

2007

## An investigation into the effectiveness of paired reading with the incorporation of additional error corrective procedures

Kathryn Schneider  
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An Investigation into the Effectiveness of Paired Reading with the Incorporation of  
Additional Error Corrective Procedures

Kathryn Schneider

Edith Cowan University

A report submitted in Partial Fulfilment of the Requirements for the Award of Bachelor  
of Arts/Science (Psychology) Honours, Faculty of Computing, Health and Science,  
Edith Cowan University.

Submitted 10th, 2007

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A Review of the Efficacy of Paired Reading in Assisting Children Behind in their  
Reading

Kathryn Schneider

### Abstract

The aim of this literature review was to examine the effectiveness of the Paired Reading (PR) intervention, a one-to-one instruction approach to improving children's fluency, accuracy, and comprehension. The effectiveness of PR in promoting a positive attitude towards reading and in increasing children's sense of self-efficacy in reading was also investigated, focusing principally on children whose level of reading was below what was expected for their chronological age. It addressed the question of how well the intervention can be implemented by parents and explored the strategies used in PR to elucidate what aspects of the intervention may contribute to its success. The effectiveness of PR was also compared with other, less structured, reading methods such as Relaxed Reading and the Pause-Prompt-Praise intervention. Limitations were discussed in light of the literature and directions for future research were outlined.

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27/ 08/2007

## A Review of the Efficacy of Paired Reading in Assisting Children Behind in their Reading

Successful acquisition and maintenance of fluency, accuracy, and comprehension is imperative to children reaching a level of reading expected of their age cohort (Katzir, Youngsuk, Wolf, & O'Brien, 2006; Li & Nes, 2001; Nes, 2003). However, a proportion of children do not progress sufficiently in the mastery of these skills to meet the demands of their classroom curriculum standards. Topping (1985a) identified some common factors found in this group of children. These include a lack of adequate emotional and motivational support and a tendency for these children to be easily distracted. The children struggle to complete reading tasks allocated by their teacher, creating anxiety, low self-esteem, and a poor sense of self-efficacy in reading (Lawrence, 1983; Morgan & Lyon, 1979; Nelson & Manset-Williamson, 2006; Rasinski, 2000; Shanahan & Barr, 1995). They are prone to learned helplessness, poor vocational and social skills, and negative disciplinary responses (Lyon, 1996).

Epidemiological studies have also illustrated a strong positive correlation between children's reading skills and future learning (Cadieux & Boudreault, 2005; Eckert, Dunn, & Ardoin, 2006; Li & Nes, 2001; Lyon, 1996; Morgan & Lyon, 1979; Nes, 2001; Shanahan & Barr, 1995; Shaywitz et al., 1995; Torgesen, 2002). Children whose reading skills are below the norm, but who are intellectually capable, must receive immediate help to address these issues and advance their skills to a viable level to prevent academic failure (Barbetta et al., 1993; Cadieux & Boudreault, 2005; National Institute of Child Health and Human Development [NICHD], 2000a; Snow, Burns, & Griffin, 1998; Torgesen, 2002).

Although many reading interventions have been developed, Paired Reading (PR), like most one-to-one instruction interventions, is more comprehensive, explicit, and supportive than other instruction approaches used in the classroom (Foorman & Torgesen, 2001). It also caters for children's individual needs and provides them with additional encouragement, modeling, and reinforcement that they would not otherwise receive in the classroom (Elbaum, Vaughn, Hughs, & Moody, 2000; Topping, 1985a).

The PR intervention was constituted by Roger Morgan during the mid 1970's and subsequently researched comprehensively by Keith Topping (Rasinski & Fredericks, 1991; Topping, 1986; Winter, 1989) who also contributed to its promotion in schools world wide (Overett & Donald, 1998; Topping, 2001; Winter, 1989). It draws on motivational, cognitive, and affective facets of learning (Pumfrey, 1986), and has frequently been used by parents and sometimes teachers, who pair skilled with less-skilled readers (Eckert et al., 2006; Topping, 1989; Topping & Bryce, 1989; Winter, 1988). There are a couple key features that attest to its robustness. First, it can be readily applied to any reading material and therefore used with people at any level of reading (Morgan & Lyon, 1979). Second, although most schools that promote PR offer training to parents, this is not essential to adequately implement the intervention as there are other sources that describe the method (Ruth, 1995).

The first step in PR requires the child to select a book, or other reading material, of interest (Cadieux & Boudreault, 2005; Topping, 1987). If the parent discovers that this reading material is either too easy or difficult for the child (that is, reading accuracy is either 100% or falls below 70%), the parent then assists in finding material that is more appropriate for the child's level of reading (Morgan, 1986). Once the reading material has been selected the parent and child find a place to sit and read that is quiet and free from

distraction. The parent begins reading simultaneously with the child, reading slightly ahead of the child and therefore modeling the correct reading behaviour (Li & Nes, 2001; Morgan & Lyon, 1979; Topping, 2001). Like most one-to-one instruction approaches, the parent demonstrates to the child an appropriate pace and expression, such as exclamation and surprise, as well as the pitch, duration, and stress of words (Dowhower, 1991; Hudson, Lane, & Pullen, 2005; Rasinski & Fredericks, 1991; Richards, 2000). The parent gradually increases the reading pace in correspondence to the child's demonstration of competency. Throughout this process the child receives visual and aural stimuli, which is important to the correct recognition and sounding out of words (Baron, 1977; Pressley, 2003).

Once this pattern is established, the child non-verbally signals to the parent when he/she feels confident to read independently and aloud (Morgan, 1986; Pumfrey, 1986; Topping, 1986, 2001). The parent provides the child with an opportunity to self-correct where a word is omitted or mispronounced during the course of the child's independent reading (Li & Nes, 2001; Morgan, 1986; Topping, 1986, 2001; Winter, 1989). Buettner (2002) argued that the opportunity for self-correction is imperative because a child may know the correct pronunciation of the word but require a few seconds to decode and articulate it and this process may involve an initial mispronunciation.

If the child is unsuccessful in correcting the error, the parent then intervenes (Li & Nes, 2001; Morgan, 1986; Topping, 1986, 2001). Some researchers have referred to this process as the word-supply error-correction procedure, where the parent provides the child with the correct pronunciation of a word (in contrast with other procedures using a phonic approach where words may be broken down into its phonetic elements) (Jenkins, Larson, & Fleisher, 1983; Rose, McEntire, & Dowdy, 1982; Rosenberg, Vinograd-

Bausell, Bausell, Proctor, & Chandler, 1986). Morgan stressed that parents provide the child with this corrective feedback within approximately four to five seconds. If the parent allows the child too much time to self-correct the child may have greater difficulty recalling the accurate solution, as the incorrect solutions are also remembered (Brown, Schilling, & Hockensmith, 1999; Remmers & Remmers, 1926). Once supplied with the correct response the child repeats this to the parent and the two resume reading simultaneously until the child again feels confident to read independently (Li & Nes; Topping, 1986, 2001). Morgan argued that this stage helps build the child's confidence and allows necessary rehearsal while still receiving periodic feedback from the parent. Both Topping (2001) and Morgan believed that as the child's reading progressed more time would be spent reading independently because the child would be making fewer errors. The amount of time that a child spends reading independently during PR may be an indication to the parent as to whether the level of the reading material is suitable (Topping, 2001). Throughout the independent stage of PR, parents are encouraged to verbally praise their child where the child reads difficult words, where all the words in a sentence are pronounced correctly and where the child successfully self-corrects (Winter, 1989).

One issue that has been raised in relation to PR is whether parents can be effective tutors. Paired reading has attracted skeptics who believe working on children's reading skills is a multifaceted skill and should only be taught by professionals for effective learning to take place (Lindsay, Evans, & Jones, 1985; Topping, 2001). Conversely, studies have shown statistically significant improvement in children's reading as a result of parents' participation and emphasise the critical role that they can play (Cadieux & Boudreault, 2005; Hewison, 1985; Miller, Robson, & Bushell, 1986; Pumfrey, 1986;

Toomey, 1993; Topping, 1985a; Vinograd-Bausell et al., 1986; Wolfendale, 1985).

Morgan (1986) claimed that parents that have used PR with their child and who have had their own learning difficulties have still been able to help their child progress in their reading. However, he also stated that a mediating factor is that the parent should be a more skilled reader than the child as the reading ability of the parent may influence the outcome.

The aim of this review is to examine the effectiveness of the PR intervention in improving the fluency, accuracy, and comprehension of less-skilled readers as compared to other reading interventions or controls. It seeks to identify whether PR can help to positively change children's attitude towards reading and increase their sense of self-efficacy in reading. It also inspects how easily the intervention can be implemented by parents. Further, the review explores the component parts used in PR in an attempt to identify what aspects of PR can be attributed to its success. Finally, it comments on issues raised, identifying limitations and discussing directions for future research.

### The Paired Reading Research

In some of the pioneering research conducted in PR, Topping (1985b) made the claim that children who participated in the PR intervention had shown gains of one to seven times normal rates for accuracy and 12 times normal rates for comprehension. He defined normal as an increase in reading age of one year over a one year period. However, he did not support his claim with key information detailing what time frame these reported gains occurred, or the length and frequency in which these PR sessions were administered. Then in 1990 Topping and Whitely conducted a major study in which they distributed questionnaires to parents and teachers of children that had participated in the PR intervention. Of the 2,521 questionnaires that were returned, 70% of parents

reported improvements in their child's accuracy, fluency, and comprehension. Nearly 70% also observed improvement in their child's reading expressiveness and attitude towards reading. Further, 78% of parents claimed their child was more confident in reading. These results provided promising leads, but were still without objective detailed research establishing actual improvement levels, with whom, when, and why.

The PR intervention was more comprehensively examined by Miller and Kratchwill (1996) who recruited 52 children, ranging from grades two to four, who were below average in their reading. These children were from various socio economic backgrounds allowing for greater generalisability of the results. They were evenly and randomly assigned to either a control or PR group to effectively discount any help children may have received in the course of their normal classroom tuition. The parents of the PR group were individually trained by the researcher in the use of the PR method, which they then used with their children. Each training session lasted between 60 to 75 minutes. However, the number of training sessions each parent received was not indicated. Miller and Kratchwill noted that 22 of the 23 parents mastered all twelve elements of the Paired Reading Sessions Elements Code, an instrument that measures parents' ability to conform to the PR method. Parents were also asked to audiotape their PR sessions and a random selection of these tapes were used to check that parents continued to correctly implement the PR method. Though not explicitly stated, it is assumed the standards were adequate for this study. They also noted that the children of the parents that returned tapes of all the sessions did not show any significant difference in their reading skills post-intervention compared to those that did not return some or all of the tapes so no systematic bias was evident. The parents of the control group received no tuition. This study showed slight improvements in the reading performance of the



children from the PR group compared to the controls. However, the differences were not significant. It was argued that the lack of difference between the two groups may reflect the fact that only seven of the 26 parents in the PR group completed the study, and some of those that did complete it, did not engage in PR as frequently or for as long as was recommended.

Overett and Donald (1998) also used a control group to compare the effectiveness of PR with more promising results. Children were randomly selected from the same year group from a disadvantaged community in South Africa. The Neale Analysis of Reading Ability (NARA; Neale, 1966) was used to select children who were behind in their reading by at least one year. The pre-test revealed no significant differences in reading accuracy and comprehension between the two groups. The PR sessions were conducted at the school and lasted an hour once a week over six weeks. Parents were provided with feedback on their tutoring by a teacher who was present at each session. The attendance rate was 66%. Parents were also encouraged to continue using the PR program with their children at home for a minimum of five minutes a day, five days a week, although this was not monitored.

Despite the limited attendance by some parents, Overett and Donald (1998) found significant differences in comprehension and accuracy between the groups. Using an independent t-test, they found that the children who participated in the PR program showed an overall significantly greater improvement in these reading skills compared to the control group. When within-groups variation was taken into account significant difference was still yielded. Although the children in the PR group showed significantly greater gains than the control group, the latter still showed a slight improvement in both accuracy and comprehension in relation to the pre-test measures. The control group's

improvements could have been because the children had access to a variety of interesting books that they were encouraged to read. However, the researchers neglected to report actual comparisons in reading age which would have allowed more objective comparisons with other studies. In addition to improvements in reading performance, Overett and Donald found that the attitude of the PR group towards reading was more positive than the control group. This represented a noticeable shift, as the attitude of the control group before commencement of the study was more positive than the PR group. The findings of this study are also consistent with other studies that have verified the success of PR in helping children to develop a positive attitude towards reading (Donovan & Ellis, 2005; Nes, 2003; Pumfrey, 1986; Tizard, Schofield, & Hewison, 1982; Topping & McKnight, 1984; Topping, 1987; Winter, 1988).

Murad and Topping (2000) emphasised the generalisability of the PR intervention in a large scale study conducted in Brazil in which the PR group showed a greater improvement in reading skills compared to the control group. Their study was also one of few that investigated the amount of time the children spent reading independently and simultaneously. They chose a large group of children aged between six and seven years to participate in the program lasting eight weeks. They observed that in some instances children failed to signal to their parent to read independently and spent much or all of the session in independent reading resulting from either a lack of confidence or because they became engrossed in the book. Some parents read with the child when they felt it was appropriate rather than waiting for the child to signal. Some parents let their child read independently all the time, rather than finding reading material that was more appropriate for the child creating at least some need for simultaneous reading. Evidently, the simultaneous and independent stages of PR can present a challenge for parents because

the child has substantial control of this process. This suggests a need for better management and training of parents than some studies allow. It also indicates that individual differences in learning styles and the child's reading progress can impact on the amount of time spent reading under either condition. The results of this study supported studies in Western countries on the effectiveness of the PR intervention.

