School of Psychology

An Exploration of Paired Reading with a Peer and its Impact on the Reading Ability and School Connectedness of Looked-After Children

Stephanie Fry

Thesis submitted to the University of Nottingham for the degree of Doctor of Applied Educational Psychology

May 2014

Abstract

This study explored the impact of paired reading, when delivered by a peer, on the reading ability and school connectedness of looked-after children (LAC). Relevant theory and research in three main areas is discussed: the under-achievement of LAC, reading development and difficulties and school connectedness. It is well understood that LAC are at risk of underachievement in reading (Department for Education, 2013), however they are an under-represented group in intervention research. Additionally, despite research illustrating the potential impact of school connectedness on a range of social, emotional and academic factors (Shochet et al, 2006 & Catalano et al, 2004) few studies have explored this with the LAC population. The present study attempted to address this by implementing a reading intervention using a peer approach with LAC.

A single case experimental design was used with five participants. Weekly data was collected on reading accuracy, reading fluency and self-reported school connectedness. Pre and post data was also collected from teachers using two scales from the Strengths and Difficulties Questionnaire (SDQ): peer problems and pro-social behaviour. The results indicated a positive effect of paired reading on percentage reading accuracy, as shown in four of the five cases. Reading fluency did not significantly improve during the intervention for any of the participants. Similarly, school connectedness did not improve in three of the participants, although increased ratings were seen when paired reading was replaced with a non-reading intervention in three of the five participants. A significant difference in SDQ data was not observed.

The study provides further evidence for the impact of paired reading on reading accuracy and suggests the potential for peer interventions to improve school connectedness. The discussion considered the generalizability of the findings and the nature of the measures used as potential limitations of this research. The study indicates the need for further research into school connectedness with LAC and highlights the potential role for EPs in recommending and supporting both academic and social interventions with this population.

Acknowledgements

I would like to thank a number of people for their support, not only for this research project, but the duration of the doctorate course.

To the tutor team at the University of Nottingham for their guidance and advice, especially my personal and placement tutors Neil Ryrie and Anthea Gulliford.

To my placement educational psychology service, whose support for both my research and development as a trainee has been greatly appreciated.

To the pupils and school staff that participated in this research. Their enthusiasm for the project was a great motivator.

To my fellow trainee EPs for their peer support, humour and friendship – I feel very lucky to have been in Cohort 6!

Finally, to my friends and family, especially Dave, Margaret, Chris, Vicky and Craig for their patience, understanding and encouragement – I would not have been able to do it without them.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction

1.1. Background to Research

The educational rights of looked-after children (LAC) are detailed in the Children Act (1989), which states that local authorities have a duty to promote the educational achievement of the children they look after. The education of LAC, along with their social and emotional wellbeing, is consistently highlighted as an area of concern by a range of bodies. Consequently, the educational approach used with LAC has been the focus of strategies for improvement (Ofsted, 2008) and statutory guidance (Department for Children, Schools and Families, 2010) in an attempt to bridge the gap and create more equal opportunities for these young people.

The author is a trainee Educational Psychologist and during the second year of the doctorate course was involved in a piece of casework with a looked-after child who had difficulties forming peer relationships and connecting with the school environment. The author facilitated a social intervention with the child which, despite having some positive effects, led to reflections about interventions for LAC. In addition to difficulties with social interaction, the child had literacy difficulties and it was the perception of the author that the school would have favoured an intervention which targeted this, their primary concern. This child became pivotal to the author's wider reflections on literacy interventions which could incorporate a social element and which could have a positive impact on both dimensions for LAC. As the author had worked in a previous role as a primary school teacher, the case reignited thoughts about finding the most appropriate type of intervention for a child within the remit of the resources available.

The LAC population was of particular interest to the author for two reasons. Firstly, her second and third year placement was based in a local authority where there was a large, growing population of LAC and where emphasis had been placed on improving their academic development. The authority had noted recent attainment increases, which they considered to be the result of targeted interventions and specialist staff posts. Despite this, attainment levels in a range of areas continued to fall below that of their peers and higher prevalence rates of social, emotional and behavioural difficulties continued. Additionally, the eradication of school support

services, including a specialised literacy service, as part of the recent local authority cuts had reduced access to reading and writing interventions for some pupils. This context served as a microcosm for the nationwide picture, where rates of children in care continue to steadily increase and governments introduce legislation and guidance to target their educational progression.

A second reason for interest was the disproportionate quantity of academic research into effective school interventions for LAC, when compared to other child populations. Numerous challenges are associated with the research of LAC, ranging from difficulties obtaining consent to increased vulnerability to internal validity threats, potentially making some researchers wary of this type of research. Research which had the potential to contribute to an area of limited range appealed greatly to the author.

1.2 Purposes of Research

The author wanted to explore a population with an established history of academic underachievement, who would benefit from further research into effective interventions. She also wanted to challenge the common practice of pairing underachieving pupils with adult teaching assistants by exploring whether this aspect of intervention could be altered to enhance opportunities for social development and social connection to the school. Consequently, the author formulated a research project to explore whether an evidence-based literacy intervention, namely paired reading, could be delivered to LAC in a way that also enhanced a specified social measure. This would be done by pairing the child with a peer, rather than an adult.

The purpose of this research was to continue the work of the local authority in targeting improvements in the education of LAC. It was hoped that the research would have high applicability to the authority in which it was based, by improving aspects of literacy and social development for specific children and highlighting a new direction for interventions with LAC. Contributing to the growing body of research on effective interventions for LAC was also an additional, wider-reaching implication that the author hoped to achieve.

Chapter 2: Literature Review

2.1 Introduction to Chapter

The literature review will begin with an exploration of the relationship between LAC and educational attainment, followed by a discussion of reading difficulties, with links to the reported lower reading attainments of LAC. There will then be an exploration of school connectedness, as a social measure which could be strengthened through intervention. The focus of the review will then move onto the paired reading intervention and its potential for improving both reading ability and school connectedness in LAC. Finally, a systematic literature review comprising of two sections will analyse the existing literature related to paired reading with a peer and school-based social interventions for LAC.

2.2 Looked-After Children and Educational Attainment

It has been noted that in 2013 approximately 68,110 children in England were looked after by local authorities (LAs) and that this figure has risen year on year (Department for Education, 2013). A child becomes 'looked-after' when a court grants a care order transferring their care and responsibility to the state, as detailed in the Children Act (1989). Foster placements are the most common placements for LAC, with 50,900 children in foster care (Department for Education, 2013). The education of this substantial number of children becomes the responsibility of the LA upon entry into the care system and so the population receives regular evaluation to monitor whether the care they receive leads to acceptable levels of progress in a range of areas.

For a number of decades government reviews and policies have attempted to illustrate the attainments of LAC, with guidance for both education providers and the social care system on how to better the educational experience following closely behind. National statistics are published annually and provide a comparison of LAC to non-LAC. The children included in the statistics have been looked after continuously for a minimum period of twelve months. The most recent data for the year ending 31 March 2013 noted that in Key Stage Two 63 per cent, 55 per cent and 59 per cent of LAC achieved the expected levels in reading, writing and maths

respectively. This is compared to 86 per cent, 83 per cent and 85 per cent of non-looked-after children. The gaps between attainment became even more significant at the end of Key Stage Four where 16 per cent of LAC achieved a grade of A*-C in English and Mathematics compared to 59 per cent of non-looked-after children (Department for Education, 2013). The percentages quoted highlight a significant concern within education; LAC are academically behind their peers from an early age and this gap appears to widen as the children progress through the system.

The statistics published by the Department for Education (2013) reflect the findings of a significant body of research which emphasises the discrepancy in attainment levels between LAC and non-LAC and explores potential hypotheses for this. Jackson (2000), a prominent researcher in this area, noted that LAC not only fail to achieve the same standard as the rest of the school-age population, they also make lower levels of academic progress during their time at school and are at a higher risk of leaving school prematurely, limiting their potential career prospects.

Despite frequent associations between LAC status and poor educational attainment, Stone (2007) acknowledges a lack of consensus about the definitive causal explanations for this and that, alternatively, a variety of factors have been discussed. These factors include: frequent changes of school, periods of absence, past experiences of abuse or neglect, lack of monitoring by professionals, instability of the care system, low expectations of the children, lack of clarity over responsibilities amongst professionals and lack of support in the placement setting (Fletcher-Campbell, 1998; Jackson, 2000). A government-issued report identified five key reasons for low achievement in LAC which included: lives that are characterised by instability, a high proportion of time spent out of school, insufficient support with education, primary carers that are not expected or equipped to provide educational support and unmet emotional, mental and physical health needs that negatively impact on educational progression (Social Exclusion Unit, 2003).

Berridge (2006) offers an alternative way of interpreting the low educational achievements of LAC and recommends moving away from official statistics. Instead, he proposes that there are wider social theoretical explanations for low achievement and that these are often neglected by policy-makers. Poor attainment has been used by some as an argument for the ineffectiveness of the care system itself; however

Berridge notes that there are many social risk factors involved. The majority of LAC originate from the most disadvantaged social groups, with increased instances of family breakdown, poverty, low parental support, maltreatment and restricted social mobility. Such risk factors contribute to the child's entry into the care system but are also closely linked to educational failure and reduced continuation into further education. Berridge (2006) suggests that policy-makers need to compensate for the social disadvantages of these children, not just on the impracticalities of the care system. Within this proposal, Berridge notes the potential role of social interaction between pupils, professionals and schools. Although this has been featured in previous literature, it is largely absent from current policy. This aspect of Berridge's article prompted the author to consider how social perspectives and strengthening social risk factors could be woven into schools' intervention work with LAC and is a point which will be revisited later in this literature review.

Irrespective of theoretical position, the existing research emphasises a significant level of concern and the need for continued exploration into effective learning interventions. Despite continued changes to legislation, such as the introduction of Personal Education Plans, virtual head teachers and designated teachers in schools, and the production of guidance documents for social care and education providers, the trend for low achievement in a high proportion of LAC continues. Although there is a clear need for further research with this group, Heptinstall (2000) suggests this is a potentially challenging task, as a result of difficulties contacting social services staff and gaining appropriate consent, subsequent delays to the researcher's timespan and the limited number of children it is possible to include. To a certain extent, such complications could explain why the volume of research into LAC and academic intervention is sparse, compared to other educational populations.

2.3 Reading Development and Difficulties

Developing a proficient level of reading ability is a critical skill for school aged children and one that enables access to the whole curriculum. As noted in the previous section, reading is one area of learning where LAC obtain much lower levels of attainment than non-LAC. In 2013 there was a difference of 23 per cent between the populations achieving the expected level in Key Stage Two (Department for Education, 2013). A significant body of literature exists which details the impact

of poor early reading skills on later development. Cunningham and Stanovich (1997) revisited participants 10 years after their involvement in a previous study. They reported that reading ability at age seven was a strong predictor of reading comprehension, vocabulary and exposure to print at age 16. Stanovich (1986) also conducted a review of reading research and discussed the concept of the 'Matthew effect', whereby competent readers continue to progress well by increasing their vocabulary knowledge, whereas poorer readers continue to read with a slow pace, have less enjoyment for reading and have a slower development of vocabulary knowledge, inhibiting their ability to progress further. A more recent study by Ritchie & Bates (2013) found a positive effect of reading ability at age seven on attained socio-economic status, academic motivation and duration of education at age 42, when influencing factors were controlled for. Harrison (2004) takes the implications from this research further by suggesting that reading increases life skills, extends knowledge and helps the development of imagination, influencing the development of emotional intelligence. He states that "*reading, therefore, is about much more than gaining a skill: it is about learning to be*" (p.5). Such research and discussion emphasises the importance of children becoming proficient readers and highlights a need to explore interventions to support children who are experiencing difficulties.

Before different approaches to intervention are considered, it is worth noting both the typical development of reading and some of the theories that explore why difficulties may be encountered. This study will focus on word reading and so theories of, and interventions for, reading comprehension will not be explored explicitly. Many authors recognise the longstanding debate about which skills are most pivotal when learning to read and acknowledge the continued publication of research, which appears to favour different viewpoints and inform different intervention approaches (Stanovich & Stanovich, 1999; Stuart, 1995). Consequently, whilst the following sections attempt to provide an overview of reading research, they are unable to explore the depth and complexity of the current evidence base acknowledged by the author.

2.3.1. The Typical Development of Reading

The typical development of reading is a densely-researched area in which contributors have attempted to explain the acquisition process of this complex skill. It is possible to categorise the research into paradigms, which, historically, have prioritised different skills when determining the key processes in typical reading development.

One paradigm has focused on the importance of phonetical awareness in reading and is centred on the alphabetic principle that letters of words map onto sounds in words. Here, word recognition was identified as the fundamental skill and it was suggested that phonological skills contributed to a child's progress in reading (Solity, 2000). A number of research studies have attempted to demonstrate the relationship between early phonological awareness, including the ability to rhyme, and later reading ability, with varying levels of success (Bradley & Bryant, 1983; Juel, 1988; Lundberg, Olofsson & Wall, 1980). This paradigm has received a significant amount of support from some researchers, however others have identified limitations and stressed that it should not be considered in isolation (Harrison, 2004), Within the paradigm there is less consensus concerning the identification of the specific phonic skills which are of most importance and, thus, the phonic skills which should be focused on to improve reading development (Solity, 2000). Solity (2000) also notes there is a lack of clarity over how these phonic skills are acquired and utilised, which, again, may impact on attempts to improve them.

An opposing paradigm suggested that semantic knowledge was the key to reading development and that children could learn to read by using their knowledge of the text to predict unfamiliar words. It was thought that syntactic, semantic and pragmatic information aided the process of recognising words for fluent readers and so should be taught to less experienced readers (Smith, 1973). This view promoted the notion of learning to read through reading, using language-rich environments and shared reading to increase the child's knowledge and understanding of language. It did not place importance on the phonic level of texts, as it did not consider reading to be a precise process and argued that decoding was an unnatural method (Goodman, 1967; Smith, 1973). This theory failed to recommend precise teaching methods but

has been adapted and used as a 'real book' approach to reading instruction, which has been particularly prominent in New Zealand (Soler & Openshaw, 2009).

During the past couple of decades an additional paradigm has emerged labelled 'the simple view of reading'. This proposes that skilled reading is the product of word decoding and linguistic comprehension (Gough & Tunmer, 1986). This theory acknowledged the importance of whole language instruction and phonic teaching in supporting children to successfully acquire reading skills and was an attempt to combine the two distinct paradigms (Savage, 2001). Since the development of the simple view of reading, numerous attempts have been made to modify (Carver, 1993), evidence (Kendeou, Savage & van den Broek, 2009) and challenge it (Kirby & Savage, 2008). As noted by Purcell-Gates (2009), some have expressed concern at the *overly* simplistic approach adopted and the failure to acknowledge sociocultural factors in reading development. Consequently, a continued debate exists about the role and significance of different aspects within the development of reading. Despite this, there seems greater acceptance of the range of processes involved in reading development and the need to avoid promoting one specific area or skill at the expense of others (Clay, 1991; Harrison, 2004), a viewpoint similarly adopted by the author.

