between the two groups on any of the measures. Moreover, as can be seen in Table 22, there were no significant differences between the two groups in pretreatment age, lessons to discontinuation, or end of year spelling

ability. The results strongly suggest that *Reading Recovery* instruction in pairs is equally effective as one-to-one instruction. The only real difference is that the duration of the lessons for children taught in pairs is somewhat longer than for children taught individually (see previous discussion). That the children taught in pairs performed as well as the children taught individually may be attributed to a number of factors which are discussed in full later in this chapter. However it appears at this stage, that it is not the one-to-one nature of the *Reading Recovery* program which makes it successful, but rather that the lesson format addresses exposure to print, phonological processing skills and metacognitive strategies.

Comparisons With Control Groups

A remaining question is how well the children in the treatment groups performed in relation to non-treatment controls. For this purpose two control groups were selected from the larger sample of students. The first group comprised children whose oral language proficiency in English was considered too limited for them to benefit from *Reading Recovery* instruction. The number of children from this group who were tested on the measures shown in Table 23 ranged from 131 to 144. The second control group comprised children for whom *Reading Recovery* was not considered necessary; that is, normally developing readers. The number of children from this group who were tested on the measures shown in Table 23 ranged from 177 to 179.

Table 23.
Means and Standard Deviations for Four Comparison Groups on All Common Pretreatment and End of Year Measures

	One to One Instruction		Small Group Instruction		Limited English Control Group		Classroom Control Group		One-Way Anova Results	
Measure	M	SD	M	SD	M	SD	M	SD	F	p
Pretreatment										
Text Level	2.56	1.08	2.20	1.18	.87	1.06	7.25	3.20	F(3,394)=221.8	.001
Concepts About Print	11.041	3.53	11.62	3.16	7.95	3.80	13.01	3.20	F(3,379)= 55.2	.001
Dictation	12.24	4.50	12.82	5.58	4.41	3.45	20.03	8.67	F(3,392)=148.0	.001
Dolch Word Recognition Test	5.96	5.30	6.74	7.20	2.10	4.05	32.73	46.90	F(3,394)= 27.9	.001
Letter Identification	45.60	6.05	46.84	3.55	29.22	14.07	50.54	3.50	F(3,393)=156.2	.001
Writing Vocabulary	5.24	4.02	6.32	4.05	2.81	2.64	10.54	8.89	F(3,394)= 39.2	.001
End Of Year										
Text Level	17.72	4.79	18.16	3.29	12.70	4.63	17.77	3.55	F(3,391)= 49.7	.001
Dictation	35.05	2.50	35.18	2.74	29.00	8.34	35.59	2.44	F(3,379)= 41.9	.001
Dolch Word Recognition Test	150.63	47.55	147.24	40.33	89.56	53.57	176.35	41.45	F(3,390)= 93.3	.001
Writing Vocabulary	63.58	22.07	64.35	25.11	37.48	18.20	56.03	16.98	F(3,391)= 39.6	.001

One-way analyses of variance for the four groups were carried out on each measure at two time points, pretreatment and end of year. The results revealed significant differences between the means of all measures. For the pre-treatment measures, individual comparisons of cell means (Newman-Keuls) indicated that there were no significant differences between the means of the two intervention groups on any measures (the means and standard deviations of the pre treatment measures of the two intervention groups are somewhat different from those shown in Table 21 because two children left before completing their *Reading Recovery* programs, one from each treatment group). However, the children in each *Reading Recovery* group significantly outperformed the children in the limited English speaking group on text level, concepts about print, dictation, and letter identification, and the children who were to receive small group *Reading Recovery* instruction outperformed the children in the limited English speaking group on writing vocabulary (Newman-Keuls, $p < .05$). These differences would be expected because of the limited English oral language proficiency of the children in the limited English control group. In contrast, for each pre treatment measure, the mean of the classroom control group was significantly greater than each of the means of the three other groups (Newman-Keuls, $p < .05$). Given the selection procedures for participation in the *Reading Recovery* program, these differences were expected.

Of much greater interest was the pattern of results for the end-of-year measures that were common to the four comparison groups. Individual comparisons of cell means revealed that there were no significant differences between the two intervention groups and the classroom control group on text level, dictation and writing vocabulary. However, the classroom control group outperformed both intervention groups on the Dolch Word Recognition Test (Newman-keuls, $p < .05$). As can be seen from Table 23, the performance of the two *Reading Recovery* groups had reached the level of the

classroom controls on all measures except the Dolch Word Recognition Test. But even on the latter measure the children in the two *Reading Recovery* groups were showing considerable progress, especially since a high proportion of the children had learned English as a second language (64% of the children who were taught in pairs). On balance, both forms of *Reading Recovery* instruction succeeded in helping at risk children to achieve a reasonable degree of independence in reading and to reach a level of reading performance that approached the class average. As expected, the two intervention groups and classroom control group each outperformed the limited English control group on all end of year measures (Newman-keuls, $p < .05$).

Further Analysis of Children's Writing

Although the end of year writing results were not significantly different between the two *Reading Recovery* intervention groups and the classroom controls, both *Reading Recovery* intervention groups scored very highly when compared with the Ohio stanines (Clay 1993). A closer examination of the individual test results showed that children seemed to be using their knowledge of analogies to generate strings of words sharing the same rime but having different onsets.

To ascertain the percentage of words generated in this way, compared with the total number of words the children wrote, the writing tests were analyzed. To determine which words were probably generated by analogy and which words were probably known words, the following criteria for inclusion and exclusion of words were used. First, the words with common rimes had to be written in sequence across or down the page. If a word was a high frequency from the Dolch preprimer list it was excluded as an analogy. Because the classroom teachers were teaching from this list in the regular classroom, the word generated could have been a known word. The words excluded

were:

a and away big blue can come down find for funny go help here I in is it jump little look make me my not one play red run said see the three to two up we where yellow you.

The first word in the sequence was excluded as being the known word that subsequent rime analogies were made from, even if a word with the same rime has been previously written on the page. In the following example *he* was excluded because it was not part of the sequence, *me* and *we* were excluded because they were on the Dolch preprimer list.

am	*she*
is	*me*
he	*be*
took	*we*
	you

In this example, the child would have been credited with having written nine words correctly, eight of these being known words and one (*be*), being generated by analogy.

In a second example, where a child wrote *at, bat, rat, sat, mat, fat, that, at* was excluded as the known word as it was the first word in the sequence, but *that* was included because it was part of the sequence. Even though *that* is a high frequency word, it is not on the Dolch preprimer list. In this example the child would be credited with writing seven words correctly. One word (*at*) would be counted as a known word and the other six words (*bat*, *rat*, *sat*, *mat*, *fat*, *that*) as being generated by analogy.

Following these criteria, it was found that the pretest data showed that 0% of the words correctly written were written by means of analogy. At post testing 22% of the words were written by means of analogy, and at year end 31% of the words were written by means of analogy. The children varied in the number of words that they wrote, the number of words written by analogy, and the words they chose to generate other rhyming words from. However, it appeared that the children had learned how to make orthographic analogies using onset and rime during the program and continued to use this strategy back in the classroom where it was not an instructional feature.

Ethnic Minority Groups

As hypothesized, the *Reading Recovery* procedures were able to be successfully adapted for small group instruction in which children were taught in pairs. It is worth noting that 69% of the pilot study children and 65% of the experimental study children came from ethnic minority groups. Moreover, only 23% of all the children who took part in the pilot study and 15% of the experimental study children were described by their teachers as being competent and fluent in English. Following the findings of Clay and Watson (1982), Hobsbaum (1994), and Smith (1994), that *Reading Recovery* programs are beneficial for ethnic minority groups of children who may speak languages other than English as their first language, it was expected, and confirmed, that the same was true for the small group modification.

The average number of lessons to discontinuation for children taught in groups of two was 51.29 for the experimental study, and 40.3 for the pilot study. This compares very favourably with the average number of lessons ($\underline{M}$ = 52.54) of the children in the experimental study who were taught one-to-one. It also compares very favourably with the 60 lessons that are acceptable for a standard *Reading Recovery* program. Pinnell et

al. (1995), report data indicating that of the 33,243 children discontinued from *Reading Recovery* in 1993-1994, 9% had English as a second language. The results of the experimental study showed that all of the children who entered the program from non English speaking backgrounds successfully completed the program. It would appear that children who do not speak English as their first language, can benefit from a small group program and be successfully returned to average levels of performance in the same amount of time as their English speaking peers.

This finding also holds true for those children who were not considered to be fluent or competent in English language usage although English is their first language. Though not empirically investigated, one factor that may contribute to this outcome, is the close relationship between reading, oral language and writing. In this instance, talking about and writing a sentence from the book previously read, helped the children generate a message in English and allowed them to consolidate and extend their current English language vocabulary and syntax.