One of the problems with studies that utilises a large number of participants are that they fail to provide a picture of the underlying processes of PR as it impacts on individual cases. Nes (2003) used single case studies of four children from grades four, five, and six to examine in greater depth the effectiveness of the PR intervention in helping less-skilled readers. Two of the children were a year or more behind in their reading compared to their age cohort. The reading level of the other two children pre-intervention was not specified. Another feature of this study was that the intervention was implemented by the researcher rather than the children's parents. This meant that the implementation of the intervention was relatively consistent for all four children. The children participated in an initial baseline period where their reading performance, without PR tuition, was measured. These measurements included rates of fluency and accuracy. This information was used to help establish a criterion level for the first intervention phase for each child although these sub phases were not discussed in depth. Nes reported that the same reading material was used throughout the study. That is, the same trade book was read each session. However, she did not identify the level of difficulty of the reading material.

The PR intervention used in this study deviated from the original PR method. In this study the independent reading stage occurred after a set number of words (100 to 150) rather than the children signaling that they felt confident to read on their own. The

passage was read to the child and the child then read the same passage independently and aloud. All four children showed significant improvements in their fluency, accuracy and comprehension. Further, this improvement remained high and stable during the maintenance phase which confirmed that mastery had been reached following the implementation of PR. This supports Topping's (2001) evaluation that gains in reading are sustained over time. Certainly, no evidence to the contrary has been published. The question that remains is whether Nes' methodology effectively represents the principles of PR apposed in the wider literature.

Nes (2005) focused on another detailed study using a single case design on a 12 year old girl who, prior to intervention, was a year behind in her reading and portrayed exceptionally poor fluency skills. Unlike most other studies in this field, Nes detailed the reading material and level used. During each session the girl read 200 to 250 words from a fifth grade book. A baseline reading rate was obtained over three sessions. The study involved a total of 36 sessions. A new criterion level was set, requiring her to increase the amount of words she read per minute, for each sub phase for a total of five sub phases. She had to meet the criterion level before moving to the next one. She successfully completed all five sub phases and by the fifth sub phase her reading fluency had increased to 149.6 words a minute, 62.9 words more than she was reading prior to the intervention. She maintained a high level of comprehension and an accuracy rate of 98% throughout the intervention indicating that gradual increases in fluency did not compromise her ability to read accurately or comprehend the text. The data analysis showed that the longer and more frequently the PR intervention was implemented, the greater the improvement in reading rate.

Few studies actually compare the reading age of the child pre and post-intervention. A study by De Angelo, Reents, and Zomboracz (1997) is an exception to this trend. They used the Gates-MacGinitie reading test to provide a grade level of each child's reading skills before and after the intervention over the 10 week study. The results showed that four grade five students improved in their level of reading comprehension by at least one year over the ten weeks and six improved, but less than a year. In reading speed and accuracy they improved from .2 to 1.1 years. The seventh grade children gained an average increase in their comprehension of .47 years and .7 years for speed and accuracy over the ten week period. The gains were thus variable and quite modest for some students. One reason for this variation may be that the intervention was not accurately and consistently implemented.

#### *Paired Reading and ESL Students*

Compared to some other reading methods, PR has shown to be effective in helping adults, those diagnosed with dyslexia, and students for whom English is a second language (ESL) (Cadieux & Boudreault, 2005; Topping, 1987; Winter, 1989, 1988). It has been particularly useful for students learning languages such as Chinese, which depends more on word recognition of complex symbols than phonic awareness (Winter, 1989). Li and Nes (2001) explored the effectiveness of PR on fluency and accuracy in four Chinese ESL children, two boys and two girls. The passages that the children read per session gradually increased in length but no mention was made as to whether the reading material gradually became more difficult. All four children showed improvement in their accuracy and fluency. For example, one child's fluency increased from 34 words per minute to between 78 and 79 words per minute, with an average improvement in

accuracy of 11%. They argued that ESL students can benefit from PR in the same way as non-ESL children.

#### *Parents Accuracy in Administering the Paired Reading Intervention*

A recurrent issue is how well the intervention can be implemented by parents. Law and Kratochwill (1993) examined parents' ability to implement the PR program, using the Paired Reading Elements Coding Form (PREC; Gelfand & Hartmann, 1986). This coding system is made up of twelve elements. Parents receive one point for reaching mastery on each element. The parents' audio taped their PR sessions three times a week and these tapes were transcribed and used for coding. Their ability to administer the PR program was rated before, during, and after the intervention.

They found that parents' scores on the PREC were significantly greater after a one to a one and half hour training session compared to their scores during the initial baseline phase. Overall, the parents' average score for mastery was just below 90%, with the highest average being 98.6% and the lowest 63.8%. These scores remained relatively high for most of the parents throughout the three month period. At follow-up, these scores had remained high and stable for most of the parents. One explanation that Law and Kratochwill gave as to why some parents had much lower scores was that, during some PR sessions the child only spent about a third of the time in independent reading and parents received lower scores if, during this time, they forgot to praise the child.

These percents indicate that, with appropriate training, most parents are able to implement the PR intervention with high accuracy and learn to do so quite rapidly. Although Law and Kratochwill (1993) did not specify which elements of the PREC parents found most difficult to master. Winter (1988) indicated that the issue of parents' feedback is an essential component of children's reading improvement. Their study

supports other studies that show the PR program can be implemented effectively by parents (e.g., Miller & Kratchwill, 1996; Morgan & Lyon, 1979; Toomey, 1993; Winter, 1989), provided appropriate training is given and some degree of monitoring is maintained.

#### *What Makes Paired Reading Effective as an Intervention?*

A number of studies have sought to identify what makes PR a successful reading intervention. Many studies have suggested its success can be attributed to the one-on-one time that parents spend with their children as well as the recurrent praise and encouragement (e.g., Donovan & Ellis, 2005; Eckert et al., 2006; Griffin, 2002; Miller & Kratchwill, 1996; Tizard et al., 1982; Topping, 2001). One of the arguments is that children behind in their reading often have low self-esteem and lack confidence in their reading (Morgan & Lyon, 1979; Nelson & Manset-Williamson, 2006). Lawrence (1983) highlighted that this can lead to anxiety, creating an inhibitory effect and cause children to dislike reading. He also stated that when children have a negative attitude towards reading and/or low self-efficacy they tend not to read as frequently as their fluent peers. This reduces the frequency of practice which is essential to good reading progress.

Paired Reading was designed to improve self-efficacy and attitude towards reading and to reduce anxiety and improve low self-esteem by incorporating strategies that promote positive feedback (e.g. Bushell, Miller & Robson, 1980; Eckert et al., 2006; Lawrence, 1983; Morgan, 1986; Topping, 1987, 2001; Winter, 1988, 1989). Morgan and Lyon (1979) highlighted that these elements of the PR intervention underpin the behavioural learning theory, particularly operant learning principles. That is, when children receive positive feedback, praise and encouragement, this acts as reinforcement, strengthening the reading behaviour. They found that in some instances, PR has increased

parents' positive reinforcement from five to between 30 and 60 percent, depending on the amount of time spent reading simultaneously, compared to other reading methods. Paired reading is also regarded as unique in that it permits the child to self-correct where most other reading methods focus principally on correcting the child, usually in a manner that fosters anxiety (Topping, 1987).

Morgan and Lyon (1979) examined the role of positive feedback strategies used in PR and compared this with some mothers' own, generally unstructured, reading methods. They found the mothers rarely praised their children for pronouncing difficult words correctly or for successfully self-correcting. When they did provide the child with feedback it was usually corrective. The mothers noticed dramatic changes in their relationship with their child at the end of the PR intervention and preferred this method to their own because of its specification in administering praise. They not only saw improvement in their child's reading but also a willingness and confidence in their ability to use their skills outside of the intervention. There appears to be no published studies isolating the element of positive feedback in the PR method to test its relative contributions in the overall effectiveness of PR.

Although the emphasis on positive feedback obviously has a strong bearing on the success of PR, it does not account entirely for the positive results obtained. It has been suggested that the parent modeling and corrective feedback also play a role (Van Houten, Hill, & Parsons, 1975). For instance, parents' modeling of meaningful phrasing and correct pronunciation, expression, and syntax of words helps the child to read more fluently and accurately and to have a better understanding of the meaning of the text (Morgan, 1986; Topping, 2001; Winter, 1989). Both the modeling and immediate feedback are important in helping a child read fluently because these strategies help to



reduce the amount of time the child spends decoding words (Topping, 1987). The corrective feedback is important to children's ability to pronounce words correctly and to increasing their vocabulary (Beck & McKeown 2001; Messer & Dockrell, 2006; NICHD, 2000b). Rayner, Pollatsek, and Starr (2003) argued that a child must be able to pronounce a word correctly in order to access its meaning.

Paired reading accentuates word recognition and phonic prompting strategies which are important to comprehension (Barbetta, Heward, & Bradley, 1993; Perfetti, Beck, Bell, & Hughes, 1988). Parents are also encouraged to talk about the reading material with their child and to ask questions to help the child consolidate the meaning of the text (Gill, 2006; Morgan, 1986; Overett & Donald 1998; Topping, 2001). Like other reading interventions, PR helps to increase children's exposure to words which is important because the more frequently children see a particular word the quicker and more accurate they will be in identifying it (Hasbrouck & Tindal, 2006; Jusczyk & Aslin, 1995). Some researchers have suggested that because the PR intervention has shown improvement in comprehension as well as fluency and accuracy, there must be some psycholinguistic processes operating in addition to the behavioural learning elements (Toomey, 1993; Topping, 1985b).

#### *How Does Paired Reading Compare to Other Reading Interventions?*

Reading interventions that incorporate some of the same strategies as PR have also been successful in helping to improve children's reading skills (Denning, 1985; Fernandez, 1995; Lindsay et al., 1985). Some of these reading interventions include Pause-Prompt-Praise (Eggers, 1995; Wheldall, Merrett, & Colmar, 1987), Independent Reading (Burdett, 1986), Relaxed Reading (RR; Lindsay et al.) and Read Aloud methods

(Silverstein & Silverstein, 2004). Only a few studies have compared the PR intervention with other reading interventions (Winter, 1988).

Fernandez (1995) compared PR with a method called Reading in Bed is Terrific (Ribit). Those using the Ribit method were required to read as frequently as the PR group but the children did not receive any tuition. However, their parents were required to spend 15 minutes for five days over the eight week period with the child engaging in some other activity to ensure they received the same amount of attention, praise, and encouragement as participants of the PR group. Thirty eight children were randomly assigned to a PR group and a Ribit method group. All had a reading age of at least one year below their chronological age, as identified by the NARA (1988). Parents were monitored through school visits within the first two weeks. They also received a phone call during the fourth week to ensure they were pursuing the PR program. The study found no difference in accuracy or comprehension skills of the children between the two groups post-intervention, although the reading skills of both groups had improved. This study suggested that the elements of attention and praise may be key elements in the success of PR.

Lindsay et al. (1985) compared PR with Relaxed Reading (RR). Relaxed Reading centers on positive feedback but is not a structured reading intervention like PR. Twenty children aged 8 to 12 years were recruited and assigned in roughly equal numbers of age and sex to one of four groups. Two groups, one for PR and the other RR, were monitored by home visits and the other two PR and RR groups received telephone monitoring. A two-way ANOVA showed no significance between the two reading groups. This study also used the NARA (Neale, 1957) to identify pre and post-test scores in reading age which allowed a closer inspection of the mean read gains for each group. For instance,

the average gains in reading age for the PR group that received home visits over the six weeks was 9 months for accuracy and 16 months for comprehension compared to the RR group that received home visits, with average gains of 9 months for accuracy and 9.2 months for comprehension. This study again seems to suggest that positive feedback accounts for most of its success. However, it is unclear whether the parents in the RR provided their children with corrective feedback and modeling as well. Even though a strong emphasis was placed on this group of parents to provide their children with positive feedback, it was left up to the parents to spend the time reading with their children as they would normally. Unfortunately, the type of reading method that the parents used was not discussed and therefore, whether the parents did model to their child and/or use their own corrective feedback strategies was attested.

Denning (1985) compared PR, the Pause Prompt Praise (PPP) reading intervention and the unstructured Hearing Children Read Method (HCRM) with a control group. The PPP intervention involves three stages. The “pause” stage requires the parent to pause and count to ten before intervening. During the “prompt” stage, parents provide their children with a hint to encourage them to attempt to give the correct response if they appear to be having difficulty with a word or sentence, and during the “praise” stage the parents provide the children with praise were they feel it is appropriate. Clearly, some of the strategies used in this method are a variation to that used in the PR intervention. The HCRM group read more than the children in the control group but there was no specific structure to this reading intervention. One hundred children, from grades one through to five and who were below average in their reading, participated in the study. Twenty percent of these participants were ESL students. Parents participating in one of the

treatment groups received training in that reading intervention. The average level of reading was similar for each of the groups at commencement of the study.