2.3.2. Difficulties in Reading Development

As with the theory-based literature on typical reading development, there remains a lack of consensus regarding the potential causes of reading difficulty and it seems likely that different causes will apply to different children depending on a range of factors. The British Psychological Society mirrors this view in their publication of potential causes of difficulty, which is highly varied and includes factors such as phonological delay or deficit, visual processing, temporal processing, working memory, specific syndromes and emotional factors (BPS, 1999).

The phonological delay/deficit hypothesis has received a large amount of support and is widely accepted as a significant element in reading difficulty. Research addressing severe reading difficulty, for example in children with dyslexia, has highlighted the role of phonological skills and the prevalence of difficulties distinguishing phonemes, rhyming and removing specific sounds from words

(Frederickson & Frith, 1998; Oakhill, 1993). It seems logical, therefore, that phonological delays/deficits should be considered when working with a child with reading difficulties. Despite this, it is important to note the additional theoretical factors which may have impacted on a child's development of reading and this is particularly significant for LAC, where a complex combination of reasons may have led to their slow progress.

One of these additional factors is the link between early oral language and vocabulary skills and later reading ability. Ouellette (2006) found that decoding performance, visual word recognition and reading comprehension could be predicted by receptive vocabulary, expressive vocabulary and depth of vocabulary knowledge respectively in a sample of ten year old pupils. Dickinson et al (2003) note that two potential hypotheses for the relationship between vocabulary and reading have been suggested. One hypothesis suggests that early vocabulary knowledge provides a critical basis for the development of phonological sensitivity, which supports the subsequent reading development process. The second is that vocabulary supports emergent literacy knowledge, which aids the child to develop their proficiency in reading. This factor may be particularly significant for some LAC, who may have been exposed to a more limited vocabulary during their early years, as a result of their family context.

Motivation and level of attention for reading instruction and independent reading practise are also potential factors in delayed reading progress (McCardle, Scarborough & Catts, 2001). A number of studies have suggested links between motivation and reading, such as Wigfield and Guthrie (1997) who found that intrinsic motivation predicted both amount and breadth of reading in a sample of schoolchildren. Restricted reading experiences would likely then impact on reading progression by reducing the child's opportunities to practise their skills and expand their knowledge. Deficits in attention have also been linked to reading difficulties, as a result of children being unable to concentrate during reading instruction. Here, skills may develop at a much slower rate, despite no cognitive-linguistic impairments (McCardle et al, 2001). Again, depending on their previous and current circumstances, motivation to read and attention for reading are two areas which may be relevant for some LAC and should be considered when devising approaches for improving their reading ability.

In addition to those factors discussed, it is also important to consider the potential causes noted in the section on LAC and education. For example, exposure to abuse and neglect, lack of support in the foster setting, low expectations of LAC and length of time spent away from school, in addition to lack of opportunity for learning. If these factors were to negatively impact on general educational progress, then it would be logical to suggest that they may also hinder the development of reading skills in some children.

2.3.3. Types of Reading Intervention

A number of approaches to reading intervention have stemmed from the theories of typical reading development previously discussed. The types of reading interventions used in schools typically reflect a specific paradigm of reading, although some are more holistic in nature.

Some interventions have a focus on phonological awareness training and have evolved from the phonological theories of reading. These interventions support children to perceive and manipulate the sound structure of words. This type of approach can be delivered in a purely oral way or by including written language so that children can make links to letters representing particular sounds. In a meta-analysis of studies using this approach, Ehri et al (2001) highlighted a significant effect of phonological awareness training, noting however that not all children made progress and that there was a high level of variability between studies.

Phonics instruction is another phonic-based intervention, which can be broken into synthetic phonics, where children are taught the sounds that letters represent and analytic phonics, where children are taught to recognise words and then deconstruct the sounds within them (Johnston & Watson, 2004). This approach has been used to teach whole class phonics and as a basis for a number of interventions and remains a prominent method in schools. Its presence in government publications and independent reports, such as the Rose Report (2006) has led to its wide acceptance as the core approach in reading education today.

Another approach to reading intervention is the ‘real book’ or ‘whole book’ approach, stemming from Goodman’s (1967) theory of reading. As previously noted, this approach has been prominent in New Zealand and has received a high level of

comparison with phonic-based interventions. This intervention is based on the principle of shared reading and suggests that children learn to read through the social experience of enjoying books with others (Soler & Openshaw, 2009). One of the aims of this approach is for children to learn to read new words in context and, in doing so, expand their vocabulary. Emphasis is also placed on discussing the text to encourage vocabulary use and to promote a child's level of engagement and enjoyment in reading (Soler & Openshaw, 2009).

Despite phonic-based approaches remaining prominent in reading education, it is important to note that specific interventions have varying degrees of success with different children and that interventions that work for some may not work for others (Cain, 2010; Oakhill & Garnham, 1988). This may be due to the range of additional factors previously discussed, such as vocabulary, motivation and attention which can impact on reading development. For such varying factors a purely phonic-based approach may not be the most effective. There is also some evidence to suggest that supporting children with a combination of different interventions can have the greatest impact (Eckert et al, 2000; Hawkins et al, 2011).

Paired reading (PR) is a specific intervention evolving from the 'whole book' approach and promotes the benefits of learning through shared reading. Some of the reported benefits of PR include greater exposure to new vocabulary, increased motivation and enjoyment for reading and increased opportunities for learning in a social context (Morgan, 1986). Authors who do not necessarily support Goodman's (1967) theory of reading, highlight the learning opportunities that can be gained from accessing 'real' books, along with the enjoyment and value of reading that can be promoted through interacting with books that interest (Harrison, 2004). Such benefits would be applicable to LAC who may have delayed reading ability for some of the reasons previously discussed. In addition, the shared reading element of the intervention affords the opportunity to influence a social aspect for the LAC. PR will form the basis of this research project and so will be explored in more detail, with links to existing research studies, during the latter stages of this literature review.

2.4. Social Aspects of School for LAC

In addition to reading development, the author also wanted to consider a social factor

which may impact on the educational experience of LAC. Consideration was given to several areas, including peer attachments, social acceptance and academic and social expectations of LAC, before the author decided to focus on the concept of school connectedness. School connectedness can embody a variety of elements relating to the social experience of school; this will be discussed in the following section. It was also felt to be a particularly relevant concept for a study exploring interventions for LAC, due to the potentially transient nature of school placements for this population and the potential for self-perceived differences to other school pupils. The role of school connectedness in the education of LAC led to further research into existing literature on the topic and the eventual inclusion of a school connectedness measure in the final study.

2.5. School Connectedness

2.5.1. Definition of School Connectedness

The term 'school connectedness' is one that has been used interchangeably with a variety of similar terms, such as school attachment, school bonding and school engagement, leading to some confusion in the existing literature. The term 'connectedness' has been identified in this study to mean the nature of a student's relationship with school (Libbey, 2004). A more specific definition has been taken from Catalano et al (2004) who used aspects of control theory to derive two interdependent components of connectedness: attachment, as characterised by close affective relationships with others at school and commitment, which is characterised by an investment in school and a desire to do well. Jimerson et al (2003) deconstructed this further to reveal three dimensions of the concept: affective (feelings about school, teachers and peers), behavioural (observable actions, such as performance and effort) and cognitive (perceptions and beliefs, such as motivation and aspirations).

Throughout the school connectedness literature, a high level of emphasis is placed on the importance of peer relations. Blatchford and Baines (2010) suggest that involvement with school peer groups may lead to greater levels of school belonging/connectedness and, subsequently, a higher level of motivation to engage in classroom activities. Similarly, Hamm and Faircloth (2005) hypothesised that peer connections may provide feelings of security for children, which enable them to

invest more fully in the school. Such hypotheses underline the role that peers can play in the development of school connectedness for all pupils.

2.5.2. The Impact of School Connectedness

The notion of school connectedness, and related terms, has been given a high level of significance by researchers and its effects on both school-based and developmental factors in students have been explored (Shochet et al, 2006).

School connectedness has been shown by some researchers to positively impact on academic achievement and expectation in pupils. Israelashvili (1997) revealed a positive effect of school membership on the participants' future expectations of themselves using a self-report measure. Bond et al (2007) conducted a longitudinal study with 2,678 thirteen and fourteen year old students in Australian schools. The researchers devised their own school connectedness scale which was compared to participants' academic levels. The measures were then revisited at 16 years old and at one year post-secondary school. The study revealed an association between school connectedness score and tertiary entrance score for university, although this was not statistically significant. Another study by Catalano et al (2004) evaluated the Seattle Social Development Project which had a longitudinal design and began in the 1980s. The project introduced an intervention to first grade students, their teachers and parents in the experimental schools which was intended to enhance bonding to school and family. At the end of grade six, there was an association between students in the experimental schools and higher levels of improvement in achievement test scores. At grade twelve, intervention students also achieved higher levels of attainment and reduced instances of being held back in school. Although this study is promising, the complex nature of the intervention and the number of changes made to both the participants' school and parenting approach make it more difficult to identify a direct causal relationship between school connectedness and academic achievement.

A greater proportion of the school connectedness literature has focused on its impact on developmental measures, such as behaviour and mental health. Wilson (2004) revealed that higher levels of school connectedness were associated with decreased instances of being a perpetrator or victim of violence in school, compared to

participants with low connectedness. This was true when controlling for both positive and negative school climates. King et al (2002) analysed a mentor programme and its effect on school connectedness and a range of additional factors. Increased connectedness correlated with increased levels of self-esteem and decreased instances of bullying and violence, although the presence of increased peer connectedness and family connectedness made conclusions about this link more obscure. Shochet et al (2006) revealed an extensive correlation between school connectedness and mental health symptoms in participants aged 12 to 14. Previous mental health symptoms were controlled for and found not to be a predictor of school connectedness response. The researchers concluded that school connectedness appeared to be a strong predictor of depressive symptoms, in particular, and that additional research was desirable to further the evidence for this association and put more emphasis on the role of school connectedness in mental health.

An interdisciplinary group of education professionals in the USA, which included school psychologists, members of a number of school health services and projects, educational researchers and education policy analysts, conducted a detailed review of the current research into school connectedness (Wingspread, 2004). They noted that pupils were most likely to succeed when they felt connected to school and that high school connectedness could improve academic performance, absenteeism, school completion rates, incidents of fighting/bullying, motivation and classroom engagement. Effective strategies identified included: providing academic support and creating trusting relationships between students. They identified a need for further research into approaches that create positive and purposeful peer support, strategies amongst disenfranchised groups and the evaluation of new and existing curricular approaches (Wingspread, 2004).

The present research in this area highlights the potential for school connectedness to have an important role in both academic and social development. The majority of the research has been conducted in Australia and the USA and has almost always been used with secondary aged students. There are some limitations with research that has not clearly stated its definition of school connectedness and that has included a variety of interventions and measures; this makes conclusions about school connectedness, as a specifically-defined concept, difficult.

2.5.3. School Connectedness and Looked-After Children

The existing research suggests a potentially important role for school connectedness in students' development. A parallel body of research indicates that measures such as school connectedness may be particularly significant for LAC. If Catalano et al's (2004) definition of school connectedness is revisited; affective relationships in school and commitment to school, it is possible to hypothesise why a high level of school connectedness may be difficult for some LAC to obtain.

Firstly, the children's ability to make positive relationships in school may be affected by a number of variables. The fact that they no longer live with birth parents indicates a high probability of exposure to some form of abuse and/or neglect. The process of leaving their primary carers and the increased likelihood of having less secure attachments to them may have impacted on their ability to trust others and their willingness to form new attachments. Hodges and Tizard (1989) note that, for some LAC, it is more difficult to form peer relationships than it is adult relationships and they are likely to have fewer close relationships than matched controls at adolescence. Axford (2008) also notes that LAC may find difficulty in identifying with a particular social group. They may have limited or inconsistent contact with birth families, or no contact at all. Additionally, they may have come from very difficult family situations, which could lead to them feeling different to other children. They may also be geographically distanced from other school children due to the location of their foster/residential placement.

The potential for LAC to move between different placements is another factor which may affect social relationships in school. Unrau et al (2008) collected data from ex-care leavers and found a prominent theme was the feeling of loss. This came when multiple foster placements led to the loss of school friends and connections to school. Some participants stated that this resulted in them not wanting to make connections in a new school, fearing that they would move again and that these would be lost. Similarly, Ridge and Millar (2000) conducted interviews with LAC and discovered that school was seen as a crucial social environment wherein participants could create relationships that were external to their care status and where they developed a feeling of belonging. This study emphasised the need to form connections in school, however other self-report studies have highlighted the

lack of support that LAC feel they receive in this area. Participants in Edmonds' (2012) study felt that forming connections in school was not identified as an area of intervention by the adults involved and that they did not see adults as being active in their social development in school. This suggests the potential value of introducing intervention work that has a school connectedness focus.

Like general school connectedness studies, many researchers with LAC have focused on those at secondary school or beyond. However, Winter (2010) looked at children aged between four and seven and demonstrated that, not only were they able to articulate their views, they also associated being taken away from their family with a strong sense of loss of connections. This suggests that when there is an impact on a child's sense of connectedness, it is felt from a young age and raises questions about why research has shied away from working further with this age group.

In addition to affective relationships, it is also possible that LAC feel less commitment to school. This may be due to multiple school moves and the feeling that school placement is temporary and that making connections in one particular school is futile (Unrau et al, 2008). In addition, it may be possible that some children with complex personal circumstances may withdraw from school or become confrontational to the routines and rules enforced on them. They may not view school as a priority or may have low self-efficacy for learning, which weakens their sense of commitment. The high rates of school exclusion and truancy in this population may result in LAC feeling even less involved in the social environment of school and may indicate that, for some children in care, difficulties committing to school and having a desire to do well may be present (Axford, 2008).

2.5.3.1. Attachment and Looked-After Children

In studies exploring the social development of LAC it is typical for theories of attachment to be discussed. In relation to the present topic of school connectedness, there are highly identifiable links to attachment theory in a number of areas, including the impact of poor early attachments stemming from neglect, abuse and/or separation from caregivers on a LAC's ability to form close relationships with peers, develop bonds with members of staff and to commit to the school as a social group (Dozier & Rutter, 2008). Each of these elements have been discussed in terms of

their contribution to a strong level of school connectedness. Although the author is not exploring attachment as a concept within the present research, she is aware of the conceptual bearing it has on the topics being discussed and on the deeper rationale for developing a peer-based intervention to support school connectedness.