Discussion

Major Findings

The major finding of both the pilot study and the experimental study is that, as hypothesized, the *Reading Recovery* program can be successfully modified for small group instruction which is equally effective in terms of outcomes as one-to-one instruction. The suggested group size is two. The studies also demonstrated that the program works well for children from different countries in different educational systems and from different classroom types. The program is also appropriate for at least 13 different ethnic groups, two thirds of whom speak a language other than

English as their first language. That these children succeeded in the program suggests that *Reading Recovery*, modified for small groups is transportable across education systems and ethnic groups.

A claim by Watson (1994) that "each child's (*Reading Recovery*) program is designed specifically for them and must differ from child to child" is similar to the comment against group instruction made by Pinnell et al. (1995). They suggest that group instruction for children having difficulty with reading is similar to a ward nurse mixing all the drugs together and giving each patient the same dose. Both these justifications fail to take into account the overwhelming body of scientific evidence that shows that children experiencing problems with reading have difficulty with the relationship between letters and sounds (see Adams & Bruck, 1993, for a review of the research). Although it is agreed that some parts of the *Reading Recovery* lesson, for example, taking the running record, need to be administered on an individual basis, it has also been shown that beginning readers can, and do, benefit from training in phonological processing skills in small groups. Certainly, if all the children were diagnosed as having malaria, the nurse would not provide a different drug for each child. In the case of deficient phonological processing skills it makes sense, educationally and financially, to work with more than one child. Clay (1985) suggests that, " a shift to one-to-one instruction allows the teacher to design a program that begins where the child is at...any grouping of children forces a compromise on this position" (Clay, 1985, p. 4). In light of the results of this study, it is suggested that this compromise is well worth making.

The other important factor overlooked by the proponents of *Reading Recovery* as a one-to-one program, is the evidence from the comparative study of *Reading Recovery* (Lyons, Pinnell & DeFord, 1993). This study compared the regular *Reading Recovery*

program with two other one-to-one programs and the *Reading Writing Group* (*RWG*) discussed in Chapter 2. It concluded that the *Reading Writing Group* was second best to *Reading Recovery*, ahead of the other two one-to-one programs. The *Reading Writing Group* had the "most positive effects (ES = +.29 for Dictation, +.32 for Text Reading Level). This treatment also had the largest positive effects on the May Gates-MacGintie of all treatments (ES = +.34)" (Wasik & Slavin, 1993, p. 186).

By investing another 9 minutes a day, that is a 27% increase in lesson time, the number of children seen by the teacher can be doubled, resulting in enormous savings on expenditure. The cost effectiveness of catering for children who require remediation in general, and *Reading Recovery* in particular, has been widely discussed (Allington & McGill Franzen 1989a, 1989b; Dyer & Binkney 1995). Comparisons have been made with the cost of retention, Title 1 and Special Education programs. Dyer & Binkney (1995), and Bracey (1995), suggest that *Reading Recovery* compares very favourably with other initiatives. Although *Reading Recovery* costings are open to speculation and debate (Hiebert, 1994a), the issue is, as Wasik and Slavin (1993) suggest, not whether the intervention is effective, but whether it is effective enough to warrant the cost. Clearly many education systems consider that *Reading Recovery* in its present form is cost effective.

In effect, the 27% extra instructional time taken by the small group may be a myth. First, although the optimum time for *Reading Recovery* one-to-one teaching is 30 minutes, lesson lengths can be up to 40 minutes (Clay, 1978; Lyons, Pinnell & Deford, 1993). This suggests that some one-to-one *Reading Recovery* lessons already take as long as the small group modification. Secondly, when the posttest scores between one-to-one *Reading Recovery*, and small group *Reading Writing Group* (Lyons, et al., 1993) were equated for differences in instructional time, the gains for *Reading*

Recovery were at best only marginal (Rasinski, 1995). It appears therefore that the small group intervention is very attractive in financial terms.

It was not the purpose of this study to seek reasons for why the paired situation worked effectively for different ethnic groups. It could be argued that *Reading Recovery* has already been proven effective in different education systems (Pinnell, DeFord & Lyon, 1988; Wheeler, 1986; Wright, 1992), and with different ethnic groups (Clay & Watson, 1982; Hobsbaum, 1994; Smith, 1994). Therefore the same could be expected of any adaptation of *Reading Recovery*. However, there is one factor within the scope of this study that warrants discussion. This factor is the instructional setting. Delpit (1986,1991), when discussing the teaching of skills and strategies to children of colour in America, suggested that, "There are certain things which should be taught explicitly to children who do not share the culture of power" (Delpit, 1991, p. 541). Within the instructional setting of the small group intervention of the present study, children were given explicit instruction rather than being left to discover processes for themselves. This was evidenced across the entire lesson when children were learning new skills and strategies and when they were required to work independently while the teacher worked closely with the other child. Of particular interest for further investigation is the explicit instruction in the making and using of orthographic analogies using onset and rime which leads to the rapid accumulation of words in the mental lexicon.

The success of the *Reading Writing Group*, and *The Bolder Project* confirm that small group interventions can be successful. However, both these programs run for the entire school year, so it could be argued that they are no more effective in the number of children they service than *Reading Recovery*, which runs for 60 days. The results of the present study show that it is possible to provide one-to-two instruction that is as effective as one-to-one instruction.

Why the Program was Able to be Successfully Modified

There are several reasons why the *Reading Recovery* program was able to be modified successfully for small group, rather than individual, instruction. These are discussed below.

The Attention to Phonological Processing Factors.

There is clear evidence that children with reading problems have some common deficits, the most prevalent of these being a lack of phonological processing ability. (Bradley & Bryant, 1983,1985; Iversen & Tunmer, 1993; Juel, 1988; Pratt & Brady, 1988; Stanovich, 1986a; Stanovich, Cunningham & Feeman, 1984; Tunmer & Nesdale, 1985; Vellutino & Scanlon, 1987). This not only assumes, but is widely demonstrated, that where specific training in phonological processing skills are taught, improved literacy performance will result for both normal and poor readers (Ball & Blachman, 1991; Bentin & Leshem, 1993; Blachman, 1991; Bradley & Bryant, 1983,1985; Bryant & Bradley, 1985; Castle, Riach & Nicholson, 1994; Cunningham, 1990; Gaskins et al., 1991; Greaney, Tunmer & Chapman, 1996; Griffiths & Olsen, 1992; Haskell, Foorman & Swank, 1992; Hatcher, Hulme & Ellis, 1994; Iversen & Tunmer, 1993; Lundberg, Frost & Petersen, 1988; Slocum, Connor & Jenkins, 1993; Torneus, 1984; Treiman & Baron, 1983; Wallach & Wallach, 1979; White & Cunningham, 1990). Because the *Reading Recovery* program teaches children phonological processing skills on an individual basis through its various lesson components and procedures, inclusion of more children to form a group does not assume that phonological processing skills will no longer be taught.

The Provision for a Balance of Skills.

A second reason for the success of the small group modification is that the existing *Reading Recovery* lesson format provides for instruction in a balance of skills required by all developing readers. These skills include knowledge of alphabet letter names, phonological processing knowledge, the ability to search for and use cues from a variety of sources, and the capacity to make links from known to unknown information across both reading and writing. The lesson also provides many opportunities to teach children how to use metacognitive strategies to monitor ongoing comprehension. Because the program is biased towards reading continuous text and writing messages, children get plenty of exposure to print. In essence, the *Reading Recovery* lesson format contains the three elements suggested in a framework of factors influencing reading development described in Chapter 2.

The Reading, Writing and Oral Language Connections.

The reciprocal gains between reading, writing and oral language were highlighted by having the children write the daily message about the book that had just been read. Using this book as a foundation for generating and writing a sentence, served to increase the children's control over both oral and written English language in a way that would not have been possible had the messages been generated from personal experiences. It is suggested that the daily connection between reading increasingly more complex text, talking about it and writing a sentence, had a snowballing effect for further reading, writing and oral language development.

The Provision of Similar Instruction.

In support of individualized instruction, Clay (1993b, p. 3) suggests that, " We need to think more about children taking different paths to similar outcomes." An individual *Reading Recovery* program does not suggest that some children will need only some of the procedures, while other children will need only others. Because *Reading Recovery* programs are for children who are having great difficulty in learning to read, for the most part, all children need all the components of the lesson. There are obviously certain lesson components which become redundant when mastered, for example alphabet letter knowledge. However, in most instances, all the components of the lesson are taught to each child and individualization within the component is based on the child's prior knowledge. The individualization issue merely reflects emphasis within prescribed components of the lesson. On this premise, accommodations for group instruction can easily be made by either teaching only those items within a component needed by both children, or varying the instructions to each child within the framework of the lesson. As can be seen from both the pilot study and the experimental study, the teachers were able to vary their instruction to accommodate similar and different needs. In this way, rather than saying that children need to take "**different** paths to **similar** outcomes" (Clay, 1993b), it is possible to say that children can take **similar** paths to **similar** outcomes.

The Incorporation of New Lesson Components.