Pre and post-test scores were assessed using an analysis of covariance which revealed no significance in reading improvement between the three groups. All of these reading groups showed significant improvement in reading compared to the control group. The argument that was made, regarding this lack of difference between the three treatment groups and which may explain why the PR group did not show superior reading gains, was that the other two groups provided more opportunity to self-correct. Denning highlighted that the children in the PR group are only given an opportunity to self-correct during the independent stage of reading and the time that they are given to self-correct is not as long as the other methods. However, she did not elaborate as to how this might have influenced the results.

Despite these studies showing a lack of significance of PR compared to other reading methods, some researchers have argued that PR has other benefits not evident in some other reading methods. For example, PR is flexible with regard to the child's current mood, energy levels and concentration as well as the difficulty of the book (Morgan, 1986; Topping, 1987). Toomey (1993) also stressed that PR was less complicated and easier to administer than some other structured reading methods.

#### Limitations and Directions for Future Research

The literature on PR show great variation in focus and outcome and allow few clear conclusions to be drawn. The early claims made by Topping (1985b), that PR has shown up to a seven fold increase in reading performance, was not supported. Some studies show PR to be more effective than others. This may partly be due to individual differences among children, differences in the implementation of the PR method, or in

the measuring procedure used (Topping & Lindsay, 1992). Pumfrey (1986) argued that when interpreting the results of PR it is paramount that consideration be made in terms of the length, amount, and frequency of PR and the influence that this may have on the parent child dyad. He also argued that one of the limitations of comparing groups of children from more than one age group is that the gains for one age group might not represent the same achievement for the same interval of another age group as the standard rate of reading progress in accuracy rate and fluency will be greater for the younger children. Furthermore, he stressed that due to the phenomena of the regression towards the mean, children that are at the extreme lower end of reading will be more likely to show results closer to the mean when measured for a second time regardless of any intervention.

Another limitation in exploring the effectiveness of PR is that it integrates a number of strategies allegedly critical to the development of children's reading and difficulty arises in distinguishing which of these strategies are crucial to its success (Dowhower, 1987; Winter, 1988). That is, whether the modeling of the text, corrective feedback, positive reinforcement, or practice has a greater influence on the child's progression (Lawrence, 1983; Morgan & Lyon, 1979). Mogan (1986) argued that although each of these strategies are not novel approaches to reading and that many are used in other reading interventions, the effectiveness of PR results from the combination of all of these strategies. However, some studies that have compared PR with other less structured reading methods, but that have also focused on parent support and encouragement, showed that the results of PR were not significantly superior to the other methods. In this instance it would appear that positive feedback plays a central role to its

success. However, studies need to explore the various elements of PR more systematically and more rigorously in methodology.

Based on the findings of this review, an area that does not appear to have been thoroughly researched is what influence the amount of time a parent and child spend in simultaneous and independent reading may have on the outcome of the intervention. For example, children that spend more time in simultaneous reading than independent might show greater gains in their reading than a child that spends more time in independent reading.

### Conclusion

The studies in this review show that PR is an effective one-on-one oral reading intervention for children with a reading level below the norm for their age cohort and ESL students. These studies also show that PR can improve children's attitude towards reading as well as increase their sense of self-efficacy in reading. However, some studies have shown PR to be more successful than others. This variation can be attributed to many factors including differences among children, differences in the implementation of the PR method, the measuring procedure used and/or the amount and frequency of the PR sessions and the length of time that the intervention is implemented. Paired Reading can also be easily implemented by parents and generally with high accuracy.

Studies that compare PR with another, less structured, reading method have illustrated that PR is no more effective in advancing children's reading skills. Some of these studies indicate that, as some other reading methods do not follow a specific structure but focus primarily on positive feedback, the positive feedback element in PR seems to play a major role in its effectiveness. Nonetheless, most studies are still unclear

as to exactly what elements account for its success. Therefore, future studies need to examine the various strategies of PR more rigorously and methodically.

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An Investigation into the Effectiveness of Paired Reading with the Incorporation of  
Additional Error Corrective Procedures

Kathryn Schneider

### Abstract

Children struggling to meet classroom curriculum standards due to insufficient reading mastery must receive immediate help to improve their reading skills to a viable level to prevent academic failure. The Paired Reading (PR) intervention incorporates strategies promoting enjoyable reading and numerous studies have supported its efficacy. However, research comparing PR with less structured reading methods that rely principally on positive feedback has found little difference in outcome, suggesting that it is positive feedback that accounts for PR's success. Thus, this study compared PR with a variation of this intervention, Error Correction Reading (ECR), incorporating additional corrective procedures, to investigate whether these procedures would increase its efficacy, particularly in relation to reading accuracy and comprehension. Participants comprised five children who were behind in their reading, from three year three classes. As predicted, both interventions helped the children progress in their reading. However, the study failed to provide evidence for the superiority of ECR, complementing previous studies that suggest positive feedback primarily underlies PR's success rather than error corrective procedures.

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29/ 10/2007

## An Investigation into the Effectiveness of Paired Reading with the Incorporation of Additional Error Corrective Procedures

### Introduction

Successful acquisition and maintenance of fluency, accuracy, and comprehension is imperative to children reaching a level of reading expected of their age cohort (Katzir, Youngsuk, Wolf, & O'Brien, 2006). However, some children do not progress sufficiently in mastering these skills to meet the demands of their classroom curriculum standards. This leads to anxiety, low self-esteem, and a poor sense of self-efficacy resulting in an inhibitory effect and in some instances, an aversion towards reading (Lawrence, 1983; Nelson & Manset-Williamson, 2006; Rasinski, 2000; Shanahan & Barr, 1995). Epidemiological research has illustrated a strong positive correlation between children's reading skills and future learning (Eckert, Dunn, & Ardoin, 2006; Shaywitz, 1995; Torgesen, 2002). It is therefore necessary for children with poor reading skills but who are intellectually capable to receive immediate help to advance their skills to a viable level, preventing academic failure (Barbetta, Heward, & Bradley, 1993; National Institute of Child Health and Human Development, 2000; Snow, Burns, & Griffin, 1998).

The one-on-one Paired Reading (PR) intervention, developed by Roger Morgan during the mid 1970's and subsequently researched comprehensively by Keith Topping, comprises strategies promoting a more gratifying reading experience than many other structured reading interventions (Topping, 1986; Winter, 1989). First, children are encouraged to choose their own material (Cadieux & Boudreault, 2005; Topping, 1987). Second, repetition and drills are avoided. Third, positive feedback is promoted as parents provide frequent verbal praise where children read difficult words, where complete sentences are pronounced correctly, and where they successfully self-correct (Topping,

2001). Fourth, children receive one-on-one attention (Griffin, 2002). A number of studies have supported the success of these strategies in promoting a positive attitude towards reading (e.g., Donovan & Ellis, 2005; Morgan & Lyon, 1979; Pumfrey, 1986; Tizard, Schofield, & Hewison, 1982; Topping & McKnight, 1984). Paired Reading can be readily applied to all reading material and is therefore suitable for children at any level of reading. Further, skilled readers can adjust their reading pace to correspond to children's demonstration of competency (Rasinski & Fredericks, 1991). Finally, Law and Kratochwill (1993) found PR could be easily implemented by parents. Even when parents have had their own learning difficulties, they have still been able to help their child improve in reading, provided they are a more skilled reader.

Morgan (1986) outlined the PR procedure as follows. First, the child begins reading simultaneously with a skilled reader, who models the correct reading behaviour. Second, the child signals the wish to commence reading independently. During this stage the child is given an opportunity to self-correct, but if unable to do so within a time allocated, the child is provided with the correct reading response and, once repeated by the child, the two resume reading simultaneously until the child again wishes to read independently.

Paired Reading studies comparing children's reading when utilising PR with children who do not receive tuition, have shown this method to be successful in improving children's fluency, accuracy, and comprehension. For instance, Overett and Donald (1998), working with 61 children found those given PR produced significantly greater improvements over six weeks than the control group. A 10 week study by Miller and Kratochwill (1996) comprising 52 children, ranging from grades two to four from various socio economic backgrounds, also supported PR's efficacy. Murad and Topping

(2000) emphasised the generalisability of PR's efficacy to non-Western countries in an eight week study comprising forty-eight Brazilian children aged six to seven. Audio recordings confirmed parents were conforming to the PR requirements. This study was unique in that it identified varying patterns in the extent children read independently, although it did not indicate whether these patterns influenced reading outcome.

Studies of successful PR intervention using single participant subject designs have permitted a more in-depth examination of PR's efficacy on individual reading performance (De Angelo, Reents, & Zomboracz, 1997; Nes, 2003). For example, Nes (2005) used a single participant design of a 12 year old girl with poor fluency. The girl read 200 to 250 words from the same book. A new criterion level was set with each sub phase, requiring her to increase her word rate. She successfully completed all five sub phases over 36 sessions. She maintained a high level of comprehension and accuracy throughout the treatment indicating that gradual increases in fluency did not compromise her accuracy or comprehension. The data showed that the longer the PR was implemented, the greater the reading gains. Arguably, this may have been because the same book was used, creating familiarity with the storyline and because she had quickly attained mastery for that level of reading. A benefit of the method used in this study is that it allows the experimenter to measure the reading variables relevant to the material taught in the study, rather than just using generic pre and post-assessments.

Although PR studies have consistently supported success in reading improvement within as little as six weeks, studies comparing PR with less structured reading methods have not shown a significant difference in reading improvement. This was illustrated by Lindsay, Evans, and Jones (1985), who compared PR with Relaxed Reading, which promoted positive feedback but did not incorporate any specific strategies. Fernandez

(1995) compared PR with a method called Reading in Bed is Terrific (Ribit). Children in the Ribit group read frequently but without assistance, although their parents spent approximately 15 minutes with them for five days over the eight week period engaging in other activities, ensuring they received the same amount of attention and praise as the PR group. Denning (1985) made comparisons between PR, Pause Prompt Praise (PPP), Hearing Children Read Method (HCRM), and a control group. The PPP is a structured reading method that contains similar reading strategies as PR and also places a primary emphasis on positive feedback. The HCRM group read more than the children in the control group but no specific structure was implemented. An analysis of covariance showed a significant difference between the PR, PPP, and HCRM conditions and the control group, the three reading conditions showing superior reading improvements compared with the control. No significant difference was found in children's reading between the three reading conditions.

These studies argued that positive feedback and one-on-one attention principally accounts for PR's success rather than the corrective feedback or parents' modeling of correct reading behaviour. This raises the question then as to whether additional corrective procedures could improve PR's success. The only corrective procedure normally used in PR is word supply, where children are supplied with the correct pronunciation of a word when making an error. Other corrective procedures that have been researched and have been successful in advancing children's reading skills include: phonic analysis correction; drill; word meaning; and review (Jenkins, Larson, & Fleisher, 1983; Meyer, 1986; Rose, McEntire, & Dowdy, 1982). Two of these, word meaning, supplying children with the meaning of a word when an error is made; and review, where in addition to supplying the child with the correct pronunciation of a word they also

repeat that sentence; may help increase children's future ability to accurately recall these words and improve their comprehension while still maintaining the PR ethos, with its positive feedback.

Another strategy that could improve PR's success is supplying correct reading of potentially challenging words, predicted on the basis of children's reading ability. Studies have shown that delayed feedback can be detrimental to one's ability to recall correct information in the future (Brown, Schilling, & Hockensmith, 1999; Remmers & Remmers, 1926). Because incorrect as well as correct pronunciations can be remembered, incorrect readings can interfere with children's ability to correctly recall words in the future. It is argued that if children are provided the correct pronunciation of potentially challenging words as they reach them, there will be a greater chance that these words will be correctly recalled in the future.

The purpose of this study was to compare PR with a variation of this method, referred to as Error Correction Reading (ECR), comprising the additional error correction procedures described above to test whether these procedures produce better reading progress. Furthermore, this study measured the course of children's reading performance during the intervention, as well as incorporating a generic pre and post-intervention test. Unlike many studies, the difficulty of the reading material in this study progressively increased corresponding to the children's demonstration of competency to ensure that the material was appropriate for their reading ability. It also measured the frequency with which children read independently during PR and ECR to examine what influence the simultaneous and independent reading patterns had on reading outcome.

The first hypothesis was that the children's reading performance would improve substantially during PR and ECR due to the general tuition component. The second



hypothesis was that children who participated in ECR would show greater reading gains in accuracy and therefore comprehension, compared with PR and withdrawal sessions, due to limiting exposure to incorrect pronunciation generated by the children's failed attempts. It was predicted that children would not show any reading improvement during withdrawal sessions compared with PR and ECR, nor would their reading performance during withdrawal decrease once mastery was attained. Finally, it was predicted that children's reading performance would decrease slightly during sessions where there was an increase in difficulty, regardless of the reading condition, although it was anticipated that their scores would not decrease during the second session of that new reading phase.

### Method

#### *Participants and Setting*

A letter seeking access to five year three children was sent to the school principal of a private primary school (see Appendix A). This cohort was selected because reading skills are assessed by this age to identify students who have not reached a satisfactory level, allowing immediate remediation. Participants were selected based on nomination by the school support co-ordinator. Parents of the nominated children were sent detailed information about the study (see Appendix B) along with a consent form (see Appendix C).

Participants consisted of two girls and three boys from three year three classes. Their reading was at least six months below their chronological age for at least two of the reading dimensions assessed by Neale Analysis of Reading Ability (NARA; Neale, 1999). These children were intellectually capable and were not diagnosed with any conditions that may have acted as confounding variables.