2.5.4. Improving School Connectedness

A number of researchers have attempted to identify effective strategies for improving school connectedness. McNeely et al (2002) compared different approaches used by high schools in the USA. Approaches that were associated with higher levels included positive classroom management climates, participation in extracurricular activities, small school size and tolerant disciplinary policies. Shochet et al (2006) noted common themes in connectedness improvement and identified the importance of involving students in classroom decisions, avoiding discrimination, building strong relationships with all students and rewarding effort rather than achievement.

Research has also shown the potential for mentoring programmes to improve school connectedness by developing close relationships. For example, in King et al (2002) students identified as 'at risk' for school, peer and family connectedness and involvement in risky behaviour were mentored by a member of the community for four months. Following the intervention, participants had significantly improved levels of self-esteem and positive connections to school, family and peer group. They were also less likely to be depressed or involved in bullying. In addition, Karcher (2005) conducted a randomised experimental design with 77 students who either took part in a peer mentoring programme or an alternative treatment. Mentees were aged between nine and eleven years and mentors were aged between thirteen and eighteen years. Mentoring sessions included ice breaker games, a school connectedness activity and a recreational activity and continued for a period of six and a half months. Results showed that school and parental connectedness were significantly greater for the experimental group than the comparison group at the end of the study. Additionally, positive changes in self-esteem, social skills and behavioural competence were also found for these participants. The level of change was highly related to the mentors' level of attendance at the sessions.

It seems apparent that there are several ways school connectedness can be improved, both through whole school initiatives and individual intervention programmes. Studies that have focused on mentoring open up the possibility of supporting students to form close relationships with peers in school, in order to improve their sense of connectedness. The notion of peer working through close intervention led the author to consider the potential role of paired reading. Existing research has demonstrated that this intervention can be used successfully with a peer of the target child. If paired reading is an effective method for improving reading ability and increasing school connectedness, by supporting a close working relationship with the peer, then it has the potential to be a significant intervention in the education of LAC.

2.6. Paired Reading

Paired reading (PR) is an intervention that has adopted the principles of whole text reading and evolved from Goodman's (1967) theory of reading. It also draws on behavioural learning theory and identifies reading difficulty as a performance deficit. Consequently, the method attempts to improve reading performance directly, rather than target its underlying skills (Morgan & Lyon, 1979). The method can be used with any text and children are encouraged to choose a book which is motivating to them. PR is approached in a 'little and often' way and each session includes periods where the target child (tutee) and a more experienced reader (tutor) read in close synchrony and periods where the tutee reads independently (Topping, 1995). The intervention promotes simplicity in reading instruction, enjoyment of reading, flexibility for reading material and text discussion both before and after the main reading session (Morgan, 1986). This reflects theories which emphasise the need for language-rich experiences and context-based learning during the development of reading (MacDonald, 2010). Although a frequently used approach has been for children to read with parents, it has also been used within schools and with a variety of tutors, including peers (Morgan & Gavin, 1988). PR has a very broad evidence base with many positive results and, consequently, advocates of the approach emphasise the need to use the method exactly as it has been designed (Morgan, 1986).

2.6.1 Research into Paired Reading

2.6.1.1. Researcher-Led Paired Reading

One of the early research studies into PR, conducted by Morgan (1976), used three participants aged between nine and twelve who were at least two years behind their age-expected level on the Neale Analysis of Reading Ability. The author conducted the PR sessions over an 18 week period. The two children who attended the majority of sessions achieved a statistically significant improvement in reading ability and the third participant showed increases in accuracy over the shorter period of their intervention. This study was preliminary in nature and there are limitations due to the small sample size, however additional researchers have expanded on this to provide a wider range of evidence for the approach.

Another researcher-led study was conducted by Nes (2003) who delivered PR sessions to four participants aged between nine and twelve. Weekly measures of fluency, accuracy and comprehension were collected. Reading fluency rates increased substantially for all participants. Accuracy and comprehension rates were found to be high at the start of the study and participants retained this level throughout. This study suggests PR has the ability to support less-fluent readers, although fewer conclusions can be made about accuracy and comprehension. Nes (2003) does note that the results suggest increases in fluency are not detrimental to accuracy or understanding.

2.6.1.2. Parent-Led Paired Reading

A substantial body of literature has explored PR with a parent tutor. Morgan and Lyon (1979) trained parents of four participants in the approach, which ran for twelve weeks. During the intervention, the participants became more confident about reading longer periods of text independently and, on average, their reading accuracy increased by 11.75 months over a 6.25 month period. This study demonstrated the potential for non-educational tutors to deliver the intervention and achieve positive results. Similarly, Morgan and Gavin (1988) used PR with 15 children and their parents and achieved an average word accuracy gain of 6.29 months and an average comprehension gain of 9.29 months over a six month period, as measured by the Neale Analysis of Reading Ability. The study incorporated regular meetings with

parents, to ensure that their understanding of the approach remained solid; this prevented the sessions from lapsing into a 'listening to the child read' experience. The authors emphasised the importance of this aspect of the procedure in future research projects.

Additional studies have reported success with parent-led PR. Overett and Donald (1998) used PR with parents alongside a comparison group. Significant improvements were shown in reading accuracy and comprehension and anecdotal information about increased positive attitude towards reading were also recorded. Similarly, Fiala and Sheridan (2003) examined PR with parents and found that reading accuracy and fluency increased, as did the children's scores on the Woodcock-Johnson Tests of Achievement. The authors placed emphasis on the intervention giving control to the children regarding their reading material and the positive impact this can have on their confidence and enthusiasm.

2.6.1.3. Paired Reading with a Peer

The existing research into PR with a peer is the focus of the systematic literature review and, as such, more detail can be found in section 2.7.

2.6.1.4. Approaches to Paired Reading Research

A significant proportion of the existing research on PR has adopted a pre and post group design, in which standardised accuracy and comprehension measures are used (Burdett, 1986; Morgan, 1976; Morgan & Gavin, 1988; Overett & Donald, 1998). More recently, studies have attempted to evaluate the intervention using repeated measures to introduce higher levels of validity and reliability into the data collection process (Fiala & Sheridan, 2003; Nes, 2003). This will be discussed further when the methodology of the present study is discussed in Chapter 3.

2.6.2. Hypotheses for Paired Reading Efficacy

An existing criticism of PR is the lack of research providing a definitive reason why the approach may be effective in improving reading ability. Some potential hypotheses have been suggested. Topping and Lindsay (1992) proposed that the combined reading and listening processes during the simultaneous reading section prevent the reader from becoming fixated on decoding and enable alternative reading

strategies to be drawn on, such as awareness of context. They refer to reading research to suggest that weaker readers may be more inclined to rely solely on one, typically phonics-based, decoding approach, hindering their ability to improve by drawing on a broader range of skills. Additionally, the uninterrupted nature of the approach may support the reader's ability to draw on contextual cues by preventing the meaning of the text being lost (Topping & Lindsay, 1992). The authors also cite improvements in reading efficacy and reader expectations as potential aspects of PR that lead to reading gains. In addition, Morgan (1976) acknowledges the presence of a continuous verbal prompt, opportunity to perform modelled responses and positive social reinforcement as other factors, which may contribute to the intervention's documented success. Topping and Lindsay (1992) suggest that the reading together element of the intervention may help poorer readers 'believe' that they can read and stress that this aspect of the intervention should not be underestimated.

2.6.3. Limitations of Paired Reading

Despite a large research base promoting the efficacy of PR, some studies have highlighted criticisms and potential limitations. MacDonald (2010) found a positive effect of PR, however questioned whether the approach is restrictive for pupils who have gaps in their phonological knowledge. The emphasis on visual and auditory memory within the intervention was cited as a reason for this limitation. Additionally, Winter (1990) noted that many studies failed to assess and record whether sessions were delivered correctly. A recording of sessions revealed that positive reinforcement was under-used, the number of reading errors left uncorrected outweighed those corrected and tutors were too quick to intervene. Despite this, participants made significant progress, again triggering questions about which aspect of PR actually impacts on improvement.

2.6.4. Conclusions and Implications

Despite these limitations, PR continues to be a prominent reading intervention. As previously noted, the approach has been expanded to include a variety of tutors and tutees. In addition to reading gains, many studies report evidence for improvements in confidence, self-esteem and motivation to read (Fiala and Sheridan, 2003., Overett and Donald, 1998). This may mean that PR is a particularly useful intervention for LAC who are lacking in these areas. The approach would also offer LAC increased

opportunities for learning and would expand their vocabulary further, by exposing them to 'real' books rather than books from reading schemes.

PR is built upon the close working of two people and research has indicated that the approach has the potential to remain successful when the tutor is a more experienced peer of the child. This suggests that the intervention could operate in a similar way to the mentoring studies previously discussed (Karcher, 2005; King et al, 2002), which showed a positive effect of peer-working on school connectedness. This links to the notion of positive peer attachments, one of the themes within school connectedness, outlined by Catalano et al (2004), and suggests the potential for PR with a peer to strengthen relationships through close peer working. Further indications that this may be successful are given in the anecdotal evidence by Winter (1986) that PR with a peer led to improvements in the social atmosphere of the classroom. Taking the second aspect of school connectedness, commitment to school, PR may also have the potential to impact on this. The procedure adopted by PR promotes reading for pleasure and minimises the recognition and disruption of reading errors during the reading process. The nature of the intervention may, therefore, promote enjoyment in an academic subject and reduce feelings of failure and disappointment which can be evident in other reading interventions, thus strengthening the pupils' feelings of motivation and commitment to the school system. If this intervention could support the building of relationships for LAC and increase perceptions of school connectedness, as well as improve their reading ability, it would contribute to the recent initiatives to improve the school experience of LAC and would have wider implications for their educational and social development.

Although, to the author's knowledge, PR has not been evaluated using a social measure, such as school connectedness, a doctoral thesis completed by a previous trainee EP has investigated the social impact of another reading intervention. Tirapani (2011) looked at the impact of Direct Instruction and Precision Teaching on the wellbeing, resilience and academic self-concept of children in care. Findings showed improvements in perceived wellbeing, academic self-concept and a decrease in the perception of vulnerability. This study highlights the potential for reading interventions to impact on social measures and was effective in focusing the spotlight on further intervention research for LAC.

2.7. Systematic Literature Review

The remainder of this literature review will adopt a systematic nature and will focus on exploring existing research studies in more detail. The systematic literature review is an approach that enables decisions to be made about what is known from research in relation to specific research questions. It allows for the evaluation of large quantities of research, preventing over-reliance on individual studies and allows for the identification of areas that require further exploration (Petticrew & Roberts, 2006). A significant element of this process involves making judgements about the quality and relevance of the chosen research, before it is synthesised to allow for final conclusions (Gough, 2007). To ensure rigour and objectivity in the systematic process, a series of steps have been completed and clearly documented. The structure of this review was largely influenced by The Cochrane Handbook (Higgins & Green, 2011). From the systematic review, the specific research questions for the present study will be revealed and justified.

2.7.1. Approach to the Systematic Literature Review

There are two prominent themes in this literature review, PR and school connectedness. A preliminary search which included both of these terms and their variations failed to yield any appropriate results. Consequently, the systematic review was divided into two sections and the papers for each were explored separately. A preliminary search looking specifically at school connectedness with LAC also failed to yield appropriate results. A decision, therefore, needed to be made about whether to search for studies which measured school connectedness with the general population or whether to broaden this out to social interventions used specifically with a LAC sample. The author chose the second of these options; it was felt that, due to the diverse nature of the LAC population, more significant gains could be made from exploring research with LAC as participants, even if a range of social aspects were targeted, rather than school connectedness specifically. It was also felt that many of the primary studies into school connectedness with the general population had already been discussed during the main body of this literature review. The large body of research relating to PR meant that a specific exploration of "PR with a peer" was most appropriate and relevant to the aims of the present research.

To summarise the content of the systematic review, two searches were used to answer the following questions:

What is the impact of paired reading with a peer?

What is the impact of school-based social interventions on looked-after children?

The objectives of this review were to identify the research bases for both areas, in order to inform the aims and approach of the current research. Specific studies were then selected for further discussion using rigorous and replicable selection criteria and conclusions were drawn.

2.7.2. Inclusion Criteria

Inclusion criteria were selected to guide the literature search process. Two different sets of criteria were identified for each section. For the PR section it was decided to include studies that were:

- Presented in a published journal article
- Accessible to the author via full text
- Published within the last 30 years
- Based on research or systematic review and not a commentary or discussion paper
- Focused on paired reading with a peer and its effects on reading ability and/or a social measure for reading, such as confidence or self-esteem
- Led by a peer from the same school and conducted in a school setting (if different groups of tutors were used then a comparison needed to be present so that peers were looked at specifically)
- Focused on primary school-aged participants

The inclusion criteria for this section were chosen to ensure that the research discussed was professional, as current as possible and focused on exploring the results of PR with a peer of the child. Primary school-aged participants were selected, as this age group were underrepresented in the current research on LAC (Winter, 2010). The author, therefore, felt it important to explore the PR research with this age group to ascertain whether it could be applied to the under-represented looked-after population.

For the LAC social intervention section it was decided to include studies that were:

- Presented in a published journal article
- Accessible to the author via full text
- Published within the last 10 years
- Based on research or systematic review and not a commentary or discussion paper
- Focused on interventions that targeted a social aspect of development in LAC, which was not exclusively behaviour
- Focused on LAC that were school-aged
- Focused on interventions that were not specific to the foster/care setting i.e. were interventions for the LAC and not interventions, such as parenting or continuity of care for the foster carers.

The inclusion criteria for this section were broader than the first in anticipation of fewer studies looking specifically at this area. One of the areas of interest within the review was the methodology adopted to explore both interventions and whether this varied or was consistent across studies. As a result, design type was not included in the selection criteria for either section.

2.7.3. Research Identification

Once the selection criteria were defined, search terms were generated and databases chosen. Studies were searched for in May 2013 using three main electronic databases: 'PsycINFO' ('Ovid'), 'Wiley Online Library' and 'Google Scholar'. These databases were selected for their access to a large range and quantity of research journals. 'PsycINFO' and 'Wiley Online Library' were searched using a 'MetaSearch' on the University of Nottingham's eLibrary Gateway. To search all three databases the following terms were used for the PR section:

- "paired reading" and "peer"
- "paired reading" and "tutor"
- "paired reading".

For the LAC social intervention section the following terms were used:

- "looked-after children" or "foster children" and "social intervention"

- “looked-after children” or “foster children” and “school intervention”
- “looked-after children” or “foster children” and “peer support”.