To ensure that the children had appropriate skills to use print cues to solve unknown words, a new lesson component, Extending the Known Set, was introduced for those children with very little knowledge of words. More time was also allowed at the beginning of each lesson for the children to practice reading and writing their partly

known words. Another procedure which took more time than the allocation suggested by *Reading Recovery* was the making and breaking of words with magnetic letters to teach children how to make orthographic analogies using onsets and rimes. The explicit nature of this daily instruction was carried on until the children left the program, rather than being absorbed into text, as and when necessary, when the children became more proficient.

The Nature of the Instructional Setting.

One feature not discussed in relation to other successful early intervention programs, apart from *Reading Recovery*, is the nature of the instructional setting. Time was spent perfecting instructional conversations. Teachers ensured that each lesson included explicit teaching of declarative, procedural and contextual knowledge. They included questioning to assist and assess learning, and provided specific feedback and general praise. In each component of the lesson they ensured that they transferred the responsibility for part of the task to the child so as to foster independence and to allow the child to contribute to his/her own learning. Although measuring the effectiveness of the instructional setting was not a feature of the experimental study, the teachers felt that it contributed to the success of the program and warranted further investigation.

The Emphasis on Independence

One of the features of a *Reading Recovery* program is that it seeks to make the children self reliant, rather than dependent on the teacher, as is the case with many remedial programs. To this end, children are taught strategies so that they can continue to learn about reading even while reading progressively more complex text back in the regular classroom. It was found that there were more opportunities for a small group of

children to learn independent, self reliant behaviour than there were in a one-to-one situation. This was especially highlighted when the children were working at different instructional levels. Each child had a time each day to work independently while the teacher checked yesterday's new book and introduced the new instructional book.

The Teaching for Higher Level Metacognitive Strategies.

Because the program was modified to include more explicit teaching of word recognition and phonological processing skills, independent of reading and writing connected text, it did not follow that less attention was paid to metacognitive strategy teaching. The short, pertinent phonological processing teaching sessions did not become isolated rote learning exercises because they were always taken from the context of what the children were currently reading or writing. In effect, these sessions provided children with a growing bank of knowledge that teachers could draw from to ask children to check their reading and writing and make links from known to unknown information. As has been pointed out by Goswami (1986), and Mustafa (1991), the more words children have to make analogies from the more rapid the accumulation of words into the mental lexicon.

Both pilot study and experimental study teachers began the practice of asking the children to use procedural and contextual knowledge whenever it was appropriate. Appropriateness was based on both the context and the children's developing knowledge. As can be seen from previous discussion in Chapter 2, *Reading Recovery* aims to teach children metacognitive strategies, but these are often very low level and inefficient for processing complex text.

The Use of Expanded Diagnosis.

Diagnosis was expanded to include tests that measured aspects of phonological awareness. This extra information gave the teachers a wider perspective into the children's difficulties. At the beginning of the program the teachers felt that they were able to make more powerful teaching decisions because they knew more about the current competencies of the children. At the end of the program this knowledge served as evidence of what had been learned, and also provided information for the classroom teacher.

The Role of the Group Dynamics.

The role of group dynamics in the success of this program was not a question that this research sought to answer. However, it became obvious during the study that certain attributes of the group dynamics contributed to the program's effectiveness. Three attributes that surfaced spontaneously and consistently were competition, cooperation and support. Although all three attributes were evident across the entire lesson, the children were more competitive when learning new items and more cooperative and supportive of each other when they were either working on the same task or trying to understand more complex strategies.

Theoretical Underpinning

This study is underpinned by both a theory of instruction and a theory of reading acquisition. Both these are seen as being important to the outcome.

The theory of instruction follows Vygotsky (1972, 1978) and suggests that children learn in social situations from more competent peers and adults. Two elements of this theory were particularly relevant to this study. The first is the concept of the zone of proximal development and the second is the dialogue through which new knowledge is transmitted.

The zone of proximal development is defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86). It was by keeping children working on the cutting edge of this zone, that the teachers assisted children to internalize the new knowledge which led to their accelerated progress. Within the small group, children also had the opportunities, not only to learn from their peers as well as the teacher, but also, to act as the teacher on occasions which further internalized and fossilized new understandings.

The dialogue between the teacher and the children was crucial in the fostering of the use of higher level metacognitive strategies. Examples from standard *Reading Recovery*, previously discussed in Chapter 2, suggest that many teachers work only on low level strategies. In the experimental study, teacher education focused the teachers attention on consciously tailoring their instructional conversations with children to ensure that declarative, procedural and conditional knowledge was imparted. It is suggested that this transmission of higher order metacognitive strategies also contributed to the children's, accelerated progress and independence.

As the pilot and experimental study teachers began successfully adapting *Reading Recovery* to small group instruction, it was obvious that they were working from a

different theory of reading acquisition than that which underpins standard *Reading Recovery*. The pilot study teachers had all previously encountered children experiencing difficulty in learning to read, and had come to the conclusion that the prevailing New Zealand classroom and *Reading Recovery* emphasis on contextual guessing as a first means of solving unknown words was inappropriate

Three different theoretical positions in beginning reading instruction prevailing in New Zealand classrooms can been seen from the following examples of interactions between teachers and children. The children were each asked to read a simple one line caption book which contained the sentence, *"No," said the children.* Each child stopped at the word *children* because s/he did not know it.

Example One

Teacher A "Look at the picture."

The child is observed looking at the picture.

Child "*No, said the girls and boys.*"

The child paid no further attention to the print until the end of the interaction when he re-read the sentence.

Teacher A "*That's not quite right. What do we call girls and boys*?"

Child "*People.*"

Teacher A "*Yes, but they're little.*"

Child "*Kids.*"

Teacher A "*Not quite.*"

Child "*Childs.*"

Teacher A "*That's right, children. No, said the children.*

Child "*No, said the children.*

Teacher A is using a theory of reading that emphasizes contextual guessing. (Goodman, 1967; Goodman & Goodman, 1979; Smith, 1978). This theory suggests that skilled readers use their prior knowledge to predict and confirm what is in the text using as little visual information as possible. At no stage, in this example, does the teacher ask the child to search for, or use, cues from the print, or to use appropriate language structure. Neither does the teacher confirm the guess *childs*, which has print features in common with the unknown word *children.*

Example Two

Teacher B "*Look at the picture.*"

Child "*Kids,*"

Teacher "*It could be kids, but look at -*"

She points to the beginning of the word.

"*Get your mouth ready and it will pop out.*"

Child "*Children.*"

Teacher "*Good for you. That makes sense and looks right doesn't it*?"

Teacher B is using a theory of reading following Clay (1985). This theory suggests using contextual guessing as the first means of solving unknown words. If this strategy produces an inappropriate response, the reader should check using an alternative source of information, namely the print. That is "where the child cannot grasp the meaning with higher level strategies, he can engage in a lower gear and use another strategy such as knowledge of letter clusters or letter-sound associations..."(Clay, 1987, p. 7) In this example, following a correct response, the teacher gave confirmation of the appropriate use of both cues sources.

Example Three

Teacher C "*Look at the word and see what will help you, then check with the picture.*"

The child is observed looking at the print and then the picture before responding.

Child "*No, said the children.*"

Teacher C "*What part of the word did you know that helped you solve your problem?*"

Child "*/Ch/.*"

Teacher "*Good thinking. What you read looked right, sounded right and made sense didn't it?*"

Teacher C is using a theory of reading which requires children to use print knowledge as the first strategy for solving unknown words and to supplement this incomplete graphophonemic information with sentence context cues (Tunmer & Chapman, 1993, 1995). Tunmer and Chapman found that even when identifying unfamiliar exception words in context, for example *stomach,* the ability to use visual/phonological information is more important that the ability to use the semantic and syntactic constraints of sentence context. In this example, when the child made the correct response, the teacher's question was directed at print knowledge and her positive feedback linked this knowledge to language prediction cues. The message is, look at the word first but also check with the context before responding.

From these examples, it can be seen that the only child to have his/her first response, the correct response, was the child taught by Teacher C. In the following example from a *Reading Recovery* lesson (Lyons, et al., 1993) the child has five attempts at solving a word before the teacher supplies it for him.

Text	Sam moved the wood on the bridge.
Matthew	"*Sam move the*"
Teacher	"*What did he move*?"
Matthew	"*Move the*"
Teacher	"Get your mouth ready."
Matthew	"*Moved the*"
Teacher	(Pointing the picture of the wood), "*What do you call this?*"
Matthew	"*A wall*"
Teacher	"*I don't think it would be a kind of wall. It starts like wall, though. What did he move right here? What is this?*"
Matthew	"*Moved the*"
Teacher	"*Could the word be wood*?"
Matthew	"*Yeah, wood.*"

(Lyons et al., 1993, p. 80)

Emphasis in this experimental study was placed on the theoretical position according to Tunmer and Chapman (1993, 1995). It is suggested that this theory is more appropriate for children having difficulties with reading acquisition, and also that the theoretical base of *Reading Recovery* may hinder, rather than contribute to the program's success.

Summary

This intervention program contains all the indicators for success of the other successful early intervention programs discussed in Chapter 2. These are: intervening early before the cumulative effects of failure become chronic; providing time over and above regular

classroom instruction; using certificated teachers and supporting them with further education as necessary; ensuring that the lesson content contains a balance of skills rather than presenting a narrow focus; providing quality instruction; assessing and evaluating progress on a regular basis; expecting that children will succeed; and enlisting classroom and family support.