Adam was eight years and three months (8.3) old at commencement of the study, with an age equivalent of 6.6 for reading rate, 6.10 for accuracy, and 8.5 for comprehension. He illustrated excellent word attack strategies and attempted most words that were unfamiliar to him. In part, his below average reading rate reflected his tendency to always attempt challenging words.

Jack was 8.4 years old with an age equivalent of 8.0 for reading rate, 6.6 for accuracy, and 6.11 for comprehension. His concentration was poor and this may have reflected his tendency to read quickly but skim over challenging words. His inability to remain focused may have also influenced his below average comprehension score.

Anna was also 8.4 years old with an age equivalent of 8.6 for reading rate, 7.11 for accuracy, and 7.5 for comprehension. She read with confidence, but did not appear to read for meaning.

Emily was 9.4 years old with an age equivalent of 7.7 for reading rate, 7.1 for accuracy, and 7.1 for comprehension. She lacked confidence in her reading judging by the quiet voice with which she read.

Lucy was 8.6 years and had an age equivalent of 9.0 years for reading rate, 6.11 years for accuracy, and 6.11 years for comprehension.

The sessions occurred during school hours in an unoccupied room, free from noise and distraction, containing a table and chairs. The sessions lasted between 30 to 45 minutes. Each child participated in eleven sessions over a five week period, and were also administered the NARA pre and post-intervention.

### *Measures*

*Neale Analysis.* The NARA, a norm-referenced and a well validated and researched measure of reading fluency, accuracy, and comprehension (e.g., Miller et al., 1986; Morgan, 1986; Toomey, 1993), was used pre and post-intervention.

*Fluency.* A stop watch was used to time the children during each 100 word passage allowing the number of words each child read per minute per book to be calculated.

*Accuracy.* Accuracy was measured as the percentage of words the children read correctly per book. Errors included incorrect pronunciations, omissions, and additions. Errors were not included if the child was able to self-correct within five seconds. Also, word or sentence repetition was not scored as an error. If they abbreviated two words or converted an abbreviation into two words it was recorded as one error.

*Comprehension.* Comprehension was defined as children's ability to correctly answer four questions per 100 word passage and this was converted to a percentage. One mark was given for every correct answer. They were permitted to examine the book while answering the questions.

These three definitions were based on those used in the NARA and in other PR studies (e.g., Nes, 2003, 2005; Law & Kratochwill, 1993).

*Independent Reading.* Independent reading is the second of two stages of PR and ECR. The child signaled to the experimenter the wish to read independently, that is, without intervention. The words they read correctly during independent reading were converted to a percentage.

*Scoring.* A scoring sheet was used in each session to circle errors, record fluency and answers to comprehension questions, and highlight sections that were read independently (see Appendix D for examples). Children received some praise during

assessment, particularly where they self-corrected. They were given the correct reading response if they were unsuccessful in self-correcting or continued to read immediately after making an error. For comprehension, if their answer was incomplete, they were given a probe.

The first two sessions were recorded using an audio tape recorder and the remainder of the sessions were recorded using an MP3 recording device to prevent using a new tape each session. These recordings assisted in later scoring.

*Mastery.* This was defined as correctly answering three or four questions per 100 word passage for a total of three or four passages and scoring 90% accuracy for three or four passages. The 90% accuracy criterion was based on earlier studies on mastery of word recognition (Gickling, 1985). Children were required to master two books of the same difficulty level before advancing to the next level.

*Interobserver Training and Agreement.* The procedures were demonstrated to the observer, during session five, who practiced these using her own scoring sheets. She scored all four reading variables for four children (see Table 1). Interobserver agreement percentages were obtained for sessions eight and nine for Jack and Lucy, nine and ten for Anna, and eight, nine, and ten for Emily. The interobserver scoring for both Anna's sessions were incomplete. Interobserver agreement calculations for each session were acquired by dividing one observer's score with the other and converting this to a percentage (see Appendix E). A mean interobserver agreement percentage was then calculated for each variable and child across sessions.

### *Reading Material*

The children read eleven books, one per session, each comprising precisely four 100 word passages for ease of marking. To do this, original text was re-typed and altered

to accommodate this structure. To maintain consistency, all passages were typed in bold, size 14 font, and double spaced (see Appendix F). The typed sentences were cut out and attached to the relevant pages in the book. Markers were used to identify the end of each 100 word passage.

Following baseline, the books progressively increased in difficulty with every two books, provided the children met mastery of that difficulty level. The Flesch-Kincaid Grade Level (Flesch, 1948) was used to identify the difficulty level of each book. The mathematical formula for Flesch-Kincaid involves multiplying the average sentence length by 0.39 plus the average number of syllables per word times 11.8 minus a constant 15.59. The books started at level one, with a Flesch-Kincaid grade level of 1.9, and gradually increased in difficulty by between 0.2 to 0.6 with each new level. The starting level approximated the children's initial level of reading mastery. The two books with the highest level, level five, had a Flesch-Kincaid grade level of 3.6. This level represented where the children should be at, or near, for their chronological age.

Although the children did not get to choose the books, they did vary in storylines and characters, therefore ensuring that the children's interest was sustained.

### *Design and Conditions*

This study consisted of single-participant experimental designs (see Barlow & Herson, 1984). Two children were allocated to an ABCBA design, one to an ABABA design, one to an ACBCA design, and another to an ACACA design, with A representing the baseline or withdrawal phase, B representing the ECR condition, and C the PR condition. With the exception of the baseline and final withdrawal session, conditions alternated every three sessions.

*Condition 1: Baseline (BL) and Withdrawal (WL).* Each child was allocated

individual reading sessions with the experimenter. The children read each book twice. The first time they read independently and aloud, without tuition. They were encouraged to attempt words that were unfamiliar to them but if they still had difficulty or wished not to attempt words, they were told to skip those words and continue reading. The reading variables were scored the second time they read, again independently, aloud and without tuition.

*Condition 2: Paired Reading (PR).* The children were given instructions on PR

(see Table 2) and the procedure was then practiced with reading material separate to that used in the study. This condition incorporated additional procedures to the baseline, the tuition stage, the first time they read. During this first stage of PR the children read simultaneously with the experimenter, who modeled the correct reading behaviour. When the children wished to continue reading aloud and independently, the second stage of PR, they signaled to the experimenter by a knock on the table. If the children made an error during this stage of PR the experimenter allowed five seconds for self-correction. If unable to successfully self-correct, the experimenter provided them with the correct response which the children repeated back to the experimenter. On repeating the correct response the pair resumed reading simultaneously until the children again indicated the wish to read independently. At the completion of the book the two discussed the material.

*Condition 3: Error Correction Reading (ECR).* The children were given

instructions on this method (see Table 3) and practiced this method with the same reading material used by the children in the PR condition. This condition followed the same procedures as the PR condition with the exception of the independent stage of reading, where the experimenter would pre-empt the need for correction by intervening to provide

the child with the correct pronunciation of words as the children reached words that were predicted to present a challenge. They repeated the word back to the experimenter, and the experimenter then provided the meaning of that word if unknown to them. The children then repeated the sentence until they reached that predicted word and, once the word was read correctly, the pair resumed reading simultaneously until the children again signaled the wish to read independently. If they made an unanticipated error on a word that was not predicted, the same procedure was followed.

### Results

Figure 1 shows Adam's fluency rate and percentages of accuracy, comprehension, and independent reading across baseline, ECR, and withdrawal conditions. During baseline (level one) Adam read 35 words per minute with 95% accuracy and 88% for comprehension.

For ECR sessions two (level one), three (level one), and four (level two), Adam's reading rate and comprehension increased from baseline (fluency:  $M = 47$ , range = 42 – 50; comprehension:  $M = 92\%$ , range = 88% - 100%). His accuracy marginally increased from baseline (accuracy:  $M = 97\%$ , range = 96% - 97%), maintaining the same score in sessions three and four despite the increase in difficulty in session four. He read 11% and 17% of sessions three and four independently.

For withdrawal sessions five (level two) and seven (level three), Adam's fluency, accuracy, and comprehension decreased from baseline and preceding ECR sessions (fluency = 28, accuracy = 88%, comprehension = 88%). These variables then increased from baseline and ECR sessions during session seven (fluency = 65, accuracy = 99%, comprehension = 100%). Adam did not reach mastery for session five and therefore read

material at difficulty level two during session six. Due to experimenter error, although Adam reached mastery for this session, the data was excluded.

For ECR sessions eight (level three), nine (level four), and ten (level four), Adam's fluency decreased from most previous sessions ( $M = 39$ , range = 36 - 43), increasing during session nine and then decreasing. His accuracy also increased in session nine and then decreased ( $M = 97\%$ , range = 96% - 97%). Despite an increase in difficulty, his comprehension score was 100%. His mean score for independent reading was only 1% (range = 0% - 2%).

For session eleven (level five), under the withdrawal condition, Adam's fluency decreased from previous ECR sessions to 32 and his accuracy decreased substantially to 93%. Consistent with the previous ECR sessions he scored 100% for comprehension.

Figure 2 shows Jack's fluency rate and percentages of accuracy, comprehension, and independent reading across baseline, ECR, PR, and withdrawal conditions. During baseline (level one), Jack read 36 words per minute with 85% accuracy and 88% for comprehension.

Jack's fluency during ECR sessions two (level one), three (level one), and four (level two), increased substantially from baseline to 66 then decreased to 44 and increased again to 68. His accuracy also increased substantially from baseline ( $M = 95\%$ , range = 94% - 96%), although it showed a marginal decrease with each session. His comprehension increased to 94% and then 100% in the following sessions. His percentage of independent reading progressively increased ( $M = 46\%$ , range = 24% - 68%).

Jack's fluency for PR sessions five (level two), six (level three), and seven (level three), was 64 followed by a decrease to 37 and an increase to 73. He scored 94%



accuracy for sessions five and six followed by an increase to 98%. He maintained 100% for comprehension for all three sessions. His percentage of independent reading decreased to 27% in session five followed by subsequent increases of 53% and 97%.

Jack's fluency for ECR sessions eight (level four), nine (level four), and ten (level five), remained in the same range as previous ECR and PR phases, decreasing to 50 then increasing to 64 and substantially decreasing to 36. His accuracy also decreased to 94% followed by an increase to 98% and a decrease to 94%. Again, he scored 100% for comprehension across all three sessions. His percentage of independent reading decreased to 77% in session eight followed by an increase to 97% and a decrease to 58%.

For session eleven (level five), under the withdrawal condition, Jack read 37 words per minute. His accuracy substantially decreased to 90% but scored 100% for comprehension.

Figure 3 shows Anna's fluency rate and percentages of accuracy, comprehension, and independent reading across baseline, ECR, PR, and withdrawal conditions. During baseline (level one), Anna read 73 words per minute with 97% accuracy and 94% for comprehension.

Anna's fluency for ECR sessions two (level one), three (level one), and four (level two), increased from baseline in the second session, decreased and then increased again ( $M = 70$ , range = 74 – 84). Her accuracy increased to 99% across all three sessions, but her scores for comprehension decreased from baseline ( $M = 83\%$ , range = 81% - 88%), showing a marginal increase during session three followed by a decrease. Her percentage of independent reading was 25% in session two followed by 12% and 48%.

Anna's fluency for PR sessions five (level two), six (level three), and seven (level three), decreased from the previous ECR sessions in session five and then progressively

increased ( $M = 71$ , range = 65 – 78). With the exception of a 1% decrease in session six, her accuracy was consistent with preceding ECR sessions ( $M = 99\%$ , range = 98% - 99%). However, her comprehension substantially increased from previous ECR sessions ( $M = 98\%$ , range = 94% - 100%). Her percentage of independent reading was 25% for session five followed by 5% and 80%.

Most of Anna's fluency, accuracy, and comprehension scores for ECR sessions, eight (level four), nine (level four), and ten (level five), were within a similar range as previous PR sessions (fluency:  $M = 74$ , range = 66 - 84, accuracy:  $M = 98\%$ , range 97% - 99%, comprehension:  $M = 94\%$ , range = 88% - 100%). Her percentage of independent reading was 50% for session eight followed by 21% and 15%.

Anna's fluency during session eleven (level five), under the withdrawal condition, decreased substantially to 42 compared with previous sessions, including baseline, although the difficulty level had increased. She read with 98% accuracy and 94% for comprehension.

Figure 4 shows Emily's fluency rate and percentages of accuracy, comprehension, and independent reading across baseline, PR, and withdrawal conditions. During baseline (level one), Emily read 39 words per minute with 90% accuracy and 56% for comprehension.

Emily's fluency and accuracy during PR sessions two (level one), three (level one), and four (level two), increased from baseline (fluency:  $M = 57$ , range = 54 – 60, accuracy:  $M = 96\%$ , range = 95% - 97%). Her accuracy decreased marginally with the introduction of level two. Her comprehension scores, although higher than baseline, subsequently decreased ( $M = 79\%$ , range = 69% - 88%). Her percentage of independent reading was 12% for session two followed by 7% and 13%.

Emily's fluency for withdrawal sessions five (level two), six (level three), and seven (level three) decreased compared with preceding PR sessions, decreasing to 34 and 29 and then increasing to 49. Her accuracy during sessions five and six decreased but then increased substantially in session seven ( $M = 93\%$ , range =  $91\% - 97\%$ ). Her comprehension score increased substantially compared with previous PR sessions ( $M = 96\%$ , range =  $94\% - 100\%$ ).