The terms used led to a selection of research journals, which then had the inclusion criteria applied to them. Journals which did not meet the criteria were rejected during the search process. The PR search yielded four suitable research papers (three from PsycINFO and one from Wiley) and the social intervention for LAC search yielded four suitable papers (all from Google Scholar). An overview of this search process is presented in flow diagram form in Appendices 1 and 2.

2.7.4. Quality of Research

The quality of each study was assessed using a rating system based on the ‘weight of evidence’ model (Gough, 2007). This evaluates the quality of research using three criteria (A, B and C) leading to an overall rating (D). The first three weightings were used to further guide the inclusion process for this review before the final D rating was applied to each selected study. Each study was given a ‘low’, ‘medium’ or ‘high’ D rating. A summary of the overall D ratings assigned to each study is included in each of the tables in Appendix 3 and 4, which outline the studies discussed in this review, and at the end of each study. A more detailed discussion of the ratings can be found in the synthesis of each of the two sections. The subjective nature of the quality rating system adopted should be noted, along with the presence of one reviewer, rather than multiple reviewers, as advised by Petticrew and Roberts (2006) to reduce bias. The table below summarises Gough’s (2007) criteria for the A, B and C weightings and illustrates how they have been used to guide study selection in this review.

Weight of Evidence Criteria	Application to the Inclusion Process of this Review
A – Generic judgement about quality of evidence to draw conclusions	- Only research that has been published in a peer-reviewed journal will be included. - Research must be focused on exploring the outcomes of a peer-led PR intervention or a social intervention for LAC. - PR research from the last 30 years will be included (due to age of intervention). LAC research from the last 10 years will be included (to reflect rapidly changing dynamics in contemporary society, Craven & Lee, 2006)
B – Specific judgement about research design	- The research must report direct findings from the interventions used (impact on reading ability and/or a social aspect of reading in PR search and impact on a social measure in LAC search) - Due to the anticipated small research bodies for this specific search, research design will not be stipulated.
C – Judgement about the focus of the evidence and the relevance to the research questions in this review	- Research must predominantly use a primary school aged sample in PR search. - Research must predominantly use a school-aged sample in LAC search (to acknowledge the uneven weighting of such research with adolescents). Sample must be LAC. - All studies must include a detailed literature review - All studies must incorporate ethical considerations for such vulnerable populations

Table 2.1: Table summarising the Weight of Evidence criteria for the systematic literature review

The tables presented in Appendices 3 and 4 present a summary of the studies selected for review. In the following section the studies will be discussed separately and in greater detail. This discussion will focus on the design, participants, main findings and a critical review of the validity and reliability of each study. Studies will be grouped by design type to aid the synthesis process, which will follow each group of studies separately, before more general conclusions about the implications are made.

2.7.5. Systematic Review Results: Paired Reading with a Peer

Single Case Experimental Design

Limbrick, McNaughton & Glynn (1985) conducted a multiple baseline across-subjects design with three underachieving participants aged six to eight years, who were partnered with three underachieving peer tutors aged 10 to 11 years. An additional six children, three of each age group, acted as controls and did not receive intervention. The experiment had three phases; baseline, peer reading with no given structure and peer reading using PR. Data was collected using two standardised assessments, the Neale Analysis of Reading Ability and the Metropolitan Achievement Test and a repeated weekly measure involving passage reading and comprehension questions. Results showed that PR led to rapidly increased reading accuracy, self-correction and rate of progress. Tutees gained in reading age an average of 13 months, compared to controls who gained five months. Researchers stated that tutors were successfully able to learn and deliver PR accurately, although this area could have benefitted from more detailed evaluation. PR was viewed to enable reading of more difficult texts and result in motivation through book self-selection and social feedback. Informal observations showed positive relationships continued onto the playground. The study suggests a positive impact of peer-led PR, although data on the social aspect may have added interesting weighting to the anecdotal evidence on social relationships. Overall D rating ‘medium’.

Case Study

Winter (1986) presented a series of three case studies looking at PR with a peer. In the first, 15 pairs of primary school children used PR three times a week for six weeks. Participants self-reported positive gains and teachers noted increases in

reading skills, confidence and interest in reading in the tutees. There was also anecdotal evidence for an improved social atmosphere in the classroom following PR. A GAP reading comprehension assessment at pre and post test showed an average three month gain. Levelled passages read at pre and post revealed increased fluency, greater accuracy and increased self-correction. The second case study used 11 pairs of participants who spent one school term using PR five times a week. Gains in reading age averaged at 11 months for tutees and eight months for tutors. The third study used four pairs of participants aged between seven and nine. This study reported modest gains in accuracy and comprehension. However, praise was not encouraged as part of the process, eliminating a crucial aspect of the intervention. The small participant numbers in the studies make results difficult to interpret. The researcher herself questioned whether gains resulted from practice effects or differences in task difficulty, as these were not sufficiently controlled for. There is also little attempt to isolate the specific factors involved which may have led to the improvements in reading in the first two studies. Overall D rating 'low'

Randomised Control Trials (RCT)

Miller, Topping and Thurston (2010) carried out a randomised pre/post control trial using PR with a peer over the course of 15 weeks. The study focused on the differences between same-age and cross-age PR and its impact on self-esteem. Children aged 10 and 11 years were randomly allocated to being a same-age tutor, cross-age tutor, same-age tutee or control. The cross-age tutees were younger children from the same school as the tutor. PR was conducted once a week for 30 minutes and a pre and post measure was taken using Rosenberg's Self-Esteem Scale. An ANOVA analysis revealed significant differences in self-esteem, self-competence and self-worth for cross-age tutors and same-age tutees and self-esteem and self-competence in same-age tutors. There was no difference for controls. No significant difference was found between the type of role adopted and the subsequent level of self-esteem. The authors suggested that both tutors and tutees benefitted from PR by recognising their developing skills, which enhanced self-esteem. The randomised design raises this study's reliability and validity, although the authors note that additional process data would have been beneficial to further explore how self-esteem was affected. It should also be noted that the study did not look at

benefits for the younger tutees and did not look at actual reading gains, which could have led to an interesting correlation with perceived self-esteem. The duration and frequency of PR sessions in this study also deviates from that advised by the PR literature. Overall D rating 'medium'

Another RCT was carried out by Topping et al (2011) using pupils in 80 schools, totalling 8,847 pupils across Scotland. Schools were randomly assigned to one of 12 intervention types based on reading or maths, reading and maths, same-age tutors, cross-age tutors, light (once per week) or intensive (three times per week).This intervention lasted for 15 weeks and was repeated the following year using the same pupils. Short-term data was collected using the NFER Group Reading Test and Suffolk Reading Test pre and post the 15 week blocks. Long-term data was collected six months before and after the two year involvement and used a reading comprehension test. Direct observations were also used to check implementation. Results showed a significant effect of PR on all tutors and tutees in the short-term compared with controls. In the long-term a significant effect existed for the cross-age pairs only, although comprehension was the sole measure used. Highest gains were made in the maths and reading condition as well as for participants of low socio-economic status and lower reading ability. Level of intensity was not found to be significant. Implementation was variable, with praise, tutee signalling and synchronised reading rarely observed. Authors suggest implications for whole-school approaches to reading intervention in their discussion. It should be noted that measures focused heavily on reading comprehension rather than reading accuracy. Despite this, the application of a large-scale RCT to PR with significant effects is a promising addition to the research literature. Overall D rating 'high'

2.7.6. Synthesis of Paired Reading with a Peer

2.7.6.1. Main Findings

When synthesising the information gained from the search, several conclusions can be made with regards to the quality of the studies and their ability to provide evidence for PR with a peer, with primary school-aged children. Only four studies were suitable for inclusion in this review, however all four demonstrated a significant effect of the intervention on either reading accuracy and comprehension

or self-esteem. This answers one of the questions posed at the start of the review that PR can be successful when used with a peer of the target child. Additional anecdotal evidence was provided by two of the studies suggesting positive effects on social relationships and motivation for reading (Limbrick, McNaughton & Glynn, 1985; Winter, 1986) Both same-age and cross-age peers appear to be effective, although there are some suggestions by Topping et al (2011) that cross-aged tutors have a higher impact in the long term.

2.7.6.2. Research Design and Measures

There was a high level of variance in both the research design adopted and the size of sample used, which impacted on the individual levels of reliability and validity. The more recently published studies (Miller, Topping & Thurston, 2010 and Topping et al, 2011) used randomised control trials with much larger groups of participants. These later studies also included large control groups to enable comparison and more explicit conclusions from the intervention results. All of the interventions used standardised assessments as their primary measure, with some studies additionally using levelled passages as a more repeatable measure (Limbrick, McNaughton & Glynn, 1985).

2.7.6.3. Research Samples

All of the studies included used a primary-school aged sample, which was one of the inclusion criteria. This has provided evidence for the efficacy of the intervention to be used with this age group, which was a question posed at the start of the systematic review. This was posed in order to make links to the potential for using PR with the under-represented population of primary school-aged LAC in current intervention research. All four studies demonstrated that positive effects could be gained in the primary context and with primary school-aged peers as tutors.

2.7.6.4. Approach to Intervention

All of the studies attempted to follow the traditional guidelines for PR; however a couple (Topping et al, 2011; Winter, 1986) noted difficulties with ensuring precise implementation in schools. Both studies commented that praise, in particular, was often lacking during their treatment integrity checks, which is a significant aspect of

the approach (Morgan, 1986). This highlights the need to encourage this element of the intervention in the present study.

2.7.6.5. Weight of Evidence Ratings

There was variation in the weight of evidence D ratings, as discussed by Gough (2007), ranging from 'low' to 'high' This was predominantly based on the chosen research design, sample size, presence of control or comparison and explicit reporting of results. As previously discussed, the more recent studies adopted more rigorous designs enabling them to make more generalizable comparisons to their control groups. They also statistically analysed the results and discussed the implications of the intervention in detail. Consequently they were awarded 'medium' and 'high' D ratings. Winter's (1986) study was the only one to be rated 'low' and this was due to the case study design, lack of control or comparison groups and failure to examine the reading outcome in detail. This led to more vague conclusions about the efficacy of the intervention.

2.7.6.6. Summary and Implications

To summarise, the studies demonstrate the potential for PR to produce significant effects on the reading ability of primary school-aged children. Despite this, there is an emphasis in the research discussed on identifying a relationship, rather than exploring the reasons for this and the specific aspects of PR that make it successful. The studies illustrate that primary school-aged peers are capable of learning the tutor role in the intervention and of delivering it successfully. Some studies even reported on the significant gains for the peer tutors' own reading. Implications for the present study are, therefore, that PR with a peer can be effective and can positively impact on reading ability and potentially on other areas, such as motivation. Caution should however be taken to ensure that all of the components of PR, including praise, are used and that a large enough sample size is included to draw valid conclusions from the data.

2.7.7. Systematic Review Results: Social Interventions for LAC

Randomised Control Trial (RCT)

Pears, Fisher and Bronz (2007) developed a social intervention for foster children and evaluated its effectiveness in a USA-based RCT pilot study. Twenty-four participants with a mean age of six years were randomly assigned to an intervention or comparison condition. Intervention children attended a therapeutic playgroup twice a week for seven weeks, which focused on improving social competence and self-regulation skills. Techniques were taught to the participants and they were given opportunities to practise in a peer group context. Playgroup teachers experienced with foster children were given detailed training and weekly supervision. Intervention integrity was checked weekly by a trained observer. The comparison group received the regular services provided to foster children. Measures included a pre and post behaviour checklist and emotional regulation checklist completed by foster carers and a teacher report and emotional regulation checklist completed by teachers one month after the children had started at school. A large, significant difference was found between emotional regulation, as reported by foster carers. No other significant effects were found. This could have been because some participants had already attended school for two years and so may have had more established patterns of school behaviour or been less responsive to intervention. More objective measures of social development may have been beneficial to limit effects of bias and determine more detailed conclusions about the intervention. Additionally the small sample size of 11 intervention participants makes analysis of data more difficult. Overall D rating 'high'

Mixed Methods Design

Another USA-based study by Strozier et al (2005) used a mixed methods design to combine quantitative and qualitative data when looking at the effects of a kinship care school-based intervention, with particular focus on self-esteem. This intervention was used with 235 students with a mean age of 8.96 years who were in the care of a known adult. A multi-element intervention was administered for 18 weeks which included mentoring, academic tutoring, support groups and individual counselling. Support groups and individual support were also provided for the carers.

Pre and post data was collected using the Hare Self-Esteem Scale for the students and the Caregiver Self-Efficacy Scale for the carers. Statistical analysis revealed a significant effect of intervention on carers' response and a significant effect on the students' self-esteem with regard to relationships with peers, home and school. Qualitative data was also collected from carers and students. This provided a narrative in the form of two case studies detailing the types of interventions used and the qualitative effects on two families. This study emphasised the benefits of basing such interventions in schools and highlighted the impact on self-esteem for both the school and home. The precise efficacy of the study is difficult to determine as there were many elements to the intervention and a log was not kept of the support each student accessed. Additionally, the study did not include a control or comparison group, limiting its reliability. The authors themselves note that a longitudinal measure would have provided interesting information about whether self-esteem was maintained after the intervention ended. Overall D rating 'medium'

Quasi-Experimental Design

A study by Whitemore, Ford and Sack (2003) used a pre-post single group design to evaluate the effectiveness of a two-pronged social and emotional intervention. Participants were 139 children aged between two and six years at admission who, on average had spent approximately 36 per cent of their lives in foster care. The majority of participants attended the Hand In Hand Day Treatment programme which involved four hours per day of special education, development skill building, individual and family therapy. The majority were also placed in proctor care placements which are specialised placements for children at risk of foster breakdown due to social, emotional and behavioural difficulties. Participants were not necessarily in proctor care for the duration of the intervention and this could not be controlled for. Average length of intervention was 627 days. Two standardised behaviour measures and three measures of development were used at the start of the intervention and at discharge. Twenty-nine families responded at a four year follow-up, answering interview questions and completing a behaviour checklist. Results showed a statistically significant effect of intervention on behaviour outcome and developmental gains, including on a personal-social subscale. Follow-up data could not be statistically compared due to the low response rate. Additional data showed

increased stability in school and home placements at both post-test and follow-up. Due to its nature, this study could not use random allocation and could not control for movement between the two types of intervention. Some participants were also prescribed psychiatric medication at different points in the intervention, which may have affected results. The study would benefit from a comparison group and improved measures at follow-up to enable statistical analysis. Overall D rating 'medium'

Systematic Review

A systematic review of therapeutic interventions for foster children was conducted by Craven and Lee (2006). By electronically searching using five search engines and a variety of search terms, 18 USA-based studies were identified. These fell into two categories; treatment interventions and preventative interventions and were evaluated based on a range of factors including sample, design, measures and analysis. Only studies in peer reviewed journals were included. Studies that involved children with various risk factors were included, reflecting the difficulties of finding studies with foster children only. Of the 18 studies, six looked at foster children specifically, half focused on prevention and half on treatment, five addressed specific difficulties and many involved multiple systems of care. Sample sizes ranged from one to 400, with half being categorised as 'relatively large'. In methodological terms, seven used randomised experimental designs, six included treatment integrity measures and 12 used a 'follow up'. Sixteen studies reported significant treatment effects, although only two discussed effect size. An overall evaluation using a classification system devised by previous authors labelled six studies as being 'well-supported and efficacious', three 'supported and probably efficacious' and nine 'supported and acceptable'. The main strengths of the studies included the range of interventions, half having a large sample size and all incorporating a comprehensive literature review. The limitations were identified as lack of methodological rigor, lack of follow up, presence of developmental changes in children over time, non-random allocation and participants changing foster placements during intervention. The review concluded that there are not enough evidence-based interventions for LAC considering the size of this population. This review included an explicit approach to

research identification and evaluation and provided a comprehensive coverage of the existing literature in this specific area. Overall D rating ‘high’

2.7.8. Synthesis of Social Interventions for LAC

2.7.8.1. Quantity of Research

One of the most important points to note from this search is the significantly small number of studies which have looked at social interventions and LAC. Only four were identified as matching the inclusion criteria and working exclusively with LAC. The systematic review by Craven and Lee (2006) echoes this notion by identifying six studies with LAC. Their review expanded its search criteria to include children facing various risk factors to compensate for this limited number. A greater number of studies chose to analyse interventions for foster carers. Such studies were rejected from this review, as their aims and procedures cannot be applied to the school setting.