This study has shown, that by modifying *Reading Recovery* for a small group, even very hard to teach children, many of whom speak English as their second or third language, can be reading on grade level after receiving three months instruction. This suggests that such a program may be more cost effective than the one-to-one instruction of *Reading Recovery* and *Success for All*, and the group instruction of *The Boulder Project* and *RWG.*

CHAPTER 6

CONCLUSION

Introduction

A small scale pilot study and a larger experimental study were used to find out whether the one-to-one *Reading Recovery* program for children having problems with reading could be successfully adapted to small group instruction. A review of the literature revealed that schools employ varying organizational mechanisms for addressing the problems of children at risk. Traditionally schools have preferred to pull small groups of five to seven children out of the regular classroom for specialist attention. In effect this conventional approach to remediation has not been particularly successful.

In light of the lack of success of traditional remedial programs, attention has turned to early intervention as a means of solving reading failure and interrupting the cycle of negative Matthew effects. Successful early intervention programs have been analyzed to find common, significant factors. Indicators for success include: the importance of prevention before problems become chronic; the allocation of extra time over and above the regular classroom reading program for needy students; using certificated teachers, rather than paraprofessionals, and providing them with ongoing education and support; providing programs that reflect a wider view of the reading process rather than presenting a narrow focus; quality instruction which includes teaching of metacognitive strategies; ongoing assessment of student development; high expectations of returning children to the regular classroom, and caregiver support.

Four successful early intervention programs, *Reading Recovery*, *Success for All*, *The Boulder Project* and *Reading Writing Group* (*RWG*), were described and analyzed in an endeavour to identify which of the above variables were the most critical to the success of the programs. From this analysis, it was hypothesized that the standard one-to-one *Reading Recovery* program could be modified for small group instruction provided that the lesson content included phonological processing, exposure to print and the teaching of metacognitive strategies. It was further hypothesized that a model of assisted learning was the most powerful teacher child interaction for the transfer of this knowledge.

It was suggested that such a modification would be successful and therefore more cost effective that standard one-to-one *Reading Recovery*. Cost effectiveness of interventions is very pertinent to educators with limited funds. The key question for those in administrative positions is not whether the program is effective, but whether it is effective enough to justify the cost?

Key Findings

This study has produced several key findings which are listed below. The significance of these findings will depend on the viewpoint of the reader. Those readers who are in administrative positions may find the information regarding cost and organization of interest. Readers who are educators may be interested in the theoretical arguments and the lesson modifications. No one key finding is seen to stand alone.

- Standard one-to-one *Reading Recovery* can be successfully adapted for teaching to a small group of two children.

- The small group intervention is more cost effective than *Reading Recovery.*

- The small group intervention works in different educational systems and for different ethnic groups.

- The indicators for success are the same as for other successful early intervention programs.

- The amount of teacher education required depends on the prior knowledge of the teachers.

- The philosophical underpinning of *Reading Recovery* is not the most powerful theory on which to base remedial reading instruction.

- The lesson content and the instructional setting are crucial to the success of the program.

Research Design Issues

As with many research projects, there are certain aspects that could be approached differently if replication studies were undertaken. When working with first grade children an issue which is always problematic is the inclusion in the project of children who may not need the program. Because the children in this study were selected for inclusion to this program at the beginning of first grade, it could be argued that many would have made adequate progress without the intervention. However this could be true of all intervention programs that begin in first grade where there has been no

systematic instruction in kindergarten. A replication study starting mid first grade rather than at the beginning of the school year may overcome this problem.

A possible criticism of this experimental study is that it did not include all of the available children. Two factors arise from this statement. First, the children taken were in the lowest quartile, on average in the 19th percentile when tested on the Stanford Ability Test or the Metropolitan Reading Test in April of the year they entered the program. This puts them well within the required band for servicing by Title 1 programs. Those children with lower scores who were excluded did not have enough English language to respond appropriately at initial testing. These children were catered for by a small group tutorial designed to improve their English oral and written language skills. As these children became more competent in English, they were re-classified, and if necessary, were included in the second round of individual or paired tuition. As with standard *Reading Recovery* programs, children who were receiving other special educational programs were also excluded.

The nature of this experiment was such that random selection of the groups was inappropriate as matched trios were needed. It was hoped that within each trio, the teacher would be able to randomly select which child was taught individually and which children were taught in a paired situation. In effect, because of existing classroom timetables which included pull out programs for art, music and physical education, the teachers had to arrange their groups to fit these existing schedules. A replication study in a school system which did not have these timetable constraints would allow for random selection.

Suggestions for Further Investigation

There are several questions arising from these studies that are of interest but were not empirically tested. These are listed below and could provide the basis for further investigation.

Is there yet another modification which could reduce the instructional time for groups of three or four children? Could part of the program, for instance, practising nearly known words in reading and writing and the re reading of familiar books take place in the regular classroom or be handled by a parent helper or a teacher aide?

Is there a relationship between the instructional setting and the progress of the children. This particularly relates to the teaching of declarative, procedural and contextual knowledge, the nature of the instructional conversation and the relationship between using orthographic analogies and reading and spelling previously unknown words?

When teaching children for whom English is not the first language, can a positive effect for reading, writing and oral language be gained by retelling part of the story just read and then writing about it?

Is there a relationship between orthographic analogy knowledge and progress in writing?

Are the identified group dynamics significant?

Do self esteem and motivational factors contribute significantly to the progress of the children?

Are there insights from these studies that can be incorporated into first year programs which would reduce the need for early intervention?

In conclusion it is recommended that experienced *Reading Recovery* teachers incorporate the modifications suggested by this study into daily practice, and start teaching some of their children in pairs rather than in a one-to-one tutorial.

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APPENDICES

A	F	K	P	W	Z
B	H	O	J	U	
C	Y	L	Q	M	
D	N	S	X	I	
E	G	R	V	T	
a	f	k	p	w	z
b	h	o	j	u	a
c	y	l	q	m	
d	n	s	x	i	
e	g	r	v	t	g

LETTER IDENTIFICATION SCORE SHEET

Date: _____

Name: _____ Age: _____ TEST SCORE: /54

Recorder: _____ Date of Birth: _____ STANINE GROUP:

	A	S	Word	I.R.		A	S	Word	I.R.
A					a				
F					f				
K					k				
P					p				
W					w				
Z					z				
B					b				
H					h				
O					o				
J					j				
U					u				
					a				
C					c				
Y					y				
L					l				
Q					q				
M					m				
D					d				
N					n				
S					s				
X					x				
I					i				
E					e				
G					g				
R					r				
V					v				
T					t				
					g				
				TOTALS					

Confusions:

Letters Unknown:

Comment:

Recording:

A	Alphabet response: tick (check)
S	Letter sound response: tick (check)
Word	Record the word the child gives
IR	Incorrect response: Record what the child says

TOTAL SCORE

Say to the child: *'I'm going to read you this story but I want you to help me.'*

COVER

Item 1 Test: For orientation of book. Pass the booklet to the child, holding the book vertically by outside edge, spine towards the child.

Say: *'Show me the front of this book.'*

Score: 1 point for the correct response.

PAGES 2/3

Item 2 Test: Concept that print, not picture, carries the message.

Say: *'I'll read this story. You help me. Show me where to start reading. Where do I begin to read?'*

Read the text to the child.

Score: 1 for print. 0 for picture.

PAGES 4/5

Item 3 Test: For directional rules.

Say: *'Show me where to start.'*

Score: 1 for top left.

Item 4 Say: *'Which way do I go?'*

Score: 1 for left to right.

Item 5 Say: *'Where do I go after that?'*

Score: 1 for return sweep to left.

(Score items 3-5 if all movements are demonstrated in one response.)

Item 6 Test: Word by word pointing.

Say: *'Point to it while I read it.'* (Read slowly, but fluently.)

Score: 1 for exact matching.

PAGE 6

Item 7 Test: Concept of first and last.

Read the text to the child.

Say: *'Show me the first part of the story.'*
'Show me the last part.'

Score: 1 point if BOTH are correct in any sense, i.e. applied to the whole text OR to a line, OR to a word, OR to a letter.

PAGE 7

Item 8 Test: Inversion of picture.

Say: *'Show me the bottom of the picture'* (slowly and deliberately).
(Do NOT mention upside-down.)

Score: 1 for verbal explanation, OR for pointing to top of page, OR for turning the book around and pointing appropriately.

PAGES 8/9

Item 9 Test: Response to inverted print.

Say: *'Where do I begin?'*
'Which way do I go?'
'Where do I go after that?'

Score: 1 for beginning with 'The' (*Sand*), or 'I' (*Stones*), and moving right to left across the lower and then the upper line. OR 1 for turning the book around and moving left to right in the conventional manner.

Read the text to the child.

PAGES 10/11

Item 10 Test: Line sequence.