Emily's fluency for PR sessions eight (level four), nine (level four), and ten (level five), increased compared with the withdrawal sessions ( $M = 52$ , range =  $52 - 59$ ). Despite an increase in the difficulty level, her accuracy increased from withdrawal sessions ( $M = 96\%$ , range =  $94\% - 98\%$ ). Her comprehension scores were within the same range as previous withdrawal sessions ( $M = 96\%$ , range =  $94\% - 100\%$ ). Her percentage of independent reading was 23% for sessions eight and nine followed by 12%.

Emily's fluency, accuracy, and comprehension (fluency = 46, accuracy = 97%, comprehension = 100%) during session eleven (level five), under the withdrawal condition, were within the same range as previous PR sessions.

Figure 5 shows Lucy's fluency rate and percentages of accuracy, comprehension, and independent reading across baseline, PR, ECR, and withdrawal conditions. During baseline (level one), Lucy read 39 per minute with 91% accuracy and 69% for comprehension.

Lucy's fluency and accuracy increased substantially from baseline during PR sessions two (level one), three (level one), and four (level two) (fluency:  $M = 80$ , range =  $76 - 87$ , accuracy:  $M = 97\%$ , range =  $96\% - 98\%$ ). Both her fluency and accuracy decreased marginally during session four with the introduction of level two. Her comprehension decreased from baseline to 56% but then increased substantially to 94%

for sessions three and four. Her percentage of independent reading was 8% for session two followed by 21% and 13%.

Lucy's fluency decreased marginally during sessions ECR five (level two), six (level three), and seven (level four), compared with previous PR sessions ( $M = 69$ , range = 64 – 76). Her accuracy scores were within a similar range as the previous PR phase ( $M = 98\%$ , range = 96% - 99%). Her comprehension decreased from the previous PR session to 81% but progressively increased to 88% and 100%. Her percentage of independent reading was 10% for session five followed by 27% and 29%.

Lucy's overall fluency for PR sessions eight (level four), nine (level four), and ten (level five), increased from previous ECR sessions with a reading rate of 72 followed by an increase to 86 and a decrease to 70. Her accuracy remained high and stable ( $M = 98\%$ , range = 97% - 99%), increasing marginally during session nine and then decreasing. She scored 100% for her comprehension followed by subsequent decreases to 94% and 81%. Her percentage of independent reading was 22% for session eight followed by 33% and 1%.

Lucy's fluency and accuracy for session eleven (level five), under the withdrawal condition, was relatively consistent with the previous PR phase (fluency = 66, accuracy = 96%), but her comprehension decreased substantially to 69%.

Table 4 shows the children's reading scores from the NARA pre and post-intervention assessment. At the completion of the five week study the following comparisons in reading age equivalents for fluency, accuracy, and comprehension were observed. Adam gained 6 months for fluency and 2 months for accuracy but his age equivalent for comprehension showed a decrease of 10 months. Jack's age equivalent for fluency showed a decrease of 14 months but he gained 3 months for both accuracy and

comprehension. Anna's age equivalent for fluency showed a decrease of 17 months and no change was observed of her accuracy. Her age equivalent for comprehension showed a gain of 2 months. Emily's age equivalent for fluency showed a decrease of 13 months and a decrease of 2 months was observed of her accuracy. However, her age equivalent for comprehension showed a 1 month gain. Lucy's age equivalent for fluency showed a decrease of 21 months and a decrease of 3 months was observed of her comprehension but her age equivalent for accuracy showed a gain of 2 months.

### Discussion

The first hypothesis that the children's reading fluency, accuracy, and comprehension would improve considerably during the PR and ECR sessions immediately following baseline and that they would consistently maintain high levels of fluency, accuracy, and comprehension across all five levels of difficulty over the five week period was generally supported and consistent with other studies supporting PR's effectiveness (e.g., De Angelo et al., 1997; Murad & Topping, 2000). Although there was some variation in these results, most telling of the efficacy of PR and ECR was that all the children reached mastery at all five levels of difficulty within a short period. However, the second hypothesis that children who participated in ECR sessions would show overall greater gains in reading accuracy and comprehension compared with PR and withdrawal sessions was not supported. The predicted patterns in the children's reading performance in relation to the withdrawal sessions and changes in the levels of difficulty were supported in some instances.

Neither Adam's nor Anna's results supported the first hypothesis in relation to the predicted reading improvement during the initial intervention sessions. With Anna, this may have been because she had already reached mastery for accuracy and comprehension

during baseline. Jack's fluency, accuracy, and comprehension results did improve considerably in the ECR sessions immediately following baseline but he did not maintain high levels of accuracy or fluency. His results varied substantially across the sessions with some sessions showing larger reading gains than others. His comprehension results, however, directly supported this hypothesis. Both Emily's and Lucy's results supported the hypothesis, although Emily's fluency scores during the first withdrawal sessions were more consistent with her reading fluency during baseline and Lucy's comprehension score during session two showed an unexpected decrease from baseline.

In relation to this first hypothesis, the NARA comparisons between pre-and post-intervention reading equivalents varied: the strongest gains were for Adam, showing gains of 6 months for fluency and 2 months for accuracy; Jack gaining 3 months for accuracy and comprehension; Anna gaining 2 months for comprehension; and Lucy gaining 2 months for accuracy. There was a trend reflecting improvement in accuracy at the expense of fluency. However, the NARA results are difficult to interpret due to error of measurement. For this reason, these results do not usefully reflect the children's reading progress. Further, the differences in the children's NARA pre- and post-intervention results may not have accurately reflected the children's reading progress because they were not a direct measure of the skills the children acquired in each session.

The lack of substantial improvement in accuracy under the ECR condition in Jack and Anna's reading performance compared with PR sessions argued against the second hypothesis. Instead, these results support the argument that PR is as effective as other less structured reading interventions, including Relaxed Reading, Hearing Children Read Method, and Reading in Bed is Terrific, and that positive feedback and one-on-one attention are the key features of PR's success (e.g., Denning, 1985; Fernandez, 1995;

Lindsay et al., 1985). In this case, ECR was a more structured reading method but like Denning's study, which also included a structured reading intervention, Pause Prompt Praise, it still yielded results suggesting that the type of error correction procedures utilised in PR bear minimally on its effectiveness. However, a closer inspection of the results show that the key element of ECR, the provision of correct pronunciation and definition of targeted words, was rarely implemented, given the generally low percentages of independent reading during ECR.

For results to support the effectiveness of both PR and ECR, it was predicted that children would not show any improvement during withdrawal sessions, but nor would their reading performance during withdrawal decrease once mastery was attained. Adam's performance for all fluency and accuracy during the withdrawal sessions did not reflect the predicted pattern but his comprehension scores were more consistent with the prediction. Jack's scores for fluency and comprehension during the withdrawal session were consistent with this prediction, but his accuracy during withdrawal showed a noticeable decrease compared with previous ECR sessions. Anna's fluency results did not support this prediction, showing a large decrease in her fluency and a marginal decrease in comprehension during withdrawal compared with preceding ECR sessions. Her accuracy score during withdrawal was more consistent with the predicted pattern. Emily's scores for fluency, accuracy, and comprehension were generally not consistent with the prediction. Her fluency decreased during the first three withdrawal sessions while her accuracy decreased during the first two withdrawal sessions followed by a subsequent increase. Her comprehension scores during the first three withdrawal sessions showed an unexpected substantial increase. However, all her scores during the final withdrawal session were consistent with the PR phase, although they showed a marginal

decrease compared with the previous PR session. Lucy's fluency and accuracy during the withdrawal were relatively consistent with previous PR sessions, but showed a marginal decrease. However, her comprehension during withdrawal was not consistent, showing a large decrease compared with the previous PR session. It is important to emphasise that the comparisons between withdrawal, PR, and ECR conditions of Adam's and Emily's results were more telling than the other children who were exposed only to one withdrawal session.

One of the unique aspects of this study was that the difficulty of the reading material progressively increased. This contrasts with other studies that used the same level of difficulty, and in some instances the same book (e.g., Nes, 2003, 2005), resulting in reading improvement due to familiarity with the material and loss of challenge once mastery was attained. It was predicted that the children's performance would initially decrease slightly with each new difficulty level, regardless of the reading condition. Adam's results for fluency, accuracy, and comprehension were not indicative of this prediction, nor were Jack's fluency results for sessions one to five. However, his fluency results did support this prediction for sessions five to eleven, as did his accuracy results, with the exception of sessions three and eleven. His comprehension scores for sessions one to three supported the prediction but thereafter he managed to maintain a score of 100% despite increases in difficulty. This pattern was not observed in Anna's overall results. Emily's fluency results during sessions one to five did not follow the pattern, although the prediction was supported for the subsequent sessions. With the exception of session five, her accuracy results were also consistent with the predicted pattern, but not her comprehension. Lucy's fluency and accuracy did generally follow the predicted pattern.



Another unique aspect of this study, expanding on Murad's and Topping's (2000) study, was that it measured the proportion of material children read independently during the second stage of PR and ECR. Consistent with their study, it showed considerable individual differences in reading patterns of independent and simultaneous reading. The specific percentages of independent reading allowed in-depth comparisons of simultaneous and independent reading patterns particularly with regard to the error correction procedures in ECR. However, no consistent trends were observed, although some interesting patterns were observed. For example, variation in the amount of independent reading Jack engaged in during the last ECR phase corresponded with his fluency and accuracy scores.

Finally, due to nature of the experimental design utilised, a more in-depth examination of children's individual reading performance could be made, allowing further insights into the reasons for the overall results obtained.

One of the main limitations in this study was that error correction procedures used in ECR were only implemented during the independent stage of reading. Because many of the children spent minimal time in this stage of reading there were few opportunities for the experimenter to implement these strategies. These were further limited due to the few alternations between independent and simultaneous reading. Consequently, the difference in the children's reading performance between PR and ECR was not as distinct as initially anticipated. Another limitation was that, due to the school timetable, the study only ran over a five week period. This limitation restricted the number of sessions the children spent reading under the various conditions, including baseline. Clearer patterns of reading performance may have emerged over a longer time period. Further, a factor that may have impacted results was the nature of the reading material used. For example,

the storyline of the book in session three included little repetition, while the story used for the seventh session, although of a higher level of difficulty, was unexpectedly more familiar to the children and highly repetitive in some sections.

Individual differences in initial ability and in levels of concentration also affected results. For example, some children reached mastery for comprehension and accuracy during baseline. Concentration varied, due to the presence of the interobserver, occasional moving between rooms, excitement of upcoming school holidays, and a sense of missing out on enjoyable classroom activities. A gradual decrease in concentration was also noticed where extended sessions were necessary.

Some recommendations for future research are advised in light of this study. First, it is recommended that intervention take place over a longer period than five weeks. Nes' (2005) study showed that the longer the PR intervention was implemented the better the results. The longer period would help overcome small and inconsequential fluctuations in performance. Similarly, the results of the norm-referenced reading assessments pre and post-intervention, such as the NARA would provide more valid results by lessening the relative impact of measurement.

Second, it is recommended that children's reading material at baseline be sufficiently difficult to allow room for improvement for the effects of different conditions to be more accurately observed.

Third, due to individual differences in reading patterns and because the error correction procedures utilised in the ECR intervention could only be implemented during independent reading, it is suggested that future studies experiment with alternating the independent and simultaneous stages of reading according to a set number of words. This would ensure that the experimenter has sufficient opportunities to implement these

corrective procedures. Another approach would be to improve corrective procedures during simultaneous reading. For instance, the experimenter could provide the definition of unfamiliar words during simultaneous reading or when discussing the reading material. The researcher might also usefully test whether the children correctly pronounced the predicted words the second time as a measure of the effectiveness of the error correction procedures.

Finally, it would be useful to include fluency when defining mastery and experiment with the levels of difficulty and the number of books that are read at a particular level of difficulty.

### Conclusion

In conclusion, this study comprised five year three children below average in their reading who engaged in eleven reading sessions over a five week period. Consistent with previous studies, the results supported the efficacy of PR in helping them improve their reading, with each child reaching mastery for all five levels of difficulty in reading material. However, the children's reading gains for accuracy and comprehension during the ECR condition, a variation of PR with additional corrective procedures, were not superior to their reading gains under the PR condition.

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Table 1  
*Percentages of Interobserver Agreement Means and Ranges Across Children and Reading Behaviour.*

Child	Sessions	Fluency	Accuracy	Comprehension	Independent Reading
Jack	8 & 9	92 (98-100)	100	100	97 (98-96)
Anna	8 & 9	99	100	90 (86-94)	100
Emily	8, 9, & 10	100	99 (99-100)	96 (93-100)	98 (95-100)
Lucy	8, 9, & 10	98 (97-100)	99 (99-100)	96 (93-100)	97 (93-100)

Table 2  
*Reading Instructions*

Paired Reading
“I will begin reading with you but will read slightly ahead of you.”
“When you feel you no longer need my help I want you to knock on the table like so (demonstrate).”
“I will stop reading and let you read by yourself if you reach a word that you have trouble with I will give you a chance to think about that word and try again.”
“If you are still unable to pronounce the word I will help you with it and then I need you to repeat that word back to me.”
“Once you are able to repeat the word correctly we will begin reading together again.”
“When you feel confident to read by yourself just knock on the table again.”
“Once you have read to here (point where they are to read to) we will stop and we will discuss what you have just read.”