2.7.8.2. Origin of Research and Research Design

Of the studies included in this review, of which all were based in the USA, there was a high level of variation in the type of interventions used, however the majority included multiple elements. This made their analysis more problematic, as it was less clear which aspect of the intervention had resulted in the outcome. Each study used a different research design, however none included the least rigorous case study and anecdotal designs, as detailed by Scott et al (2001) in their hierarchy of evidence. Only one study used a comparison group (Pears, Fisher & Bronz, 2007), with the other studies citing methodological and ethical reasons for their absence of control or comparison groups. A limitation of this is that results cannot be compared, meaning it is difficult to relate changes in behaviour and social presentation to the interventions themselves and not additional factors, such as maturation.

2.7.8.3. Methods of Data Collection

All of the studies used self-report measures to collect data. These were completed either by the participants themselves, their carers or teachers. This type of data is effective in revealing participants’ views, which is clearly important when using an

intervention that aims to improve their social functioning, however it is vulnerable to desirability effects and repeated social measures can also be affected by experience of the measure (Robson, 2011). Some attempts were made to collect longitudinal data, which was successful in one study (Pears, Fisher and Bronz, 2007) but not another (Whitemore, Ford and Sack, 2003). Mortality is a significant threat to validity with any population, but particularly LAC, where there is an increased risk of placement transfer and discontinuation of involvement. It would have been interesting had some of the studies included a follow up measure to ascertain whether improvements in social functioning were long-lasting. The results that were provided indicated some significant effects in each of the studies. The effects included improved emotional regulation, self-esteem and personal-social behaviour. This suggests that interventions can be successful in targeting social aspects in the development of school-aged LAC.

2.7.8.4. Weight of Evidence Ratings

All of the interventions in this section of the review were given either a 'medium' or 'high' weight of evidence D rating. This reflected their large sample sizes, focus on school-aged LAC and detailed analysis of results to determine the effects of social interventions. Those studies rated as 'medium' rather than 'high' were limited by their less rigorous designs and lack of control or comparison groups. All four studies provided important information about the current literature on social interventions for LAC and highlighted a definite need for additional research in this area, particularly in the UK.

2.8 Discussion of the Literature and Rationale for Present Study

A variety of themes and research areas have been addressed over the course of this literature review, in an attempt to combine two important areas of development: reading and school connectedness. One of the primary aims of the review was to highlight the difficulties faced by LAC in education and to emphasise the need for further research using this population, in order to devise methods for improving their academic and social outcomes.

The existing literature on reading development has highlighted the on-going discussion about the exact cause of reading difficulties and the most effective

methods for intervention. It is hoped that this literature review has illustrated that, whilst this debate continues, there is some consensus that different approaches to reading have different effects, depending on the individual child. This is particularly true for LAC, whose lives are often characterised by instability and who may have a number of reasons behind their slow development in reading.

School connectedness has also been shown to be an important part of a child's development, with implications for academic (Catalano et al, 2004) and social skills (King et al, 2002). The research included in this literature review makes suggestions as to why school connectedness may be more difficult for some LAC to achieve, owing to complications in their ability to form and sustain close relationships and the practicalities associated with placement moves (Unrau et al, 2008). Some interventions for school connectedness have identified the benefits of close partner working as a way of building a child's skills in relationship forming and supporting them to feel connected to the school setting (Karcher, 2005). School connectedness studies have predominantly focused on secondary school aged participants, despite some evidence that younger children are able to express their views on this subject (Winter, 2010).

School connectedness and reading are two important but quite distinct areas of development. This literature proposed that one specific intervention, paired reading, could have benefits for both areas, by combining reading instruction with close partner working, through the use of a peer variation of the intervention. There is a research base which details the positive effects of PR on reading accuracy, fluency, comprehension and self-esteem and research from the systematic review has shown that PR with a peer can lead to similar gains (Limbrick, McNaughton & Glynn, 1985). Anecdotal evidence included in many of the PR studies suggests that, in addition to reading ability, the intervention may be successful in increasing self-confidence, enjoyment and motivation for reading and social relationships with the reading peer. Such benefits would be particularly positive for LAC who may have difficulties in these areas, hindering their reading progression.

The systematic review also revealed that there is a significant lack of evidence-based interventions aimed at improving social aspects of LAC's development and this is especially true for primary school-aged children. This provides further weight to the

argument that a successful PR intervention could have a valued place in the development of education for LAC. This review has explored the methodological approaches, the strengths and the limitations of the existing research in both PR and social interventions for LAC and has led to a number of considerations for the present research, in terms of design, measures, sample and data analysis.

The present research project will aim to draw on many of the areas discussed in this review by using PR with a peer, with primary school-aged LAC in an attempt to improve their reading ability and their sense of school connectedness. Primary school children have been selected in response to their relative absence in many school-connectedness and social intervention research studies and due to the apparent benefits that have been found for primary school children in the PR literature. The subsequent research questions and hypotheses for this study are outlined below.

2.9 Research Questions and Hypotheses

Overarching Research Question: Does paired reading with a peer improve the reading ability and school connectedness of looked-after children?

Individual Research Questions:

1. Does paired reading with a peer improve the reading accuracy of looked-after children?

Experimental Hypothesis One: Paired reading with a peer will result in a higher reading accuracy percentage in the focus participants.

Null Hypothesis One: Paired reading with a peer will not result in a higher percentage of reading accuracy in the focus participants.

2. Does paired reading with a peer improve the reading fluency of looked-after children?

Experimental Hypothesis Two: Paired reading with a peer will result in a higher level of reading fluency in the focus participants.

Null Hypothesis Two: Paired reading with a peer will not result in a higher level of reading fluency in the focus participants.

3. Does paired reading with a peer increase the school connectedness of looked-after children?

Experimental Hypothesis Three: Paired reading with a peer will increase the school connectedness ratings of the focus participants.

Null Hypothesis Three: Paired reading with a peer will not increase the school connectedness ratings of the focus participants.

4. Are any increased school connectedness ratings maintained when the paired reading intervention is replaced with a non-structured peer intervention?

Experimental Hypothesis Four: Increased school connectedness ratings will be maintained when the paired reading intervention is replaced with a non-structured peer intervention.

Null Hypothesis Four: Increased school connectedness ratings will not be maintained when the paired reading intervention is replaced with a non-structured peer intervention.

5. Is paired reading with a peer associated with a positive change in a teacher's perception of a looked-after child's social presentation in school?

Experimental Hypothesis Five: Paired reading with a peer will lead to more positive teacher ratings of the focus participants' social presentation in school.

Null Hypothesis Five: Paired reading with a peer will not lead to more positive teacher ratings of the focus participants' social presentation in school.

Chapter 3: Methodology

3.1 Introduction to Chapter

This chapter will begin by providing a discussion of broad methodological areas, including real world research, ontology and epistemology before giving a detailed account of the research project undertaken. The chapter will close by addressing issues of validity, reliability and ethical considerations.

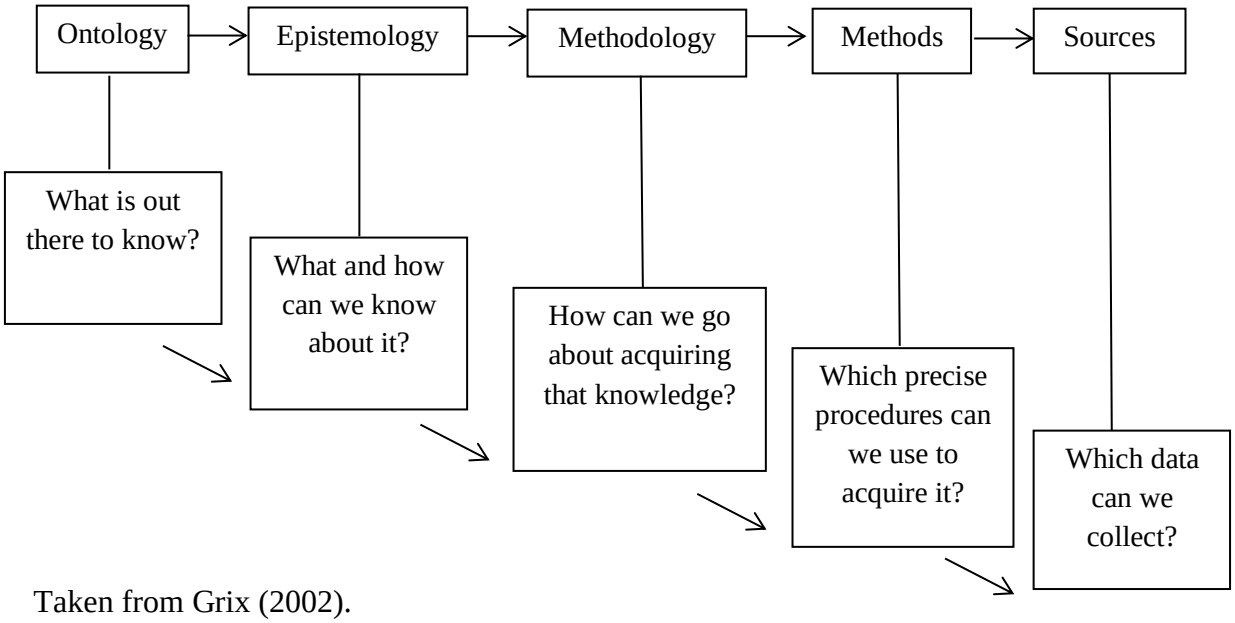
3.2. Real World Research, Ontology and Epistemology

Research, in its broadest sense, can be defined as an attempt by humans to explore and understand the environment around them and the phenomenon that exist within it. Cohen, Manion and Morrison (2011) identify three key characteristics of research, namely that it is systematic, empirical and self-correcting. Such attributes demarcate research from the more informal exploration routinely conducted by humans on a day to day basis. Within this umbrella term, 'real world research' is used to describe research projects which are conducted within the social context in which the phenomenon occurs (Robson, 2011). This research is typically small in scale and commonly related to change and the evaluation of an initiative. Robson (2011) summarises real world research by stating that it "fo*cuses on problems and issues of direct relevance to people's lives, to help find ways of dealing with the problem or of better understanding the issue"* (p. 4).

In addition to providing a definition, this quote illustrates the importance of real world research within the field of educational psychology. Here, a significant number of issues exist, which require greater understanding in order to inform the contribution of the educational psychologist. This links to the notion of evidence-based practice and the importance of research conducted in the educational setting to inform intervention. Frederickson (2002) echoes this viewpoint by stating that it is necessary for educational psychologists to both act on the research of others and conduct research themselves, enabling best practice to be at the forefront of the profession.

Within both the general notion of research and the more specific area of real world research, a number of ways of conceiving social reality exist. Ontology refers to the

nature of reality, whereby one can view social reality as either objectively external to individuals or as a subjective result of an individual's own cognition (Cohen et al, 2011). Epistemology refers to the nature of knowledge, including the way in which it is obtained and communicated to others (Mertens, 2010). This has considerable implications for the role the researcher adopts in their research, either as an objective observer or a subjective interactor (Cohen et al, 2011). Schwandt (2000) suggests that such paradigms are paramount to social research, as the practical activities associated with research inherently lead to questions around the nature of knowledge and social theorising. The paradigms of social reality are also used to aid the decision making process within research, in relation to the formulation of method and design. The author found the following model useful when reflecting on ontology, epistemology and methodology and the relationship between the concepts:



Taken from Grix (2002).

Figure 3.1: A representation of the relationship between ontology, epistemology and methodology

3.3. Research Paradigms

Two notable paradigms within social research, which embed differing aspects of ontology and epistemology, are the positivist and constructivist paradigms. They will be discussed in more detail before the position of the present research is considered.

3.3.1. Positivist Paradigm

The positivist paradigm holds the ontological assumption that one reality exists and that the social world can be studied in a way that affords causal attributions to be made (Mertens, 2010). With regard to epistemology, positivism suggests that objective knowledge can be gained about the world through direct experience and that science is primarily based on quantitative data, gathered using strict procedures (Robson, 2011). The positivist paradigm has received criticism for its rejection of abstract and hypothetical knowledge and its emphasis on scientific rigour, which can be difficult to apply to real world research and the complex nature of human behaviour (Robson, 2011).

3.3.2. Constructivist Paradigm

The constructivist paradigm opposes the positivist standpoint and holds the ontological belief that there are multiple social constructions of the world. In an epistemological sense, reality is socially constructed and knowledge about the world is acquired from individuals who are active in the research process (Mertens, 2010). Subsequently, qualitative research methods that afford this interaction, including observations and interviews are prominent amongst researchers who adopt a constructivist view (Mertens, 2010).