Say: *'What's wrong with this?'* (Read immediately the bottom line first, then the top line. Do NOT point.)

Score: 1 for comment on line order.

PAGES 12/13

Item 11 Test: A left page is read before a right page.

Say: *'Where do I start reading?'*

Score: 1 point for left page indication.

Item 12 Test: Word sequence.

Say: *'What's wrong on this page?'* (Point to the page number 12, NOT the text.)

Read the text slowly as if it were correct.

Score: 1 point for comment on either error.

Item 13 Test: Letter order.

Say: *'What's wrong on this page?'* (Point to the page number 13 — NOT to the text.)

Read the text slowly as if it were correct.

Score: 1 point for any ONE re-ordering of letters that is noticed and explained.

PAGES 14/15

Item 14 Test: Re-ordering letters within a word.

Say: *'What's wrong with the writing on this page?'*

Read the text slowly as if it were correct.

Score: 1 point for ONE error noticed.

Item 15 Test: Meaning of a question mark.

Say: *'What's this for?'* (Point to or trace the question mark with a finger or pencil.)

Score: 1 point for explanation of function or name.

PAGES 16/17

Test: Punctuation.

Read the text.

Say: *'What's this for?'*

Item 16 Point to or trace with a pencil, the full stop (period).

Item 17 Point to or trace with a pencil, the comma.

Item 18 Point to or trace with a pencil, the quotation marks.

Item 19 Test: Capital and lower-case correspondence.

Say: *'Find a little letter like this.'*

Sand: Point to capital T and demonstrate by pointing to an upper case T and a lower case t if the child does not succeed.
Stones: As above for S and s.

Say: *'Find a little letter like this.'*

Sand: Point to capital M, H in turn.
Stones: Point to capital T, B in turn.

Score: *Sand:* 1 point if BOTH Mm and Hh are located.
Stones: 1 point if BOTH Tt and Bb are located.

PAGES 18/19

Item 20 Test: Reversible words.

Read the text.

Say: *'Show me* was.'
'Show me no.'

Score: 1 point for BOTH correct.

PAGE 20

Have two pieces of light card (13 × 5 cm) that the child can hold and slide easily over the line of text to block out words and letters. To start, lay the cards on the page but leave all print exposed. Open the cards out between each question asked.

Item 21 Test: Letter concepts.

Say: *'This story says* (*Sand*) *"The waves splashed in the hole"* [*or* (*Stones*) *"The stone rolled down the hill"*].
I want you to push the cards across the story like this until all you can see is (deliberately with stress) *just one letter.'* (Demonstrate the movement of the cards but do not do the exercise.)

Say: *'Now show me two letters.'*

Score: 1 point if BOTH are correct.

Item 22 Test: Word concept.

Say: *'Show me just one word.'*
'Now show me two words.'

Score: 1 point if BOTH are correct.

Item 23 Test: First and last letter concepts.

Say: *'Show me the first letter of a word.'*
'Show me the last letter of a word.'

Score: 1 point if BOTH are correct.

Item 24 Test: Capital letter concepts.

Say: *'Show me a capital letter.'*

Score: 1 point if correct.

QUICK REFERENCE FOR SCORING STANDARDS	
1	Front of book.
2	Print (not picture).
3	Points top left at 'I took . . .' (*Sand*); 'I walked . . .' (*Stones*).
4	Moves finger left to right on any line.
5	Moves finger from the right-hand end of a higher line to the left-hand end of the next lower line, or moves down the page.
6	Word by word matching.
7	Both concepts must be correct, but may be demonstrated on the whole text or on a line, word or letter.
8	Verbal explanation, or pointing to top of page, or turning the book around and pointing appropriately.
9	Score for beginning with 'The' (*Sand*) or 'I' (*Stones*) and moving right to left across the lower line and then the upper line, OR, turning the book around and moving left to right in the conventional movement pattern.
10	Any explanation which implies that line order is altered.
11	Says or shows that a left page precedes a right page.
12	Notices at least one change of word order.
13	Notices at least one change in letter order.
14	Notices at least one change in letter order.
15	Says 'Question mark', or 'A question', or 'Asks something'.
16	Says 'Full stop', 'Period', or 'It tells you when you've said enough' or 'It's the end'.
17	Says 'A little stop', or 'A rest', or 'A comma'.
18	Says 'That's someone talking', 'Talking', 'Speech marks', 'Print' (from computers).
19	Locates two capital and lower case pairs.
20	Points correctly to both *was* and *no*.
21	Locates one letter and two letters on request.
22	Locates one word and two words on request.
23	Locates both a first and a last letter.
24	Locates one capital letter.

CONCEPTS ABOUT PRINT SCORE SHEET

Date: _____

Name: _____ Age: _____ TEST SCORE: /24

Recorder: _____ Date of Birth: _____ STANINE GROUP:

PAGE	SCORE	ITEM	COMMENT
Cover		1. Front of book	
2/3		2. Print contains message	
4/5 4/5 4/5 4/5		3. Where to start 4. Which way to go 5. Return sweep to left 6. Word by word matching	
6		7. First and last concept	
7		8. Bottom of picture	
8/9		9. Begin 'The' (*Sand*) or 'I' (*Stones*) bottom line, top OR turn book	
10/11		10. Line order altered	
12/13 12/13 12/13		11. Left page before right 12. One change in word order 13. One change in letter order	
14/15 14/15		14. One change in letter order 15. Meaning of ?	
16/17 16/17 16/17 16/17		16. Meaning of full stop 17. Meaning of comma 18. Meaning of quotation marks 19. Locate M m H h (*Sand*) OR T t B b (*Stones*)	
18/19		20. Reversible words *was, no*	
20 20 20 20		21. One letter: two letters 22. One word: two words 23. First and last letter of word 24. Capital letter	

Administration and scoring
Select one of the following alternate Forms: A. B. C. D or E.

Form A

I have a big dog at home.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Today I am going to take him
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33

to school.
34 35 36 37

Form B

Mum has gone up to the shop.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

She will get milk and
19 20 21 22 23 24 25 26 27 28 29 30 31 32 33

bread.
34 35 36 37

Form C

I can see the red
1 2 3 4 5 6 7 8 9 10 11

boat that we are going
12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

to have a ride in.
27 28 29 30 31 32 33 34 35 36 37

Form D

The bus is coming. It
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

will stop here to let me
16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

get on.
33 34 35 36 37

Form E

The boy is riding his bike.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

He can go very fast on it.
19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37

Name_____ Grade_____ School_____

Place test data at appropriate level.

Equivalent Reader Level*

	0-75/PP	76-85/P	86/97/P^2	98-120/P^3	121-170/1st+	171-209/2nd+	210-220/3rd+
Number of words correct							
Date tested							

*As presented by Dechant, Emerald,. Diagnostic Remediation of Reading Difficulties, p.36

Dolch Word List by reading levels

Pre-primer

__ a
__ and
__ away
__ big
__ blue
__ can
__ come
__ down
__ find
__ for
__ funny
__ go
__ help
__ here
__ I
__ in
__ is
__ it
__ jump
__ little
__ look
__ make
__ me
__ my
__ not
__ one
__ play
__ red
__ run
__ said
__ see
__ the
__ three
__ to
__ two
__ up
__ we
__ where
__ yellow
__ you

/40

Primer

__ all
__ am
__ are
__ at
__ ate
__ be
__ black
__ brown
__ but
__ came
__ did
__ do
__ eat
__ four
__ get
__ good
__ have
__ he
__ into
__ like
__ must
__ new
__ no
__ now
__ on
__ our
__ out
__ please
__ pretty
__ ran
__ ride
__ saw
__ say
__ she
__ soon
__ so
__ that
__ there
__ they
__ this
__ too
__ under
__ want
__ was
__ well
__ went
__ what
__ white
__ will
__ with
__ yes

/54

Grade One

__ After
__ again
__ an
__ any
__ as
__ ask
__ by
__ could
__ every
__ fly
__ from
__ give
__ going
__ had
__ has
__ her
__ him
__ his
__ how
__ just
__ know
__ let
__ live
__ may
__ of
__ old
__ once
__ open
__ over
__ put
__ round
__ some
__ stop
__ take
__ thank
__ them
__ then
__ think
__ walk
__ were
__ when
__ who

/42

Grade Two

__ always
__ around
__ because
__ been
__ before
__ best
__ both
__ buy
__ call
__ cold
__ does
__ don't
__ fast
__ first
__ five
__ found
__ gave
__ goes
__ green
__ its
__ made
__ many
__ off
__ or
__ pull
__ read
__ right
__ sing
__ sit
__ sleep
__ tell
__ their
__ these
__ those
__ upon
__ us
__ use
__ very
__ wash
__ which
__ why
__ wish
__ work
__ would
__ write
__ your

/46

Grade Three

__ about
__ better
__ bring
__ carry
__ clean
__ cut
__ done
__ draw
__ drink
__ eight
__ fall
__ far
__ full
__ got
__ grow
__ hold
__ hot
__ hurt
__ if
__ keep
__ kind
__ laugh
__ light
__ long
__ much
__ myself
__ never
__ only
__ own
__ pick
__ seven
__ shall
__ show
__ six
__ small
__ start
__ ten
__ today
__ together
__ try
__ warm