Table 3  
*Reading Instructions*

Error Correction Reading

“I will begin reading with you but will be reading slightly ahead of you.”  
“When you feel you no longer need my help I want you to knock on the table like so (demonstrate).”  
“I will stop reading and let you read by yourself.”  
“I will say a word as you reach it if I feel that you will have difficulty with that word.”  
“When this happens I want you to repeat this word back to me. I will then discuss the meaning of this word in relation to that sentence if you do not know what this word means.”  
“I will then get you to repeat that sentence until you reach that word again.”  
“We will then continue reading together again. This process will also occur if you make an error with a word that I do not assist you with. For example, if you make an error I will get you to repeat that word back to me and then you will read that sentence till you reach that word again and once you have correctly pronounced that word we will continue reading together.”  
“We will continue reading together until you feel confident to read on your own again and you knock on the table.”  
“Once you’ve read to here (point to where they are to read to) we will stop and we will discuss what you have just read.”

Table 4

*Neale Analysis Assessment of Reading Age Pre and Post-Intervention*

Children	Fluency	Accuracy	Comprehension
Adam			
Pre	6.6	6.10	8.5
Post	7.0	7.0	7.5
Jack			
Pre	8.0	6.6	6.11
Post	6.10	6.9	7.2
Anna			
Pre	8.6	7.11	7.5
Post	7.1	7.11	7.7
Emily			
Pre	7.7	7.1	7.1
Post	6.6	6.11	7.2
Lucy			
Pre	9.0	6.11	6.11
Post	7.3	7.1	6.8

Figure Captions

Figure 1. Adam’s fluency rate and percentages of accuracy, comprehension, and independent reading across baseline, ECR, and withdrawal conditions. Numbers adjacent to data points indicate reading levels.

Figure 2. Jack’s fluency rate and percentages of accuracy, comprehension, and independent reading across baseline, ECR, PR, and withdrawal conditions. Numbers adjacent to data points indicate reading levels.

Figure 3. Anna’s fluency rate and percentages of accuracy, comprehension, and independent reading across baseline, ECR, PR, and withdrawal conditions. Numbers adjacent to data points indicate reading levels.

Figure 4. Emily’s fluency rate and percentages of accuracy, comprehension, and independent reading across baseline, PR, and withdrawal conditions. Numbers adjacent to data points indicate reading levels.

Figure 5. Lucy’s fluency rate and percentages of accuracy, comprehension, and independent reading across baseline, PR, ECR, and withdrawal conditions. Numbers adjacent to data points indicate reading levels.

Figure 1.

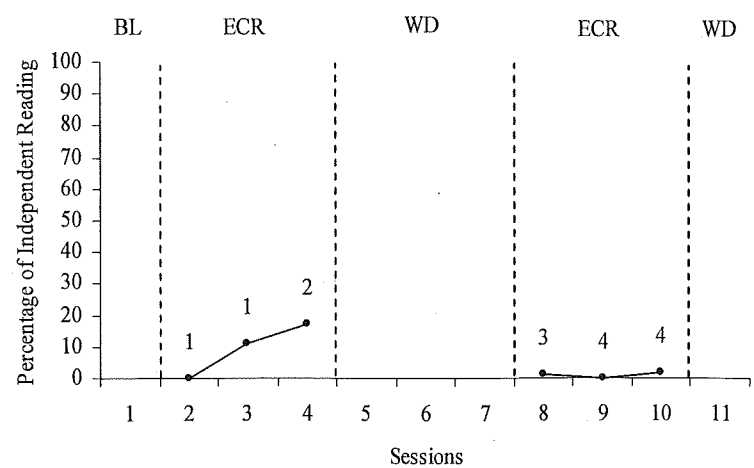
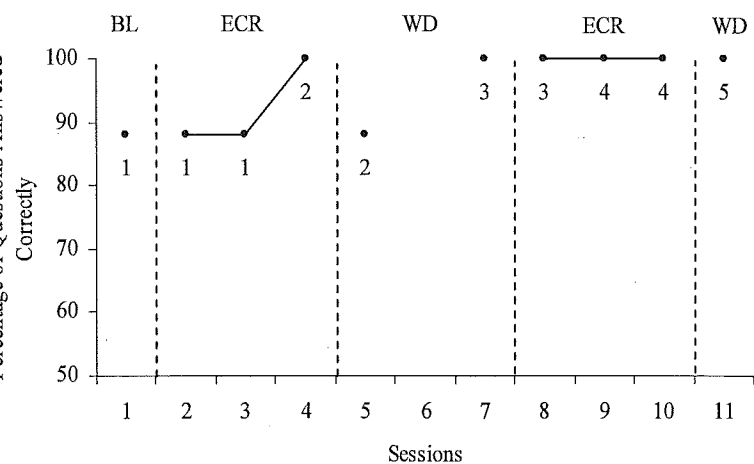
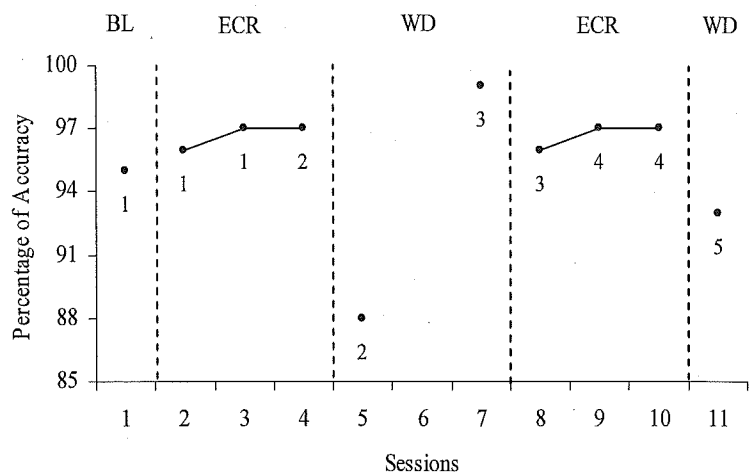
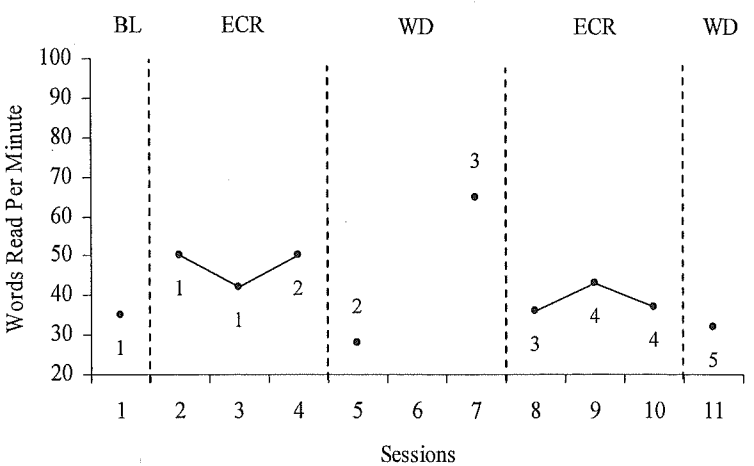


Figure 2.

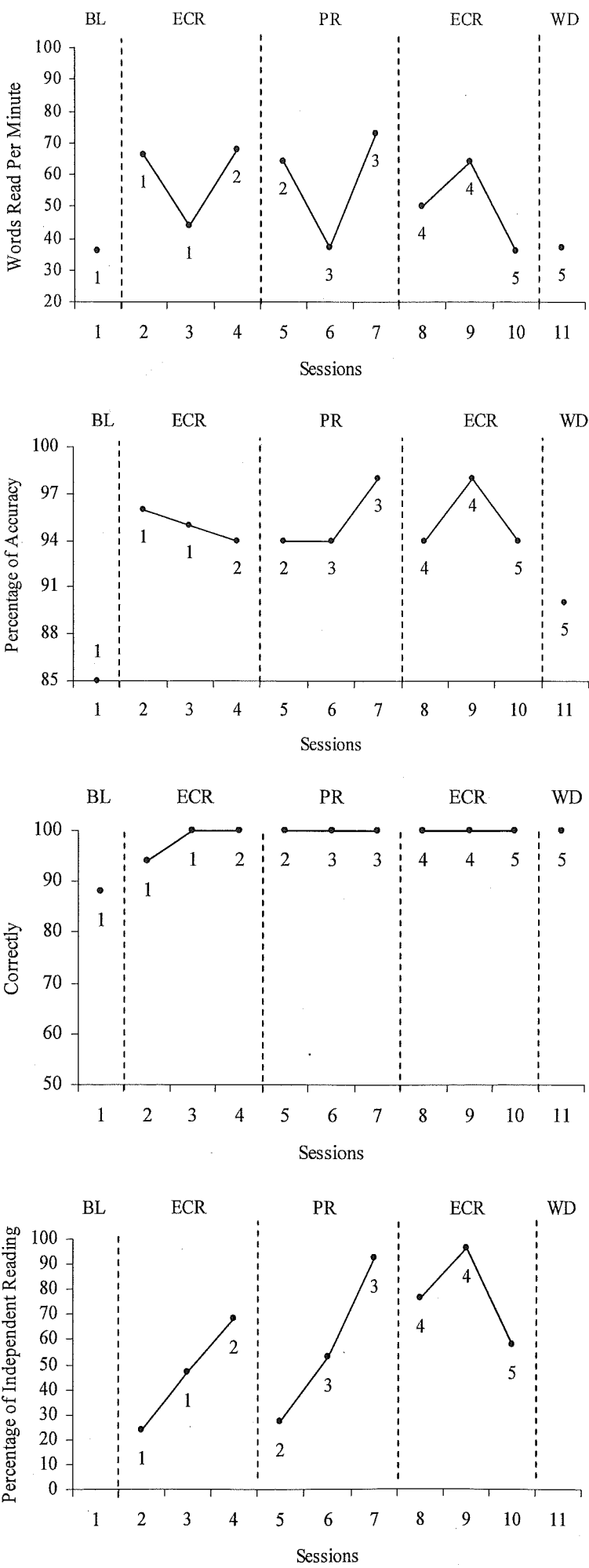


Figure 3.

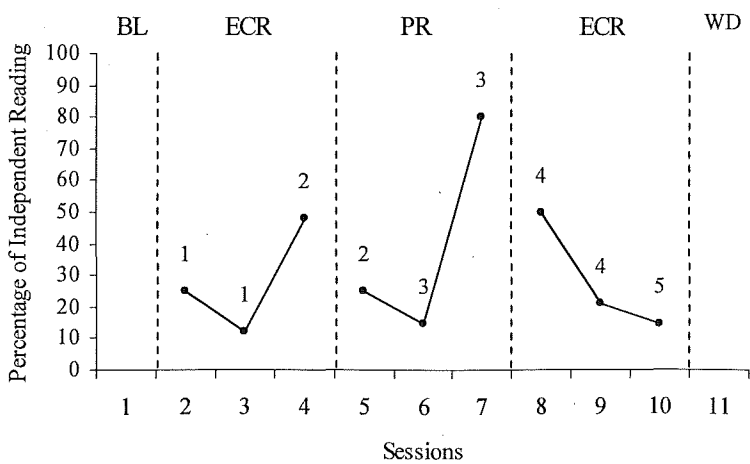
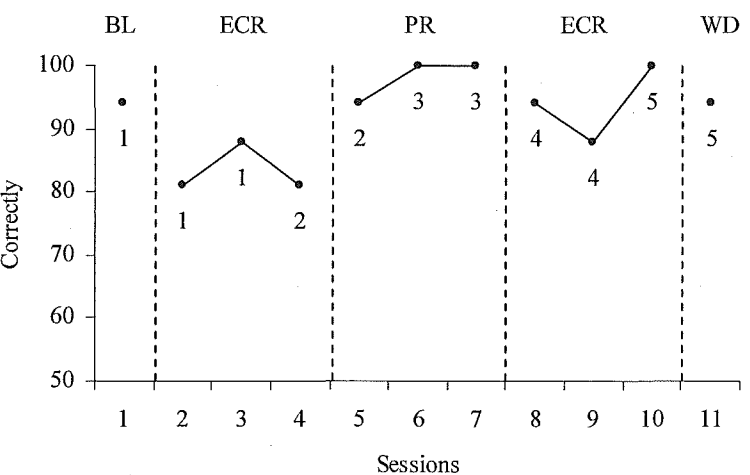
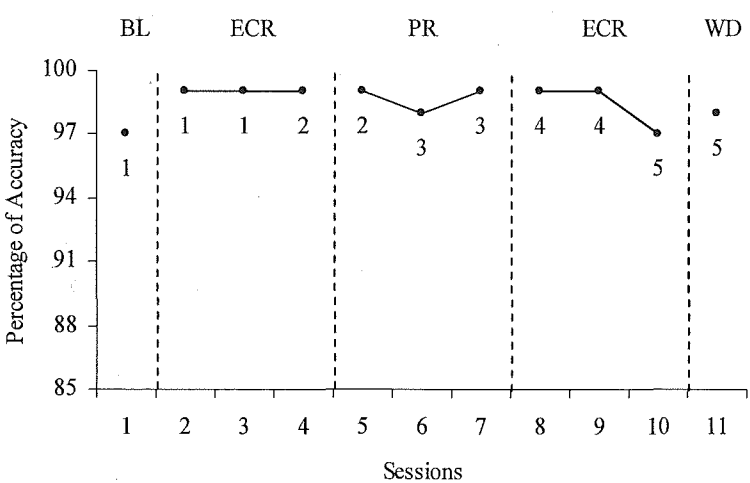
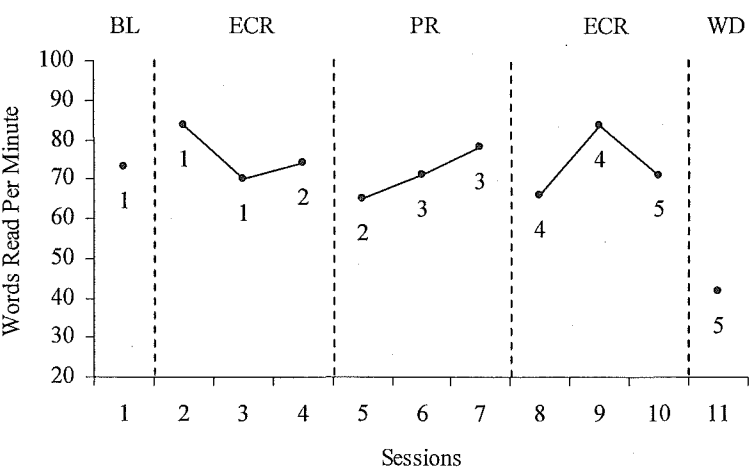




Figure 4.