3.3.3. Post-Positivist Paradigm

As a result of the critiques of positivism, an alternate paradigm entitled post-positivism became prominent. This held some of the positivist beliefs, whilst acknowledging elements of conflicting paradigms, such as constructivism. The post-positivist paradigm continues to strive for objectivity when seeking new knowledge; however it accepts the limitations that theories, hypotheses and researcher values can have (Robson, 2011). Here, experimental methods that yield quantitative data

continue to be used to establish validity and reliability, however there is a greater acceptance of their limitations. Consequently, quasi-experimental methods that enable some flexibility can be adopted. The present research adopts the post-positivist paradigm. It intends to seek a cause and effect relationship using a controlled method, whilst acknowledging the high level of variability and extraneous factors impacting on the looked-after sample and the intervention process.

3.4. Research Designs

3.4.1. Fixed Designs

The post-positivist paradigm in which this research sits endorses the use of fixed designs, in order to obtain results which either prove or disprove a theory (Robson, 2011). The designs are theory-driven and aim to establish causality, by manipulating one variable and measuring its impact on another (Mertens, 2010). Fixed designs can include experimental designs and quasi-experimental designs and typically collate quantitative data, although this is not a requirement (Robson, 2011). The randomised control trial is viewed by many as the 'gold standard' of experimental designs and the most valid approach to collecting quantitative data. The random allocation of participants to conditions reduces potential threats to validity and enables a clearer decision to be made about an intervention (Gersten et al, 2005). Although favourably viewed by many, others have highlighted the limitations of the randomised control trial in social research, where it may be difficult to group participants who have highly individual characteristics. Additionally, small-scale real world research studies may fail to obtain large enough participant numbers to afford random allocation and the very nature of the research may make this approach difficult on an ethical basis (Robson, 2011).

3.4.2. Flexible Designs

Flexible designs explore a topic or question, rather than measure pre-specified variables. These designs acknowledge the presence of multiple realities and have the ability to evolve as the researcher learns more about the subject (Robson, 2011). They predominantly collect qualitative data and can take the form of case studies, ethnographic studies and grounded theory (Robson, 2011). Such designs can produce large quantities of rich data, which is subjective in nature and can contribute to the

development of theories (Cohen et al, 2011). A limitation of the flexible designs is the lack of control, which reduces the researcher's ability to make causal links between variables. The post-positivist paradigm in which this research sits strives to determine cause and effect relationships, making flexible methods less appropriate for this study.

3.4.3. Selecting an Appropriate Design

As this study focused on the looked-after population, a difficulty in accessing and obtaining a large sample was anticipated. The nature of the sample also made it likely that participants would have significantly different home and school experiences. This would make comparison across participants difficult, which is standard in many experimental designs. The vulnerability of the sample led to additional ethical considerations regarding intervention delivery, for example withholding an intervention in order to form a control. These factors led to the author's decision to adopt a single case experimental design. This is a fixed design which produces quantifiable data, reflecting the post-positivist paradigm; however it affords more flexibility than other experimental designs by not requiring a comparison or control group and not relying on large sample sizes (Robson, 2011). The following section aims to expand on this decision by providing a more detailed insight into the approach.

3.4.4. Single Case Experimental Design

The single case experimental design (SCED) is one of a number of small scale designs which vary in their level of complexity. The SCED originated from the flexible case study but deviates from this through its attempts to integrate experimental rigor, by gaining quantitative data under controlled conditions. The design is intended to illustrate change over time and provide a more in-depth analysis for individual participants (Dugard, File & Todman, 2012).

The SCED originated from work by Skinner who stated that he wanted a design which "*produced meaningful, reliable data at the level of the individual*" (Robson, 2011, p.118). The SCED involves repeated measures being taken for each participant, initially in a baseline phase without intervention and then, once stable results have been achieved, in an intervention phase. A change in results during the

intervention phase can then be interpreted as a consequence of the intervention and not of extraneous factors (Dugard et al, 2012).

A key advantage of the SCED is that participants are treated as their own control, with individual cases being analysed separately. Although they can then be used to make general conclusions, the cases are not compared with each other. This approach results in the SCED being an effective method for use with a heterogeneous sample, such as LAC (Dugard et al, 2012).

The SCED can also be an appropriate design to adopt when it is not possible to randomly assign participants or when a new approach to an intervention is being tested on a smaller scale (Dugard et al, 2012). Many of these traits reflect the requirements of this study, making it an appropriate design to adopt. As with any design, there are methodological and analytical weaknesses and these will be discussed both in the following section and in later sections exploring data analysis.

3.4.5. Variations of the Single Case Experimental Design

At the most simple level, a SCED must have a baseline (A) and an intervention (B) phase to enable a comparison between the data pre and post intervention (Barlow et al, 2009). A frequently used variation of this design is the ABA phase, whereby the baseline condition is re-introduced following the intervention. With this design an effective intervention would have results which are significantly different in the intervention phase than in either the baseline or withdrawal phases. This type of design raises the validity of the basic AB SCED by indicating that any changes in data during the intervention phase were a result of the intervention alone and not extraneous factors (Robson, 2011). The ABA design can be problematic in studies which aim to 'teach' through intervention and where this learning cannot be 'undone' when the intervention is removed.

Additional approaches to the SCED include the ABAB design whereby the intervention phase is re-introduced for a second time and the multiple baseline design, in which the intervention is introduced at different time points for different participants. Again this aims to raise the potential for inferring a causal connection between intervention and results (Barlow et al, 2009).

3.4.6. ABC Single Case Experimental Design

Careful consideration was given when deciding on the most effective SCED design to adopt. A key factor was the time restriction placed on the author and the subsequent timescale in which the data could be collected. The school-based setting of the research had restrictions in terms of school holidays, which could potentially influence performance in a LAC sample to a greater extent than a non-LAC sample. Additionally, the overall length of the intervention needed to be mindful of the nature of the sample and the potential for participants to move residential placement and/or school during the intervention. This could have significant effects on motivation, academic performance and view of school and in some cases could result in withdrawal from the study. These restrictions led to the author discounting the use of an ABAB design and multiple baseline design.

Although some designs were discounted, the author was keen to implement a SCED with a higher level of validity than the AB design. The ABA design had some limitations due to the nature of the intervention and the fact that any learning achieved through PR could not be 'unlearnt'. Consequently a variation of this design, the ABC was adopted. With this design there was a baseline and intervention phase, followed by an alternative intervention phase (C phase). The C phase consisted of time spent with a peer on a meaningful activity, which was not PR. This enabled the author to collect some withdrawal data for reading ability, whilst providing more detailed information about the relationship between peer intervention and self-reported school connectedness. It was felt that a comparison between peer PR sessions and peer non-reading sessions could prompt an interesting, additional analysis. It also enabled the author to consider whether self-perceived reading gains influenced school-connectedness, rather than the peer relationship.

3.4.6.1. Length of Phases

Three phases were included in this design and data points were collected on a weekly basis throughout. The baseline phase was intended to last for three weeks, providing three data points. This is the minimum number recommended by a panel of SCED researchers (Kratochwill et al, 2010). The author recognised a need for flexibility in phase lengths when attempting to determine a stable baseline trend, before

implementing the intervention (Barlow et al, 2009). The PR intervention was then intended to last for six weeks, followed by the C phase for a further three weeks, reflecting the advice on minimum data points. Due to unstable baselines, the following structure was adopted:

April 2013	May 2013	July 2013
Baseline	Paired Reading	C Phase Intervention
1 Participant = 3 weeks	1 Participant = 6 weeks	All participants = 3 weeks
4 Participants = 4 weeks	4 Participants = 5 weeks	

Table 3.1: A table summarising the length of phases in the present research

3.5. The Present Study

To summarise the previous sections, the present study adopted a post-positivist standpoint and used this to guide the selection of a single case experimental design (SCED). The SCED used an ABC design to measure periods of no intervention, PR with a peer and non-reading time with a peer. Multiple SCEDs were used, totalling five cases.

3.5.1. Independent and Dependent Variables

The independent variables in this study were the PR and C phase interventions. The dependent variables were the reading accuracy and fluency and the level of self-reported school connectedness.

3.5.1.1. Rationale for the Dependent Variables

The author wanted to explore the impact of PR with a peer on reading ability and school connectedness. In this study, reading ability has been broken down into accuracy and fluency. Both measures are present in the existing literature, although reading fluency has received less exploration. The author was eager to include both aspects to measure overall reading ability. This has been recommended by a number of researchers who have suggested that fluency provides an overall picture of decoding skills (Deno et al, 1982; Fiala & Sheridan, 2003) and can also be used as a measure of word recognition and 'word attack' skills (Law & Kratochwill, 1993). Salvia and Hughes (1990, cited by Law & Kratochwill, 1993) recommended that

both accuracy and fluency be used as a measure for monitoring reading progress over time.

3.5.2. Research Questions

Overarching Research Question: Does paired reading with a peer improve the reading ability and school connectedness of looked-after children?

Individual Research Questions:

1. Does paired reading with a peer improve the reading accuracy of looked-after children?

2. Does paired reading with a peer improve the reading fluency of looked-after children?

3. Does paired reading with a peer increase the school connectedness of looked-after children?

4. Are any increased school connectedness ratings maintained when the paired reading intervention is replaced with a non-structured peer intervention?

5. Is paired reading with a peer associated with a positive change in a teacher's perception of a looked-after child's social presentation in school?

3.6. Stakeholders

In addition to epistemological and methodological considerations, the stakeholders involved in the research were also a key consideration. The following sections outline the stakeholders attached to this study.

3.6.1. The Local Authority (LA) and Educational Psychology Service

This research was conducted in an LA in the North West of England. The LA had identified LAC as a target population and had established initiatives to support their development. This included the designation of an educational psychologist post with specific responsibility for LAC, raising the profile of the population within the educational psychology service (EPS). The EPS reflected the views of the author that

research looking at interventions with LAC would be purposeful and relevant to the LA's context and priorities. It was agreed that the study's conclusions would be shared with all EPs during a team meeting. It was also agreed that this information would be shared with the LAC mentors through the LAC EPs.

3.6.2. Social Workers

The four social workers involved in the study felt that the children in their care would benefit from additional school intervention, particularly in the areas of reading and social development. The social workers were interested in effective strategies for the children to further their development as well as an increased profile for the children within their schools, particularly for those that had moved there recently. Social workers were kept fully informed of the progression of the study and were provided with general feedback at the end of the process.

3.6.3. Schools

The five primary schools felt strongly about supporting the LAC in their schools. Subsequently, they were supportive of an intervention which could lead to both academic and social progression. The schools were also eager to benefit from a new intervention on a wider scale. Consequently, training was delivered to teaching assistants and older pupils in PR and intervention materials were provided so that the intervention could be repeated with other children in future years.

3.6.4. The University of Nottingham

As part of the doctorate course, the university required a research project to be conducted and reported. This ideally focused on measuring the efficacy of an intervention and should have strived to make a worthwhile contribution to psychological research. The author felt that the analysis of the PR intervention with LAC satisfied this.

3.7. Participants

3.7.1. Focus Participants Inclusion Criteria

The focus participants in this study were looked-after children under the care of one local authority in the North West of England. The participants were selected through careful discussion with two educational psychologists (EPs) who had responsibility for LAC and two learning mentors, who were employed to directly support LAC within the authority. They were provided with a definition of school connectedness to help inform discussion. The main inclusion criteria for the participants were:

- LAC-status for the previous 12 months (children could be living with related or non-related foster carers or in a children's home)
- In the care of the local authority in which the researcher was working
- Reading ability below that expected of their age group (based on National Curriculum reading levels assigned by their teachers)
- Identified by an educational psychologist or learning mentor as a pupil who would benefit from an intervention to improve school connectedness
- In Years Two, Three or Four of a mainstream primary school
- Not receiving any specific one to one reading intervention

An on-going inclusion criterion was:

- Receiving 50% of the recommended number of intervention sessions

3.7.2. Rationale for Inclusion Criteria One and Two

It was necessary for participants to fulfil these inclusion criteria to ensure that the author was focusing on children who had looked-after status. The author specified a minimum period of 12 months in care to correlate with government criteria when reporting on outcomes for LAC (Department for Education, 2013). This was also done to reduce the likelihood of the participants being in a state of high anxiety and upheaval, which may be experienced upon entry to the care system and to reduce the likelihood that they would cease being looked-after during the research process. The second criterion was selected for practical reasons so that the author could engage with local stakeholders and increase ease of communication and data collection. Andrew was an exception to this criterion as he was educated in a neighbouring LA.

One of the learning mentors and EPs felt strongly that Andrew could benefit from this type of intervention and so he was included on ethical grounds.

3.7.3. Rationale for Inclusion Criteria Three and Four

The third and fourth criteria were included to ensure that the participants had difficulties in the areas that PR intended to target. Both the EPs and learning mentors knew the pupils, their backgrounds and their areas of difficulty well and so their opinions were highly valued by the author. The learning mentors were included alongside the EPs to ensure that pupils who had not had involvement from the EPS were considered.

3.7.4. Rationale for Inclusion Criteria Five

This criterion ensured that participants were old enough to engage with PR but younger than the Year Five and Six age groups. This was so that a suitable peer could be chosen from one of these classes and not from the child's own class. This decision was made in case some pupils did not want to read with a member of their own class, which could have caused complications for the school connectedness measure. Also, existing literature has suggested greater gains when using mixed-aged tutors and tutees (Topping et al, 2011). To ensure consistency across schools, it was decided to select pupils who were Year Four or younger as the focus participants.

3.7.5. Rationale for Inclusion Criteria Six

This criterion reduced a potential threat to internal validity. If participants were already receiving a structured reading intervention it would be difficult to make a direct causal link between improvements in reading or school connectedness and PR. Consequently, as a maximum, only pupils who were receiving additional unstructured sessions or literacy interventions which did not focus specifically on reading strategies and which had been ongoing for longer than six months were included.

3.7.6. Rationale for Inclusion Criteria Seven

This criterion was monitored by the author on a weekly basis. It was included to

ensure that participants were receiving a minimum amount of PR. This was to ensure that conclusions could be made with a high degree of confidence that participants had received an adequate amount of intervention time, raising validity. If schools were not providing the minimum 50% intervention time then the participant would be withdrawn from the research, although the intervention would continue to be supported by the author for the remainder of the study for ethical reasons.

3.7.7. Focus Participants Overview

Seven children were identified as being appropriate for the study. Consent could not be obtained for one, resulting in six participants. None of the participants had a statement of SEN but all, except Andrew, were at a School Action stage of support for learning. Andrew was at a School Action Plus stage of support, however this was for behaviour. Being on the SEN register was not an inclusion criterion for this study, as the author did not want to overlook participants that could benefit from the intervention. Advice from professionals who knew the participants and their ability well was drawn on, rather than SEN-status at their current school. All of the participants were in a foster placement. Again, placement type was not an inclusion criterion.