/41

Appendix F

Instructions for Sound Matching Task

I. Rime Matching Task

Before the trials begin, ask the child if they know the nursery rhyme **Jack and Jill** and recite the first two lines. "Do you know the nursery rhyme **Jack and Jill**? Jack and Jill went up the _____? Yes, **hill. Jill, hill**, they sound the same. They rhyme. Can you tell me another word that sounds like **hill**? Yes, good." If the child fails to respond, give them an example (e.g., **fill**). "Does **pill** sound like **hill**? Yes, **hill, pill.** Does **boat** sound like **hill**? No, they don't, do they? **Boat, hill** do not sound the same." Use additional examples until it is established that the child knows that rhyming words sound the same and that non-rhyming words sound different. "Now we're going to play a game about words that sound the same, about words that rhyme. I'm going to say three words. I want you to listen carefully and tell me which two words sound the same." The tester gives the first practice item (**sail, nail, boot**) and points to the corresponding picture as s/he says each word clearly. When the child responds, make sure s/he says the two words when pointing to the corresponding pictures. If the child hesitates, repeat the item. If the child still does not respond, encourage them to have a guess. Praise the child for a correct response. "Yes, **sail** and **nail** sound the same." Provide corrective feedback if the child responds incorrectly. "No, **sail** does not sound like **boot. Sail** sounds like **nail. Sail, nail,** they sound the same. They rhyme. **Sail, boot,** they don't sound the same. They don't rhyme." Give the second practice item (**cat, bell, hat**) and corrective feedback, if necessary. Then proceed to the test items, but do not give corrective feedback, only general encouragement. Repeat items if the child hesitates. When recording the child's response on the answer sheet, circle the item that they do not select. A point is given for each correct response.

II. Onset Matching Task

"The next game is a bit different. Some words sound the same at the beginning. Can you say the first sound of your name?" Provide help, if necessary. And then say, "Can you think of any other words that begin with the same sound as your name?" Provide prompts, if necessary. "Here are some other words that sound the same at the beginning, **fun, fish, face.** Each word starts with a **fff** sound. Can you think of any other words that have a **fff** sound at the beginning like **fffun, fffish** and **fffface?**" The tester draws the initial sound out a bit for emphasis. "How about **fun** and **fast?** Do these words sound the same at the beginning?" The tester asks the child about other word pairs with identical onsets (e.g., **fuss, feet; sit, song**) and also about word pairs with different onsets (e.g., **sad, fuss; sit, night**). "Do **fuss** and **feel** start with the same sound? How about **sad** and **fuss**?" Give corrective feedback if necessary. "No, **sssad** and **fffuss** do not start with the same sound. **Sad** starts with a **sss** sound and **fuss** starts with a **fff** sound." Use additional examples until it is established that the child knows that some word pairs start with the same sound but other pairs do not. "Now we're going to play a game about words that sound the same at the beginning. I'm going to say three words. I want you to listen carefully and tell me which two words sound the same at the beginning." The tester gives the first practice item (**cat, car, hen**) and points to the corresponding picture as s/he says each word clearly. When the child responds, make sure s/he says the two words when pointing to the corresponding pictures. If the child hesitates, repeat the item. If the child still does not respond, encourage them to have a guess. Praise the child for a correct response.

"Yes, **cat** and **car** have the same sound at the beginning." Provide corrective feedback if the child responds incorrectly. "No, **cat** and **hen** do not sound the same at the beginning. **Cat** and **car** sound the same. **Cat, car**, they both start with /k/." Give the second practice item (**hair, pin, pig**) and corrective feedback, if necessary. Then proceed to the test items, but do not give corrective feedback, only general encouragement. Repeat items if the child hesitates. When recording the child's response on the answer sheet, circle the item that they do not select. A point is given for each correct response.

Sound Matching Task

Student's Name: _____ **Student Number:** _____

School: _____ **Rime Matching Score:** _____

Date Tested: _____ **Onset Matching Score:** _____

Tester: _____ **Total Score:** _____

I. Rime Matching Task

sail	nail	**boot**
cat	**bell**	hat

1.	**sock**	tray	hay
2.	peg	**cot**	leg
3.	fish	dish	**book**
4.	**bus**	arm	farm
5.	sand	hand	**cup**
6.	hen	**car**	pen
7.	gun	sun	**tap**
8.	wall	**dog**	ball
9.	**paw**	boat	goat

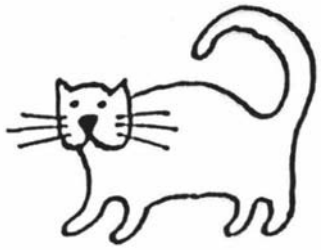
Score: _____

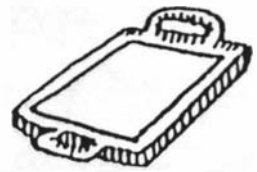
II. Onset Matching Task

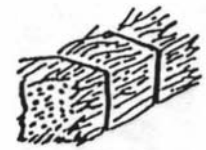
cat	car	**hen**
hair	pin	pig

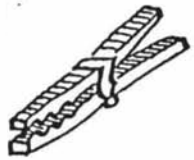
1.	bed	**tree**	bell
2.	**box**	tray	train
3.	coach	**farm**	coat
4.	dog	doll	**sun**
5.	hand	hat	**book**
6.	man	**fish**	mat
7.	**nail**	peg	pen
8.	toad	toast	**girl**
9.	**rain**	bag	bat