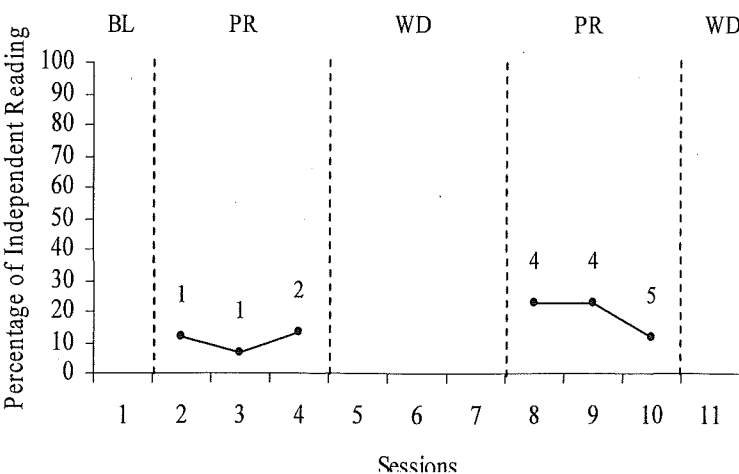
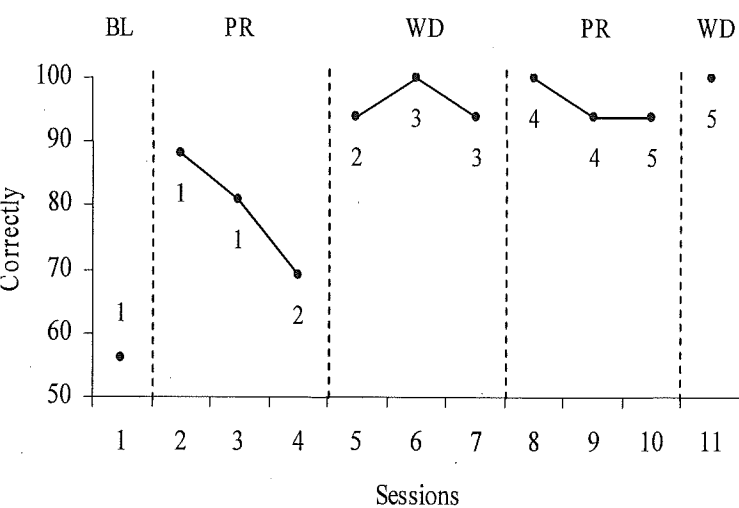
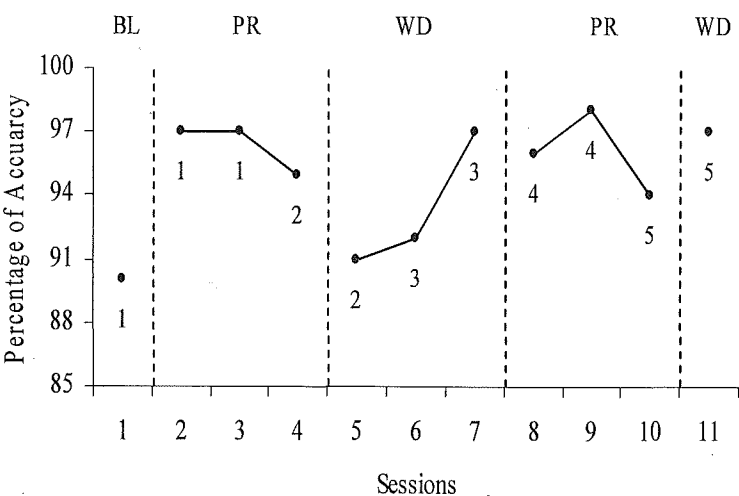
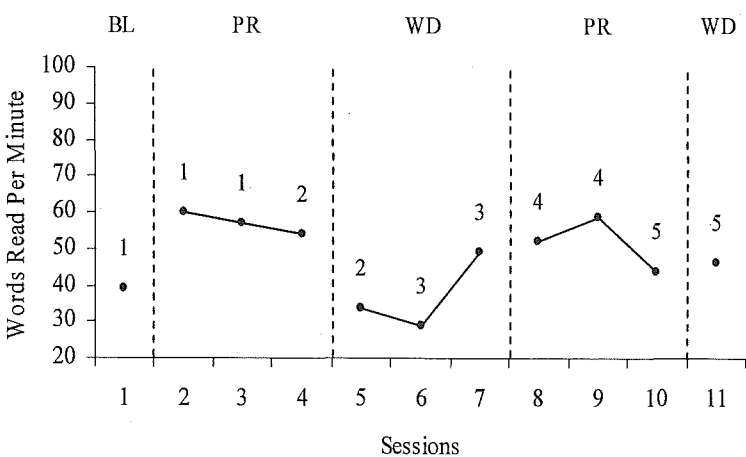
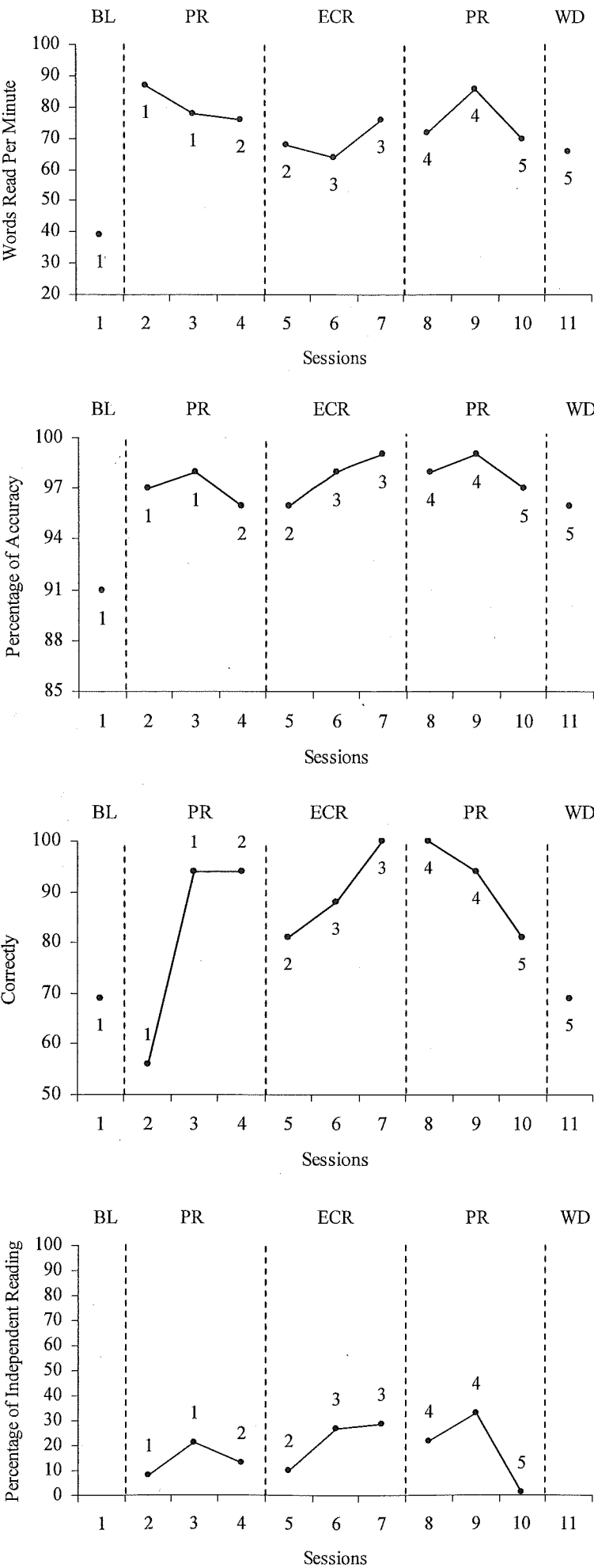


Figure 5.



Appendix A

Kathryn Schneider  
52 Hawkesbury Drive  
Willetton, WA 6155

**Name of Primary School**

**Address**

18<sup>th</sup> of July 2007

Dear **Principal's name**,

I am currently in my 4<sup>th</sup> year studying psychology at Edith Cowan University. As part of my Honours thesis I wish to work with five children aged between eight and nine who are behind in their reading to test the effectiveness of two different reading interventions.

I am seeking your permission to access these children through your school, and would like to make a time with you to discuss the project.

Yours Sincerely

Kathryn Schneider

Contact details are as follows:

Mobile: 0414 067 412

Email: [krschnei@student.ecu.edu.au](mailto:krschnei@student.ecu.edu.au); [kat\\_schnei@hotmail.com](mailto:kat_schnei@hotmail.com)

or

Fourth year coordinator for the school of psychology:

Dianne McKillop

+ 61+ 863945736

100 Joondalup Drive Joondalup WA 6027

Appendix B

7/8/07

Dear \_\_\_\_\_

Your child has been nominated to take part in a study for children aged 8-9 with their reading. We feel this will be of benefit for your child. The study is being carried out by Miss Kathryn Schneider as part of her Honours thesis in Psychology though Edith Cowan University.

This study will require the child to attend two twenty minute sessions, two days a week for five weeks, commencing in week four of five. The children will be participating in two types of reading conditions to see how these compare in improving accuracy, fluency, and comprehension in reading. (Please read attached information.)

If you have any questions Kathryn Schneider can be contacted on her mobile: 0414067412 or by email: [krschnei@student.ecu.edu.au](mailto:krschnei@student.ecu.edu.au);

[kat\\_schnei@hotmail.com](mailto:kat_schnei@hotmail.com)

Or contact ECU Human Research ethics Committee: 100 Joondalup WA 6027, phone 6302170.

Please read the following information and sign if you give permission for your child to participate in the study.

.....

Appendix C

I \_\_\_\_\_

1. Have read and understand the information given to me regarding the nature of this study.
2. Understand that I can withdraw my child from the study at any time without consequences.
3. All information will be kept confidential.
4. Understand that I am free to ask questions at any time regarding this study.
5. Understand this study is not connected with my child's education.

Signature \_\_\_\_\_

Your child must also consent to this study by writing his/her name in the space provided. Please return this form to the Support office A.S.A.P once signed.

I \_\_\_\_\_ have been told that I will be doing some reading exercises twice a week to help with my reading. I am happy to do so. If I don't understand anything, or do not want to do the activities any more, I will talk to the person doing the reading exercises, my mum or dad, or my teacher.

Thank you

**Support Co-ordinator's name**  
Support Co-ordinator

## Appendix D

Name:

Date:

Condition:

The Flesch-Kincaid Grade Level: 2.4

**Jack and the Bean Stalk**

One day Jack's mother said, "We are very poor and must sell the cow. You can sell her at the markets."

So Jack left with the cow.

On the way he met an old man.

The man said, "Give me the cow and I'll give some magic beans".

So Jack exchanged the cow for the magic beans.

When Jack got home his mother was very cross with him. She said "I wanted money for the cow. These beans are of no use."

She threw the magic beans out of the window and sent Jack straight to bed without any supper.

**Comprehension Questions**

1. What did Jack's mother say he should do with the cow?
2. What did Jack exchange the cow for?
3. How did Jack's mother react when he came home with the magic beans?
4. What did Jack's mother do with the magic beans?

The next morning Jack looked out and saw a beanstalk going right up into the sky.

"I want to climb up that beanstalk", said Jack.

So he climbed up and up right to the very top.

He found a long road at the very top of the beanstalk. It lead to a giant's house.

Jack went inside.

The giant came home and shouted "Fe Fi Fo Fum! I smell blood of an Englishman.

Be him alive or be him dead, I'll grind his bones to make by bread!"

So Jack hid in the oven near where the giant was sitting.

**Comprehension Questions**

1. How high did the beanstalk go?
2. What did he do when he saw the beanstalk?
3. What did he find at the top of the beanstalk?
4. What did Jack hide when he saw the giant?

The giant had a bag of gold.

After awhile the giant fell asleep. Jack took the bag of gold from him. He climbed down the beanstalk.

Jack and his mother were not poor now. They got lots of food and a new cow. But Jack climbed the beanstalk again.