After beginning the intervention it became apparent that one school was unable to support PR to the level required and so this participant was withdrawn. Although data collection was stopped, the intervention was continued for ethical reasons. This left five participants from four different primary schools. A summary of the main characteristics of each participant is presented in the table below.

Participant	Sex	Age (at start of study)	Year Group	LAC Placement	Length of time in care	Length of time at current school*
Matthew	M	8 years 1 month	3	Foster Care	3 Years 10 months	3 Years 7 months (from Reception)
Mike	M	6 years 8 months	2	Foster Care	3 Years 10 months	2 Years 7 months (from Reception)
Sarah	F	7 years 5 months	2	Foster Care	1 year 11 months	7 months
Claire	F	8 years 1 month	3	Foster Care	1 year 2 months	10 months

Andrew	M	9 years 0 months	4	Foster Care	3 years 3 months	7 months

*Taken from the start of their involvement in the research project (April 2013)
Table 3.2: A table summarising the key characteristics of the focus participants

3.7.8. Breakdown of Participant Characteristics

For each case included in the study, a description of the main characteristics of the participants and their school context is presented below. School context is informed by the most recent Ofsted report available for the schools. This has not been referenced to protect confidentiality.

Case A – Matthew

Matthew was in a foster placement with his younger brother, who was also a participant in this study (Mike). He attended a larger than average-sized, Church of England primary school which had above average numbers of pupils entitled to free school meals. In Year 3 Matthew had a National Curriculum reading level of 1A, which was one level below the expectation for a Year 2 child (Gov.uk, 2013) Matthew had displayed some challenging and defiant behaviour in school, with both staff and peers and so it was felt that he would benefit from an intervention which would promote school connectedness. Matthew received some additional unstructured reading sessions and took part in a whole school reading programme twice a week, which he had received since Reception.

Case B – Mike

Mike was in a foster placement with his older sibling (Matthew) and attended the same school. Mike had a National Curriculum reading level of 1C which was one level lower than the expected reading level for his age group. Mike presented as quite a withdrawn pupil and his friendships were limited to family members. He was, therefore, seen as appropriate for an intervention which would promote school connectedness. Mike received some additional unstructured reading sessions and took part in a whole school reading programme twice a week, which he had received since Reception.

Case D – Sarah

Sarah was in a foster placement alongside her two younger sisters and had seven older siblings who were in different foster placements. Sarah attended an above-average sized, Roman Catholic primary school that had below average numbers of pupils entitled to free school meals. She had a National Curriculum reading level of 1B which was one level below what is expected of her age group. Sarah had been at the school for less than a year and was still forming friendships within her class. Sarah received one weekly session of literacy support from an outside agency, which she had been receiving for approximately six months. This support was not specifically reading-based.

Case E – Claire

Claire was in a foster placement with her older sister. She attended a larger than average-sized, Roman Catholic primary school, which had average numbers of pupils entitled to free school meals. In Year 3 she had a National Curriculum reading level of 1A which was one level below the level expected of a Year 2 child. Claire had been at her school for less than a year and was still forming friendships within her class. She received some additional informal reading sessions with a teaching assistant but did not have any structured intervention.

Case F – Andrew

Andrew was in a foster placement and was an only child. He attended an average-sized Roman Catholic primary school, which had average numbers of pupils entitled to free school meals. Andrew was the only pupil who was educated in a neighbouring LA. He had a National Curriculum reading level of 3C which was just at the low end of the average level expected for his age. Although Andrew's reading level was higher than some of the other participants when compared with peers, he had significant difficulty with reading motivation and his day to day classroom performance was deemed to be below average. It was also felt by school staff that Andrew could be achieving a much higher reading level but that his lack of concentration and motivation led to preventable mistakes. Andrew had been at his school for less than a year and had significant difficulties forming positive relationships with both peers and adults in school. He had also received some

temporary exclusions for behaviour. Andrew did not receive any additional reading input.

3.7.9. Additional Participants: Peers and Teaching Assistants

To facilitate the intervention, peers of the focus participants were selected. Each focus participant had their own peer, resulting in five peers. All of the peers were in Year Five and either nine or ten years old. Year Five pupils were selected by schools to reduce potential disruption during the Key Stage Two SATs and to enable them to continue with the peer intervention during the following academic year, if successful. Peers attended the same school as participants and were selected by the head teacher of the school, following discussion with the Year Five teachers. The peers had a National Curriculum level which was at least two levels higher than the participants to ensure their suitability as a PR tutor. They were also selected for having a patient and sociable nature. The author considered asking the participants to choose the sex of their peer tutor, in anticipation that this may influence the school connectedness measure; however, after discussion with head teachers, it was felt more beneficial to select the most suitable peers irrespective of their sex. All of the peer participants were female.

The head teacher of each school identified a teaching assistant (TA) to oversee the intervention. As there were four schools participating in the research, four TAs were selected. The requirements for the TAs were that they were available to attend the PR training, could oversee the intervention three times a week by being in the same locality as the participants and peers and could maintain contact with the author throughout the study. All TAs were female and, in the school where there were two focus participants, the same TA oversaw both interventions. With the exception of Andrew, none of the TAs had experience of working with the focus participants. Andrew's TA had worked with him in class and so was familiar with his patterns of behaviour. It was felt that this was an important requirement by his school.

During the study, class teachers were asked to provide two pieces of information about the focus participants. Firstly, they provided the participants' National Curriculum reading levels at the start of the intervention. Secondly, they completed the Strengths and Difficulties questionnaire at the start and end of the study. The teachers were not considered to be participants in this study, as their role was purely

to provide additional information and they were not involved in the intervention process.

The following table illustrates the total number of participants when the peer tutors and TAs are included.

Participants	Number of Participants (N=)
Focus Participants (LAC)	5
Peers	5
Teaching Assistants	4

Table 3.3: A table displaying the total number of participants in the present research

3.8. The Paired Reading Intervention

Paired reading (PR) is an intervention built upon the principles of whole text reading. The two main aims of the approach are simultaneous reading and reinforced individual reading (Morgan, 1976). A weak reader is paired with a more advanced reader to share and guide the reading experience by discussing the text and having opportunities to read aloud either independently or simultaneously. The approach encourages fluent reading and minimal input from the tutor (Morgan, 1976). The intervention allows for the discussion of text, reflecting theories which emphasise the need for language-rich experiences and context-based learning during the development of reading (MacDonald, 2010).

3.8.1. Implementation of the Intervention

Existing literature was drawn upon to support the implementation of the intervention. This included guidance on the content of the sessions (Morgan & Gavin, 1988) and thinking prompts for planning PR with a peer (Winter, 1986). After appropriate participants, peers and TAs were selected, the author worked alongside the schools to organise PR training. Each peer and TA were taught the approach together by the author and given opportunities to practise as a pair. They were also provided with training materials for their future reference, both a detailed version and a quick reference flow chart (see Appendices 5 and 6) as well as

guidance for the reading errors procedure (Appendix 7). The author also taught the PR procedure to the participants in a separate, individual session. This was done partly for practical reasons and partly to ensure a good level of understanding for all involved. The first PR session was observed by the TA to ensure that the peer and participants had retained the information provided. Subsequent sessions were led by the peers, with the TA available in either the same room or an adjoining space. Some TAs spent this time working with other children and some completed paperwork tasks. The TAs were instructed to only become involved in the intervention if their support was requested or if they were concerned about behaviour or individual actions.

The procedure adopted for this study has been taken from recommendations made by Morgan and Gavin (1988) and is present in much of the existing research. PR began with the participant choosing a real book. The participant and peer discussed the book, making predictions about the plot and potential characters and themes involved. The participant then read simultaneously with the peer. This provided a model to the participant and maintained appropriate pace. When confident, the participant signalled to the peer and they continued the text independently. If an error occurred or the participant was unable to correctly read the word within four seconds, the word was provided by the peer and repeated by the participant. This allowed the participant to learn new words in context. The participant and peer continued to read simultaneously until the child once again signalled their confidence to read independently (Morgan & Gavin, 1988). At the end of the session the participant and peer discussed the book.

Peers were asked to implement PR three times each week for approximately 15 minutes in a quiet area of school. Morgan & Gavin (1988) recommended daily intervention; however this was for a parent-led version of PR and so the author felt that three days of intervention was a more realistic request from schools. A similar approach has been taken by other researchers (Topping 1989; Topping et al, 2012; Winter, 1986). Some TAs created a timetable for the intervention so that it was conducted at similar times every week; others completed the sessions more flexibly. Peers were given a structure to follow, which included two minutes of discussion about the book, ten minutes of reading and two minutes of summary discussion. They were provided with some prompt questions to support the discussion phases

(see Appendix 8). The participants were instructed to select their own reading material, to ensure the selection was based on interest. Free choice was emphasised as a significant element of PR. This aspect of the intervention was monitored by TAs, either by checking that the text was not inappropriate or by providing a large, random selection of books which could be accessed by the peer tutor. This was done to prevent frustration or difficulties with the process, arising from material that was significantly too difficult, as cautioned by Miller and Kratochwill (1996). A similar approach was adopted by other researchers (Fiala & Sheridan, 2003; Topping, 1989). At the end of each session the peers were asked to complete a simple record form (see Appendix 9).

During the C phase PR was stopped and the peers spent time with the participants on a meaningful task that required discussion. The TAs supported the content of these sessions and they typically involved playing games with either an ICT or numeracy theme. Again, peers were asked to implement these sessions three times a week for 15 minutes and to log this using a record form (Appendix 10).

3.8.2. Ensuring Integrity of the Intervention

A number of measures were taken to ensure integrity. Firstly, all peers and TAs had access to the training materials so that they could independently check the correct procedure. Additionally, TAs were provided with an integrity check list (see Appendix 11) and asked to observe two sessions, one near the beginning and one at the end of the PR intervention phase. This highlighted any aspects of the procedure that were not being followed and led to support by the TA in these areas. Alongside this, the author also completed an integrity check during the first three weeks of the intervention. Any areas of concern were highlighted to both TAs and peers. The diary log of the PR and C Phase sessions was checked weekly by the author to ensure that a minimum of one session per week was completed.

3.8.3. Contingency Measures

A contingency plan was put in place by training the TAs in PR, along with the peers. This provided the peers with in-school support should they face difficulties. It would also have enabled the TA to train an additional peer if the original left the study or was absent for a prolonged period, which did not occur. The TAs were also asked to

oversee the intervention delivery so that they could provide flexibility in rescheduling sessions if either the peer or participant were absent from school.

3.9. Research Measures

The SCED design relies on repeated measures to show potential change over time. To address research questions one to four, two repeated measures were used. The first measure assessed the reading ability of the participants by measuring their accuracy and fluency and the second measure assessed the school connectedness reported by the participants. These measures were taken once a week on either a Thursday or Friday so that the school connectedness for that week could be quantified. All of the repeated measures were taken by the author to ensure continuity of approach across participants.

3.9.1. Measuring Reading Ability

To assess reading ability, information on both accuracy and fluency was collected. The participants were given a book to read from the reading band that was one level higher than their classroom reading book. The books were selected in a random order from this reading band. This was done to: ensure that the books did not increase in difficulty as the measure progressed, allow comparison between data points across time, limit potential familiarity with the book and prevent classroom reading books overlapping with repeated measures books. It was also an appropriate approach on a practical level, as it ensured there were an adequate number of books accessible within the school for the measures. Initial discussions with the schools revealed that Oxford Reading Tree was primarily used as a reading scheme and so the books had been banded externally and provided consistency across participants. Any participants that entered the reading measure text band during their classroom reading were moved up a band for the reading measure text. This guaranteed that all participants were assessed using a book which was one band higher than their classroom books at all times. This procedure was only necessary for one participant, Andrew. A new book was used each week to avoid practice effects with specific vocabulary or terminology.

3.9.2. Administering the Reading Measure

The reading measure was administered each week by the author. The participants read from the start of their reading measure text for three minutes. The number of words read was counted, as well as the number of words read incorrectly. This information was used to show the total number of words read in three minutes (fluency) and was then used to calculate the percentage of words read correctly in three minutes (accuracy). Any word that was read incorrectly or was omitted was considered an error, as suggested by Law and Kratochwill (1993). Self-corrections were marked as correct words in this study, as the author considered this more reflective of the natural reading process, a view mirrored by Nes (2003). The author did not correct any reading errors during the measure. There was little guidance on the most effective approach to error correction in the previous literature and so the author adopted one approach which was maintained throughout.

3.9.3. Measuring School Connectedness

The second independent variable was measured using a school connectedness rating scale created by the author (Appendix 12). This contained 10 statements which had a five point rating scale, with responses including 'not at all', 'a little', 'somewhat', 'quite a bit' and 'a lot'. The author's approach to the measure was based on Catalano et al's (2004) definition of school connectedness and so the statements addressed affective relationships in school and an investment/desire to do well in school. Some statements were modifications of pre-existing questionnaires, including the School Children's Happiness Inventory (Ivens, 2007), Voelkl's (1996) identification measure and Walton and Cohen's (2007) belonging measure. A novel measure created by Bond et el (2007) was also drawn upon. The school connectedness measure included statements such as 'This week I have felt that I am part of my school' and 'This week I felt that I fitted in with other children at my school'. The author felt it necessary to create a novel measure, as she did not feel that the existing measures fully addressed the theme of school connectedness. Guidance was sought from additional sources in relation to the design of the scale (Cohen et el, 2011; Robson, 2011).The novel measure was tested and amended using a pilot study, as detailed in section 3.9.5.

3.9.4. Administering the School Connectedness Measure

The school connectedness measure was also administered once a week on a Thursday or Friday. The measure was based on the participants rating their responses to a series of statements by assessing how they had felt in the week leading up to the measure. This enabled the measure to be repeated using the same questions, as the participants were applying them to a different context each week. The questions were read to all of the participants to ensure accuracy and during the first administration of the measure the participants were asked to provide a reason or example for their rating. This was done to ensure understanding for all of the questions. The questions were read in a random order each week to avoid repetition of responses. The rating scale had a scoring system applied to it which was not visible to the participants. This ranged from 0 to 4 and a total was calculated for each administration of the measure. A low total score indicated a low sense of school connectedness whilst a high score indicated a high sense of school connectedness.

3.9.5. Pilot Study for Repeated Measures

The school connectedness measure was piloted with three primary school children from the same school, aged between eight and nine years old. The pilot school was not a school from the main study but was in the same LA. The questions were read to the participants and they were asked to circle their responses on the rating scales. After each question the participants were asked if they understood the meaning and if any of the words used were unfamiliar to them. They were also asked about the rating scale and the presentation of the measure. This resulted in the following modifications:

- The wording in question four changed from ‘valued’ to ‘important’
- The phrase ‘in my school’ added to questions three and ten to emphasise the school connectedness element of the measure
- Rating scale responses altered to include more appropriate and clear terminology
- The overall design of the measure changed, resulting in a clearer ‘less-cluttered’ rating scale

The reading ability measure was also administered to the pilot participants, although this was done to provide the researcher with experience of using the approach. The measure was successful in obtaining information about reading accuracy and fluency and so was retained for the main study. The pilot did help to inform the most effective approach to recording this information on a weekly basis.