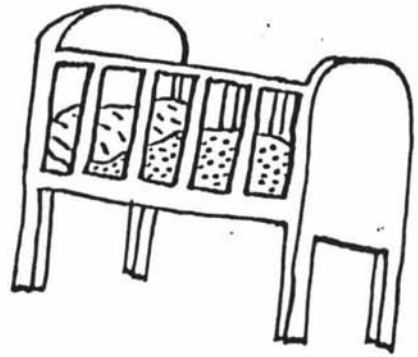
Score: _____

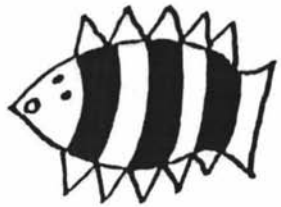


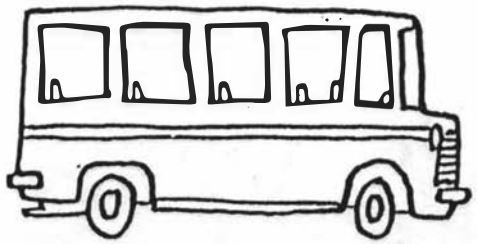


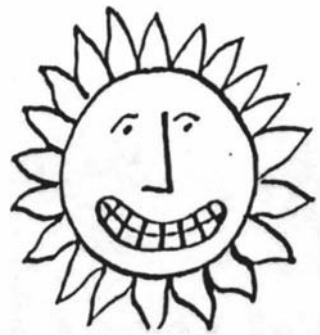


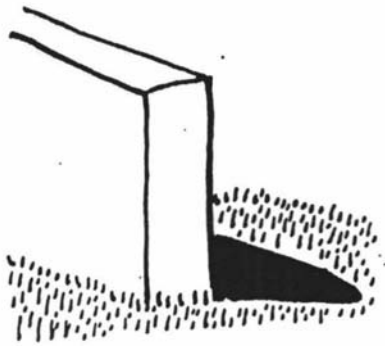


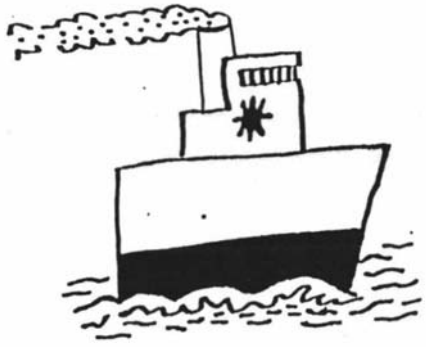


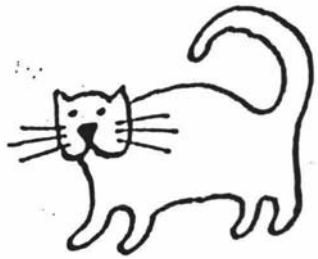


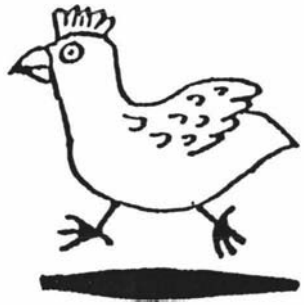


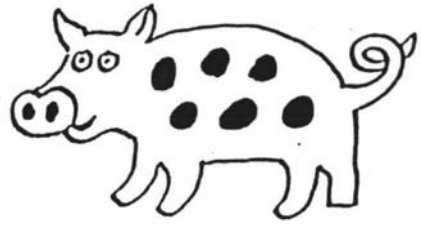


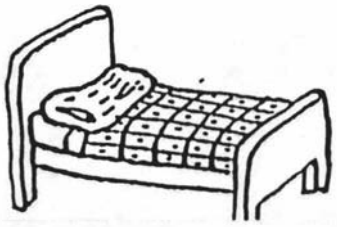


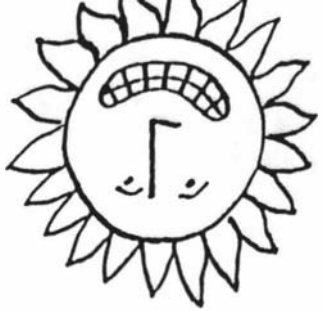


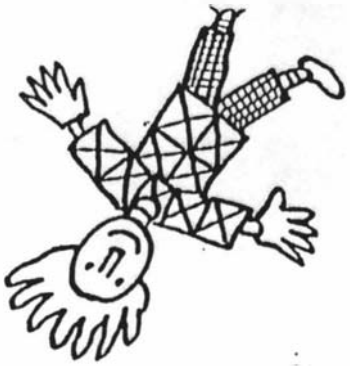


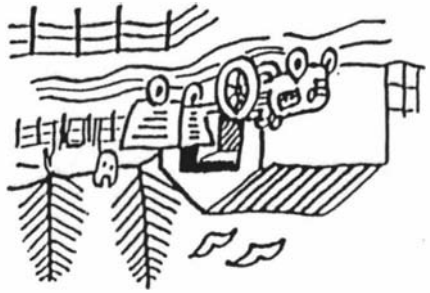


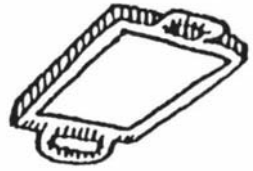


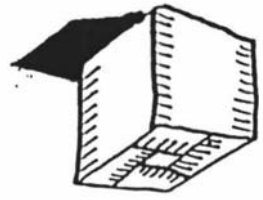


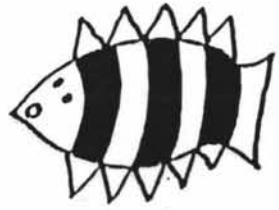




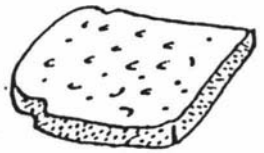









WELCOME



PHONEMIC SEGMENTATION TASK

Directions for administering the task.

Say to the child -

"Today we are going to play a word game. I am going to say a word and I want you to break the word apart.
You are going to tell me each sound in the word in order.
For example, if I say **old** you will say **o-l-d.**
Let's try the first few words together."

Use three more examples - **ride get dad.**

If the child fails to respond or responds incorrectly to the practise words, give corrective feedback - e.g. if the child says **r - ide**, say
"That's a good try, you broke the word into two parts, but to break the word right apart you would have to say **r-i-d.**

Administer the task

If the child responds correctly, give positive non specific feedback e.g. "That's right" or "Nice try" or nod.

If the child gives an incorrect response, provide the correct response without comment.

Record exactly what the child says.

Score as correct only the words that the child responds to accurately on his/her own.

Task Items

dog	lay	keep	race
fine	zoo	no	three
she	job	wave	in
grew	ice	that	at
red	top	me	by
sat	do		

Score 0-22

PHONEMIC SEGMENTATION TASK

NAME: **AGE:** **YRS** **MTHS**

Item	Childs response	Score
dog		
fine		
she		
grew		
red		
sat		
lay		
zoo		
job		
ice		
top		
do		
keep		
no		
wave		
that		
me		
race		
three		
in		
at		
by		
	Total	

Tester _____

Date _____

School _____

Instructions for Analogical Transfer Task

Introduce the task by saying to the child, "Here are some words I'd like to see if you can read." Expose each of the 18 rows one at a time by placing a sheet of paper over the remaining items and moving the sheet downward to expose each new row of words. Pointing to the first word in the row, ask the child, "Can you read this word?" If the child fails to respond or gives an incorrect response, provide corrective feedback. "No, this word is cat." However, corrective feedback is given only for the first word in each row. For each of the three remaining words in the row, point to the word and say, "Can you read this word?" Do not give any help or corrective feedback for any of the three remaining words in the row. Give only general encouragement. Guessing should be encouraged. Continue through all of the rows in the same manner. Corrective feedback is given for the first word in each row but not for any of the remaining three words.

A point is given for each word read correctly. Self-corrections are counted as correct. Compute separate scores for the sight words (the first words in the 18 rows) and the nonsight words (the second, third, and fourth words in the rows). Then compute the total score. Record all incorrect responses. When a nonword or partial word response is given, record the child's pronunciation according to the following code:

Pronunciation Key

Sound Symbol	Example	Sound Symbol	Example	Sound Symbol	Example
a	l<u>a</u>g	ô	t<u>o</u>ne	ẽr	tow'<u>er</u>
e	fl<u>e</u>sh	û	c<u>u</u>te	k	<u>c</u>ute
i	h<u>i</u>t	o͝o	thr<u>ew</u>	z	vi<u>z</u>'it
o	j<u>o</u>g	o͞o	f<u>oo</u>t	s	pen'<u>c</u>il
u	n<u>u</u>t	oi	ch<u>oi</u>ce	j	sau'sa<u>g</u>e
ā	f<u>a</u>ke	ou	l<u>ou</u>d	th	<u>th</u>in
ē	pr<u>ea</u>ch	ô	r<u>aw</u>	th	<u>th</u>en
ī	h<u>i</u>de	ə	<u>a</u> woké	ks	e<u>x</u> plode'

NOTE: Common consonant sounds are represented by the letters themselves (e.g., n as in nut; f as in fed).

cat	hat	bat	fat
will	fill	bill	kill
jump	bump	lump	dump
stop	top	hop	pop
thank	bank	tank	sank
ride	side	hide	slide
day	may	hay	pay
eat	meat	heat	seat
pick	kick	sick	lick
not	hot	lot	cot
back	sack	pack	tack
well	fell	bell	yell
can	fan	pan	van
truck	duck	luck	suck
tail	mail	sail	jail
sit	hit	bit	fit
make	lake	cake	rake
right	tight	fight	light

Analogical Transfer Task

Student's Name: _____ **Student Number:** _____

School: _____ **Sight Word Score:** _____

Date Tested: _____ **Nonsight Word Score:** _____

Tester: _____ **Total Score:** _____

Sight Words		Non Sight Words	
cat _____	hat _____	bat _____	fat _____
will _____	fill _____	bill _____	kill _____
jump _____	bump _____	lump _____	dump _____
stop _____	top _____	hop _____	pop _____
thank _____	bank _____	tank _____	sank _____
ride _____	side _____	hide _____	slide _____
day _____	may _____	hay _____	pay _____
eat _____	meat _____	heat _____	seat _____
pick _____	kick _____	sick _____	lick _____
not _____	hot _____	lot _____	cot _____
back _____	sack _____	pack _____	tack _____
well _____	fell _____	bell _____	yell _____
can _____	fan _____	pan _____	van _____
truck _____	duck _____	luck _____	suck _____
tail _____	mail _____	sail _____	jail _____
sit _____	hit _____	bit _____	fit _____
make _____	lake _____	cake _____	rake _____
right _____	tight _____	fight _____	light _____

Instructions for Pseudoword Naming Task

"Today I'm going to show you some funny sounding names. These are the names of children who live in a far away land. Let's pretend that we are going to visit these children and want to learn to say their names the way they do. You can read their names only if you sound them out. Remember, do not try to make them into real words. Let's try this one." The tester presents the first practice item and encourages the child to sound it out. If the child fails to respond correctly, or fails to respond after 5 to 10 seconds, the tester demonstrates how to sound out the item. "This letter makes an e sound and this letter makes a z sound, so the name is e - z, ez." The tester presents the second practice item and, if necessary, demonstrates how to sound out the item. "OK, now let's see if you can play the game. I'm going to show you some names and I want to see if you can tell me how to say them." The tester encourages the child to sound out each name. If the child makes a real word response, the tester reminds him/her that the right answer cannot be a real word. If the child reads a name in syllables (e.g., *juh-i-tuh*), the tester says to the child: "OK, what name does that make?" Throughout the test session the tester gives positive feedback of a nonspecific nature when appropriate - "nice", "good job", etc. However, corrective feedback should not be given. If the child fails to attempt any item on two consecutive word lists, the session can be terminated. All remaining items are scored as incorrect.

When an item is incorrectly pronounced, the tester records the child's mispronunciation according to the following code:

PRONUNCIATION KEY

Sound Symbol	Example	Sound Symbol	Example	Sound Symbol	Example
a	lag	ô	tone	ẽr	tow'er
e	flesh	û	cute	k	cute
i	hit	ôô	threw	z	vig'it
o	jog	ŏŏ	foot	s	pen'cil
u	nut	oi	choice	j	sau'sage
ā	fake	ou	loud	th	thin
ē	preach	ô	raw	th	then
ī	hide	ə	a woké	ks	ex plode'

NOTE: Common consonant sounds are represented by the letters themselves (e.g., n as in nut; f as in fed).