The giant came home and sniffed and sniffed and said "Fe Fi Fo Fum! I smell blood of an Englishman. Be him alive or be him dead, I'll grind his bones to make my dead!" So Jack hid in the oven. The giant had a magic hen that laid golden eggs.

### Comprehension Questions

1. What did the giant have the first time Jack went to the giants' house?
2. What was the bag of gold used for?
3. What did the giant say he would do with Jack's bones?
4. What did the giant have the second time Jack climbed the beanstalk?

When the giant was asleep Jack took the magic hen.

The next day Jack went to the giant's house again.

The giant sniffed and sniffed and shouted "Fe Fi Fo Fum! I smell blood of an Englishman. Be him alive or be him dead, I'll grind his bones to make my bread!"

Jack hid in the oven. He saw the giant had a magic harp.

When the giant fell asleep Jack grabbed the harp.

Suddenly he woke up. He chased Jack down the beanstalk.

Jack chopped down the beanstalk.

The beanstalk fell on top of the giant and killed him.

### Comprehension Questions

1. When did Jack take the magic hen?
2. The giant said "Fe Fi Fo Fum I smell the blood of an .....?"
3. What kind of harp did the giant have?
4. What did Jack do when the giant began chasing him down the beanstalk?

Name:

Date:

Condition:

The Flesch-Kincaid Grade Level: 3.6

### **Ronald the Rabbit**

Ronald was a white rabbit who lived in a hutch in a garden. One day a brown rabbit hopped through the hedge from the field next door.

“Hello”, said the strange rabbit cheekily. “My name is Rebecca.” She stared at Ronald. “How did you get such a white fur coat?”

“Oh, I’ve always had it,” Ronald responded proudly. He thought Rebecca’s coat appeared a very dull colour.

Rebecca hopped closer. “Can you come out to play?” she questioned.

“No”, Ronald answered sadly. “I can’t get out. I have tried to nibble through the wire netting but it is too strong.”

### **Comprehension Questions**

1. What colour was Ronald’s coat?
2. Where did Ronald live?
3. What did Ronald think of Rebecca’s coat?
4. Why couldn’t Ronald play with Rebecca?

“Try digging under it”, said Rebecca.

“Come on, let’s dig a tunnel. I’ll dig on the outside and you dig on the inside.”

“That’s a great idea”, said Ronald.

He gave a little hop of delight. “Race you to the middle!” Their little paws worked hard. Soil went everywhere.

They dug the tunnel so quickly that they bumped noses in the middle. Rebecca wriggled backwards to make way for Ronald. When he hopped out he was so happy that he ran in circles. “I’m free! I’m free!” he shouted.

Rebecca had to hold his tail to stop him getting dizzy.

### **Comprehension Questions**

1. What did Rebecca suggest they could do to get Ronald out?
2. Rebecca digged on the outside of the fence. Where did Ronald dig?
3. What happened as a result of them digging the tunnel so quickly?
4. What did Rebecca do to prevent Ronald getting dizzy?

“Come on”, she said, “you can see the burrow where I live with all my brothers and sisters. I’ll show you the big field where we play and find things to eat.” Ronald perked up his ears at this. He was hungry after all that hard digging.



They went through a hole in the hedge. Ronald saw a lovely open space waiting for him. It was covered with pretty flowers and green plants and grasses to eat. His mouth watered.

“Meet my brothers and sisters”, said Rebecca.

Ronald looked around, but at first he could not see any of them.

### Comprehension Questions

1. Where did Rebecca take Ronald?
2. How did Ronald feel after all that digging?
3. What happened when Ronald saw an open space covered with pretty flowers and green plants and grasses to eat?
4. Could Ronald see Rebecca’s brothers and sisters at first?

Then he saw a lot of brown rabbits sitting among the grass.

Ronald’s white coat was so white that the rabbits spotted him straight away and hopped up to say hello.

Ronald and Rebecca joined them and had something to eat.

Suddenly the rabbits stopped eating. Their ears flipped up.

“Run for your life, there’s a fox in the field”, Rebecca shouted.

The fox spotted Ronald’s white coat and chased him. He fell into a muddy puddle.

Ronald’s coat was now brown so the fox did not see him and left. The other rabbits helped wash him in the stream.

### Comprehension Questions

1. Why were Rebecca’s brothers and sisters able to spot Ronald straight away?
2. Why did the rabbits suddenly stop eating?
3. What did the fox do when he spotted Ronald’s white coat?
4. What happened for the fox to lose sight of Ronald and leave?

Interobserver Agreement Calculations

Jack

**Fluency:**

*Session 9*

Observer 1: 65

Observer 2: 64                      64/65                      = 98.4%

*Session 10*

Observer 1: 36

Observer 2: 36                      36/36                      = 100%

Average Percentage of Agreement: 92.2%

**Accuracy:**

*Session 9*

Observer 1: 391/400

Observer 2: 391/400                      391/391                      = 100%

*Session 10*

Observer 1: 375/400

Observer 2: 375/400                      375/375                      = 100%

Average Percentage of Agreement: 100%

**Comprehension:**

*Session 9*

Observer 1: 16/16

Observer 2: 16/16                      16/16                      = 100%

*Session 10*

Observer 1: 16/16

Observer 2: 16/16                      16/16                      = 100%

Average Percentage of Agreement: 100%

**Independent Reading:**

*Session 9*

Observer 1: 377/400

Observer 2: 386/400                      377/386                      = 97.65

*Session 10*

Observer 1: 240/400

Observer 2: 231/400                      231/240                      = 96.2%

Average Percentage of Agreement: 96.9%

**Anna**

**Fluency:**

*Session 8*

Observer 1: 80

Observer 2: 79                      79/80                      = 98.75%

*Session 9*

Observer 1: 69

Observer 2: 68                      68/69                      = 98.55%

Average Percentage of Agreement: 98.65%

**Accuracy:**

*Session 8*

Observer 1: 199/200

Observer 2: 199/200                      199/199                      = 100%

*Session 9*

Observer 1: 388/400

Observer 2: 388/400                      388/388                      = 100%

Average Percentage of Agreement: 100%

**Comprehension:**

*Session 8*

Observer 1: 7/8

Observer 2: 6/8                      6/7                      = 85.7 %

*Session 9*

Observer 1: 15/16

Observer 2: 16/16                      15/16                      = 93.75%

Average Percentage of Agreement: 89.7%

**Independent Reading**

*Session 8*

Observer 1: 0/200

Observer 2: 0/200                      0/0                      = 100%

*Session 9*

Observer 1: 0/200

Observer 2: 0/200                      0/0                      = 100%

Average Percentage of Agreement: 100%

**Emily**

**Fluency:**

*Session 8*

Observer 1: 52

Observer 2: 52                      52/52                      = 100%

*Session 9*

Observer 1: 59

Observer 2: 59                      59/59                      = 100%

*Session 10*

Observer 1: 44

Observer 2: 44                      44/44                      = 100%

Average Percentage of Agreement: 100%

**Accuracy:**

*Session 8*

Observer 1: 386/400

Observer 2: 386/400                      386/386                      = 100%

*Session 9*

Observer 1: 392/400

Observer 2: 391/400                      391/392                      = 99.7%

*Session 10*

Observer 1: 375/400

Observer 2: 376/400                      375/376                      = 99.7%

Average Percentage of Agreement: 98.8%

**Comprehension**

*Session 8*

Observer 1: 16/16

Observer 2: 15/16                      15/16                      = 93.7%

*Session 9*

Observer 1: 15/16

Observer 2: 15/16                      15/15                      = 100%

*Session 10*

Observer 1: 14/16

Observer 2: 15/16                      14/15                      = 98%

Average Percentage of Agreement: 95.6%

**Independent Reading**

*Session 8*

Observer 1: 91/400

Observer 2: 91/400                      91/91                      = 100%

*Session 9*

Observer 1: 94/400

Observer 2: 90/400                      90/94                      = 95.6%

*Session 10*

Observer 1: 51/400

Observer 2: 50/400                      50/51                      = 98%

Average Percentage of Agreement: 97.9%

**Lucy**

**Fluency**

*Session 8*

Observer 1: 72

Observer 2: 72                      72/72                      = 100%

*Session 9*

Observer 1: 89

Observer 2: 86                      86/98                      = 96.6%

*Session 10*

Observer 1: 71

Observer 2: 70                      70/71                      = 98.5%

Average Percentage of Agreement: 98.3%

**Accuracy**

*Session 8*

Observer 1: 390/400

Observer 2: 392/400                      390/392                      = 99.5%

## Session 9

Observer 1: 391/400

Observer 2: 395/400                      391/395                      = 99%

## Session 10

Observer 1: 387/400

Observer 2: 388/400                      387/388                      = 99.7%

Average Percentage of Agreement: 99.4%

## Comprehension

## Session 8

Observer 1: 15/16

Observer 2: 16/16                      15/16                      = 93.7%

## Session 9

Observer 1: 14/16

Observer 2: 15/16                      14/15                      = 93.3%

## Session 10

Observer 1: 13/16

Observer 2: 13/16 = 13/13 = 100%

Average Percentage of Agreement: 95.6%

### Independent Reading

## Session 8

Observer 1: 83/400

Observer 2: 89/400                      83/89                      = 93.3%

## Session 9

Observer 1: 125/400

Observer 2: 130/400                      125/130                      = 96.2%

*Session 10*

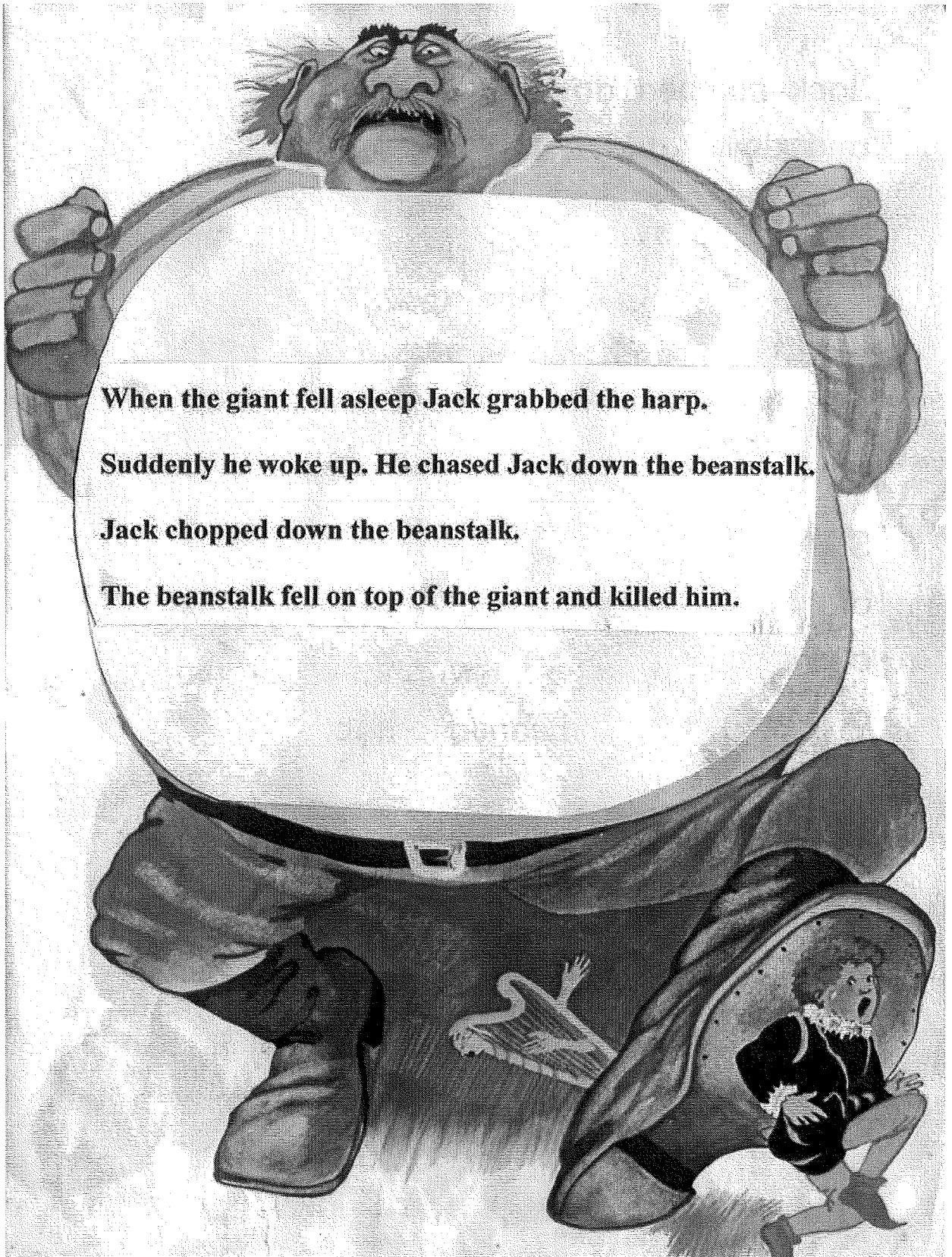
Observer 1: 5/400

Observer 2: 5/400                      5/5                      = 100%

Average Percentage of Agreement: 96.5%



Appendix F



**When the giant fell asleep Jack grabbed the harp.**

**Suddenly he woke up. He chased Jack down the beanstalk.**

**Jack chopped down the beanstalk.**

**The beanstalk fell on top of the giant and killed him.**