The correct pronunciation(s) and common errors for each of the items of the pseudoword naming task are given below:

Word	Correct Pronunciation(s)	Common Errors
jit	jit	jīt, jet
med	med	mid, met
dut	dut	dōōt
wob	wob	wub, wod
pag	pag	peg, pāj
thut	thut, thut	thōōt, thrut
sath	sath, sath	sāth, sat
glick	glik	klik
blesh	blesh	blish, bles
brop	brop	brōp, prop
mide	mīd	mid
fute	fūt, fōōt	fut, fōōt
voze	vōz	vō zē
pake	pāk	pa kē
sone	sōn	swun, zōn, sō nē
clave	klāv	krāv
chove	chōv	chōōv, shuv
grake	grāk	krāk
trobe	trōb	throb, trōōb
drime	drīm	drem, dim
roud	rɔud	rɔund, rōōd
zoin	zɔin	zōn, žo in
taw	tô	tɔu, thō
woaf	wôf	wōōf
dail	dāl	dīl
prew	prōō	pōōt, prɔu
thrain	thrān	trān
froice	frɔis	frōd, fɔi sē
spound	spɔund	spɔud
fleach	flētch, fletch	flesh, flēs

Two scoring procedures are used. The first is simply the total number of correct pronunciations. In the second procedure, each item is scored according to the number of sounds in the items that are correctly pronounced (the number in parentheses next to each item on the scoring sheet indicates the maximum possible points for each item). For example, if the child correctly pronounces the first item, s/he receives 3 points. However, if *jit* is pronounced *jet* or *jut* or *jid*, only 2 points are given. If *jit* is pronounced *jab*, *hid*, or *bat*, only 1 point is given.

Practise words:	ez	saf

Test words:

jit	med	dut	wob	pag
thut	sath	glick	blesh	brop
mide	fute	voze	pake	sone
clave	chove	grake	trobe	drime
roud	zoin	taw	woaf	dail
prew	thrain	froice	spound	fleach

Pseudoword Naming Task

Student's Name: _____ **Student number:** _____

School: _____ **Total correct:** _____

Date tested: _____ **Total points:** _____

Tester: _____

	Response	Points		Response	Points
1. jit (3)			16. clave (4)		
2. med (3)			17. chove (3)		
3. dut (3)			18. grake (4)		
4. wob (3)			19. trobe (4)		
5. pag (3)			20. drime (4)		
6. thut (3)			21. roud (3)		
7. sath (3)			22. zoin (3)		
8. glick (4)			23. taw (2)		
9. blesh (4)			24. woaf (3)		
10. brop (4)			25. dail (3)		
11. mide (3)			26. prew (3)		
12. fute (3)			27. thrain (4)		
13. voze (3)			28. froice (4)		
14. pake (3)			29. spound (5)		
15. sone (3)			30. fleach (4)		

RECORD OF READING BEHAVIOUR

Name:	**Title:**
Age:	**Series:** **Seen**
Date: / /	**Stage:** **Unseen**

Calculations

Error Rate $\frac{RW}{E}$ = 1:

Accuracy %

S/C Rate $\frac{(E + SC)}{SC}$ = 1:

Level: Easy Instr Hard

Understanding from Retelling/Questioning

Characters	Yes	.....	No
Setting	Yes	.....	No
Plot	Yes	.....	No
Inferences	Yes	.....	No

Competencies (circle predominant behaviours)

1 on 1 matching	Directionality		Fluent Reading
At an unknown word			
Makes no attempt	Seeks help	Reruns	Reads on
Attempts using	Letter/sound knowledge	Meaning	Syntax
After an error			
Ignores	Seeks help	Reruns	Attempts s/c
Self-corrects using	Letter/sound knowledge	Meaning	Syntax

	E	SC	E msv	SC msv

Notations For Recording Reading Behavior

Correct reading	check the word	✓ ✓ ✓ ✓ ✓ you can see little tyres
Miscue	write what the child says above the word in the text	✓ ✓ ✓ some ✓ you can see little tyres
Insertion	insert the word the child says above the text using ^	✓ ✓ ✓ the ✓ ✓ you can see little tyres
Omission	put a line over the word omitted	✓ ✓ ✓ – ✓ you can see little tyres
Repeats a word	write R after the word repeated	✓ ✓ ✓ ✓ R ✓ you can see little tyres
Repeats a number of words	write R and signify the phrase by an arrow over the words repeated	✓ ✓ ✓ ✓ R ✓ you can see little tyres
Self corrects	write SC after the miscue	✓ ✓ ✓ some SC ✓ you can see little tyres
No response	put a line over the word	✓ ✓ ✓ ✓ – you can see little tyres
Appeals for help	write A above the word on which the child appealed	✓ ✓ ✓ ✓ A you can see little tyres
Teacher tells	write T above the word which you supplied	✓ ✓ ✓ ✓ T you can see little tyres

Error rate / Accuracy percentage Table

This table has been devised to assist you with the quick conversion from error rate to percentage accuracy using the following formula.

$$\text{Accuracy \%} = \left\{ 100 - \frac{E}{RW} \right\} \times 100$$

Error Rate	Accuracy%	Reading Level	Reading Approach
1:200	99.5		
1:100	99	Easy,	
1:50	98	Independent	Independent
1:35	97	Reading	Reading
1:25	96	Level	
1:20	95		
1:17	94		
1:14	93	Instructional	Guided
1:12.5	92	Reading	Reading
1:11.75	91	Level	
1:10	90		
1:9	89		
1:8	87.5	Hard,	Shared Reading
1:7	85.5	Frustrational	
1:6	83	Reading	
1:5	80	Level	
1:4	75		
1:3	66		Reading to Children
1:2	50		

Daily Lesson Plan

Lesson No_____ Date_____

	Child 1	Child 2
Fluent Reading/Writing Practise		
Reading Mileage		
Letter ID/Making Analogies		
Record of Reading Behaviour		
Story Writing/Cut Up Sentence		
Extending the Known Set		
New Book		

Dolch Words - Revised Order

up	we	a	and	go
I	in	the	to	you
for	red	yellow	he	to
look	one	jump	me	see
my	it	can	is	at
come	into	like	big	blue
all	four	are	down	not
she	little	run	said	do
be	so	two	play	am
no	on	out	an	eat
black	did	get	away	help
but	have	by	stop	that
going	make	yes	fly	here
three	this	will	of	brown

some	they	had	then	was
his	who	ran	old	good
there	has	him	them	six
find	over	came	funny	our
where	off	your	her	call
what	with	just	put	from
its	well	went	as	give
know	when	saw	soon	green
or	now	ride	say	new
under	ask	live	hot	sit
ten	got	let	take	ate
could	how	may	walk	were
if	must	after	dont	please
cold	pretty	five	why	fall
seven	sing	sleep	us	about
while	want	been	made	open

their	very	would	today	cut
eight	keep	every	pick	round
buy	think	does	around	pull
because	read	before	best	any
thank	first	right	tell	which
work	only	always	fast	try
gave	wish	hold	long	small
again	much	never	these	upon
warm	those	wash	done	light
goes	many	use	show	write
draw	drink	better	bring	carry
clean	laugh	myself	shall	together
far	full	grow	hurt	kind
own	start	once	both	found

Instructions for Spelling Task

Introduce the task by saying to the child, "Here are the letters of the alphabet." Point to the letters of the alphabet printed across the top of the response sheet. Then say to the child, "I'm going to say a word, and then put the word in a sentence. I want you to write that word on the black line. Just do the best you can. Okay, let's try this one." Say the target word aloud, read the corresponding sentence to the child, and repeat the target word. Then ask the child to write it down. Do not help the child with any of the words and do not give corrective feedback. Give only general encouragement. Go slowly. Let the child have time to think. If the child fails to write anything down in response to an item, mark a line through the space (so that the child will be forced to move to the next line) and say, "Okay, let's try another one." If the child fails to give any response to six consecutive items, the session can be terminated. All remaining items are scored as incorrect.

Two scoring procedures are used. The first is simply the total number of correct spellings. In the second procedure, each item is scored according to the following scale:

0 No response or a random string of letters.

1 The initial phoneme is represented with the correct letter (e.g., **f** for **fat**) or with a phonetically related letter (e.g., **k** for **cake**), and may be followed by a random string (e.g., **fmj** for **fat**); or a single letter response that represents some salient part of the word other than the initial phoneme (e.g., **l** for **fill**, **k** for **duck**, or **e** for **meat**).

2 More than one phoneme represented but not all. Must be represented with phonetically related or conventional letters. May include intrusions (e.g., **sd** for **side**; **jl** for **jail**; **fjt** for **fat**; **lup** for **lump**; **me** for **meat**).

3 Two or more letters capturing all of the word's sounds "unconventionally" (e.g., **kik** for **kick**, **fil** for **fill**, **sid** for **side**, **met** for **meat**, **pak** for **pack**).

4 Correct conventional spelling.