3.9.6. Pre and Post Measures: The Strengths and Difficulties Questionnaire

To supplement the data gathered from the repeated measures, the author decided to collect additional information using a pre and post measure. This was intended to relate to the school connectedness aspect of the research. It was felt that this was a useful addition considering the self-report nature of the novel repeated measure and the associated issues regarding validity and reliability (Barlow et al, 2009). To provide some triangulation to the data it was felt that this information should be supplied from a different perspective and so the measure was administered to the class teachers of the participants. The Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997) is a widely used behavioural screening questionnaire and was chosen as a pre and post measure for a number of reasons. Firstly, a version of the questionnaire has been written specifically for teachers, making it applicable for the intended respondents in this study. The questionnaire is simple to complete and is of a length which makes it appropriate on a practical level. It is also frequently used as a mental health screener with the LAC population, establishing its suitability for the sample of the study (Goodman et al, 2004; Whyte & Campbell, 2008). Additionally the questionnaire has been standardised, raising its validity and reliability as a data measure. Finally, the SDQ contains two scales (peer-problems and pro-social behaviour), which the author felt linked to the peer aspect of the school connectedness definition supplied by Catalono et al (2004). This definition had been used to illustrate the potential benefits of a peer-led intervention on school connectedness and so it seemed important to obtain information about the participants' responses to their peers in a wider context, as a result of their involvement in the study.

The SDQ contains 25 items which the respondent is required to rate. The items cover five subscales including pro-social behaviour, conduct problems, peer problems, hyperactivity and emotional problems. As the scales are presented in a random order,

it seemed appropriate for the teachers to complete the whole SDQ and for the author to focus on the peer problems and pro-social behaviour scales during the analysis process. A copy of the SDQ is included in Appendix 13.

3.9.7. Administering the Strengths and Difficulties Questionnaire

The SDQ was completed by class teachers at the start of the baseline phase and was repeated at the start of the C phase. Teachers were advised to complete the first questionnaire based on their knowledge of the participant in preceding weeks and to complete the second questionnaire based on the previous five/six weeks of the intervention. This did not include the C phase, so that the author could assess the impact of PR, specifically, on SDQ score. For one participant (Andrew) the SDQ was completed by two different teachers as there was a change in staffing during the intervention. This has implications for the reliability of Andrew's scores.

3.9.8. Additional Information: Author's Experiences

In addition to the data relating to the independent variables, the author also felt it beneficial to note observations during the research process. The primary purpose of this was to capture interesting points arising from the on-going dialogue that the author had with the TAs. The author considered this to be important, as the TAs had knowledge about the efficacy of the intervention on a day to day level and could provide information about the relationship between the participants and their peers. These observations were not intended to be collected or analysed as data in the study and so will only be referred to when the author reflects on the study during the discussion section. Despite this, informed consent was sought from the TAs before the inclusion of their comments.

3.9.9. Summary of Data Collection

The following table summarises the data collected for each LAC participant in this study.

Type of Data	Provided By	Collected By	Time of Collection	Research Question Addressed
Reading accuracy and reading fluency	LAC Participants	Researcher	Weekly – throughout phases	1 – Impact on reading ability
School connectedness rating	LAC Participants	Researcher	Weekly – throughout phases	2 – Impact on school connectedness level
Strengths and Difficulties Rating	Class Teachers	Researcher	Once during baseline and C phases	2 – Impact on school connectedness level

Table 3.4: A table summarising the data collected for each focus participant

3.10. Analysis of Data

3.10.1. Analysis of Repeated Measures

Visual analysis has been the most frequently used method for analysing data obtained through the repeated measures (i.e. the reading accuracy and fluency and the school connectedness score) in a SCED (Busk & Marascuilo, 1992). Despite this, there has been some debate more recently about whether statistical methods of analysis can offer a contribution to the design (Kazdin, 2003). The following sections will explore visual analysis and the potential statistical analyses, before stating the data analysis procedure adopted by the present study.

3.10.1.1. Visual Analysis

Visual analysis is conducted by graphically representing the data for each participant and determining whether the introduction of an intervention resulted in a significant change in results (Kazdin, 2003). Kratochwill et al (2010) have identified six areas that should be considered when assessing change:

- Level (the mean score for the data within a phase)
- Trend (the slope of the best fitting line within a phase)
- Variability (the degree of fluctuation between data points)

- Immediacy of effect (the change in level between the last three data points in one phase and the first three data points of the next phase)
- Data overlap (the proportion of data from one phase that overlaps with data from the previous phase)
- Consistency of similar phases (the extent to which there is consistency in the data patterns from phases with the same conditions)

Advocates of visual analysis suggest that the approach has the ability to identify any changes in data which are significant enough to be relevant to the researcher. Kazdin (2003, 291) also notes that visual analysis "*has the same goal as statistical analysis, namely, to identify if the effects are consistent, reliable and unlikely to have resulted from chance*".

3.10.1.2. Limitations of Visual Analysis

Despite the frequent use of visual analysis in single case research, some researchers have identified potential limitations. Brossart et al (2006) noted that a number of studies reviewing the method have found low to moderate inter-rater reliabilities, indicating inconsistencies in interpretation. Brossart et al (2006) also suggested that the vocabulary used during the inter-rater process could be vague and open to interpretation by the second rater. Matyas and Greenwood (1990) cautioned that visual analysis could result in a high false alarm rate and that replications of each study would be needed in different contexts to try to minimise this effect. It has also been suggested that visual analysis is inappropriate in the presence of autocorrelation (Brossart et al, 2006). Autocorrelation is the correlation between time series data and its own past and future values. Data points observed consecutively are more likely to be similar than those spread out. This causes complications when attempting to independently analyse specific data points and can lead to an increase in Type I errors, whereby a natural trend in the data is misinterpreted as a result of the intervention (Barlow et al, 2009).

3.10.1.3. Statistical Analysis

Some researchers have suggested that statistical analysis can be used as a supplement to, or an alternative for, visual analysis. Statistical analysis is defined by more rigid, replicable rules and methods and can be used to directly test the null hypothesis.

Despite this, there is a lack of consensus about the precise statistical analyses which are most appropriate and a lack of information about the individual analyses on offer (Parker & Brossart, 2003). Some of the prominent analyses debated in this area will be discussed in relation to their appropriateness for the present study.

3.10.1.4. Conventional *t* and *F* Tests

The *t* and *F* tests could be used to statistically compare the difference between mean results across phases and to assess within-phase variance. However, the probability that SCED data violates the assumptions needed for *t* and *F* tests makes their application to the approach very problematic and inappropriate (Barlow et al, 2009).

3.10.1.5. Interrupted Time Series Analysis (ITSA)

ITSA can be used to control for a number of potential types of autocorrelation before assessing the impact of an intervention. The approach is inappropriate for this study, as there is a requirement of at least 50 data points that have constant variance and no missing values (Barlow et al, 2009).

3.10.1.6. Split-Middle Technique

This approach enables the researcher to predict what would have happened to baseline data had the intervention had no effect. This can then be compared to what actually happened to the data during the intervention phase (Perdices & Tate, 2009). This approach is very susceptible to autocorrelation and is typically used graphically, rather than as the statistical approach that it was intended to be (Barlow et al, 2009).

3.10.1.7. Percentage of Non-Overlapping Data

PND involves calculating the percentage of intervention data points which are more extreme than the most extreme baseline data point. This method can be applied to any SCED design and is quick and easy to calculate (Parker et al, 2007). A key limitation of PND is its reliance on one baseline data point, which could be unreliable, therefore threatening the entire analysis. Additionally, PND lacks a sampling distribution and so has unknown reliability as an analysis method. A percentage of all non-overlapping data has recently been suggested as an alternative

to PND; however this method requires a minimum of 20 data points (Parker et al, 2007).

3.10.1.8. Randomisation Tests

Randomisation tests are described as a supplement to visual analysis, rather than a replacement (Perdices & Tate, 2009). The method relies on an aspect of the design being randomised, for the SCED this would mean randomising the timing of the intervention and measurement (Barlow et al, 2009). Some researchers have emphasised the potential for this approach to strengthen the validity of the SCED (Dugard et al, 2012), whereas others have described it as impractical. Randomisation tests require a large number of observations to reach statistical significance and suitable software and processing capabilities to assess the data (Barlow et al, 2009). There are also ethical and practical complications with regard to randomising the timing of the intervention (Scruggs et al, 2006).

3.10.1.9. Effect Sizes

Effect sizes can be statistically calculated to illustrate the strength of a change caused by the implementation of an intervention (Manolov & Solanas, 2008). Effect sizes are an attractive option in that they can be used with any sized SCED. Despite this, there are limitations relating to the lack of consensus about which calculation to use to obtain an effect size (Brossart et al, 2006). Similarly, there is a lack of clarity surrounding how to interpret effect sizes and it has been noted that some researchers select an interpretation which best fits their purpose, leading to doubts about the objectivity of the approach (Brossart et al, 2006).

3.10.2. Analysis of Reading Ability, Reading Fluency and School Connectedness Measures

After consideration of the statistical analyses available, the author decided that visual analysis was the most appropriate method for the present study. This decision was made for a number of reasons. Firstly, visual analysis is the preferred method for many researchers and reflects the traditional principles of the design. Secondly, there is a lack of consensus within the existing research about which statistical analyses are most appropriate and each of those discussed have limitations which make them

problematic in the present research. Finally, the author felt that recommendations from existing research, such as those outlined by Kratochwill et al (2010), could be adopted in an attempt to strengthen the validity of the visual analysis as much as possible.

In order to implement visual analysis, graphs were created for each measure. Each measure was illustrated using a standard SCED graph, a SCED graph with trend lines and a SCED graph with both mean and variance lines. This resulted in three graphs for each measure and a total of nine graphs for each participant. It was felt that these graphs would support the visual analysis process by illustrating potential patterns in data clearly. The graphs were created using Microsoft Excel and the guidance recommended by Carr and Burkholder (1998) and Dixon et al (2009). The graphs were then analysed in terms of level, trend, variability, immediacy of effect and data overlap, as advised by Kratochwill et al (2010). Immediacy of effect and data overlap were not explicitly represented on their own SCED graphs. The author felt that this aspect of the analysis could be completed by looking at the standard SCED graphs, as separate graphs did not make the analysis process any clearer with the data obtained in this study. There were also practical considerations, as creating two additional graphs would have significantly increased the total number of graphs created. The sixth aspect of analysis recommended by Kratochwill et al (2010), consistency of data across similar phases, is not appropriate for this study due to the ABC design adopted. A description of the methods used for each of the five factors, for each of the graphs, is presented below.

Visual Analysis Factor	**Method of Analysis**
Level	Mean lines plotted onto the SCED graphs. The difference between mean values commented on.
Trend	Trend lines inserted onto each phase of each SCED graph using Microsoft Excel. The slope of the lines for each phase and in relation to other phases was then considered.
Variability	Variance lines plotted onto the SCED graphs to illustrate the range of data around the best fitting line.
Immediacy of Effect	The difference between the last three data points in the baseline phase and the first three data points in the intervention phase, discussed using the standard SCED graphs. Similarly, the last

	three data points in the intervention phase and the first three data points in the C phase.
Overlap	The amount of overlap in data between phases discussed and then calculated and noted as a percentage. This was done by calculating the range of data points in the first phase and then counting the number of data points from the second phase that fell into this range. This number was divided by the total number of points in the second phase and multiplied by 100 to get a percentage (Harbst et al, 1991).

Table 3.5: A table outlining the method of analysis for each of the five visual analysis factors

A combination of narrative description and quantitative descriptors relating to the five visual analysis factors were presented in a table beneath the three graphs used to illustrate each measure. To provide inter-rater reliability for the visual analysis, a second rater then analysed each of the graphs. The data analysis process adopted by this study will be discussed in greater detail in Chapter 4.

3.10.3. Analysis of Pre and Post Measures

The Strengths and Difficulties questionnaires were manually scored using the scoring materials found on the website (www.sdqinfo.com). This resulted in four scale scores and one 'total difficulties' score for each participant at two time points; during the baseline phase and during the C phase. A summary of the scores were displayed in a table so that comparisons between pre and post intervention scores on the two target scales could be made for each participant.

3.11. Validity and Reliability

With any research design there are a number of potential threats to reliability and validity. This study attempted to recognise and minimise these threats, whilst acknowledging the author's inability to avoid them completely, as cited by the post-positivist perspective (Robson, 2011).

3.11.1. Threats to Validity

Validity relates to the worth that can be attached to a piece of research. This is done

by analysing the accuracy of the results and the trustworthiness of the findings (Cohen et al, 2011). Validity can be broken down into external and internal validity and each will be discussed in greater detail in the following sections. The social validity of a study is an additional consideration and will also be discussed.

3.11.2. External Validity

External validity relates to the generalisability of the data and explores whether the results and conclusions can be applied to a wider population (Robson, 2011). By their nature, SCEDs have a lower external validity than other experimental designs, as they focus on a small number of target participants (Horner et al, 2005). A key feature of the present study was the heterogeneous group of individual participants. Their unique experiences make it problematic to compare them to the wider LAC population or to the general population of children. The SCED design was chosen to accommodate for this and, although conclusions have been drawn from the findings, the author acknowledged the limited generalisability of this study from the outset. The author feels that this does not detract from the important contribution that this research can make to understanding effective interventions for LAC.

Horner et al (2005) note that strategies can be adopted to raise the external validity of a SCED. The design can be enhanced through replication with different participants and by demonstrating an effect with at least three participants. The present study was repeated with five different LAC. Horner et al (2005) also suggest that studies should provide an adequate description of their participants, the context of the research and the factors affecting the participants' responses prior to the intervention and that they should not choose to report only those examples which were found to be successful. The author felt that the present study acted on all of these recommendations to increase the external validity of the research.

3.11.3. Internal Validity

Internal validity refers to a study's ability to demonstrate a causal relationship between the independent variable and the dependent variable (Robson, 2011). Studies that have high internal validity contain fewer features (extraneous variables) that 'cloud' the ability to clearly identify this relationship. A number of threats to internal validity have been identified and different research designs have differing

levels of vulnerability to them. Consequently, Cohen et al (2011) emphasises the importance of discussing validity in the context of the research design being used. Potential threats to the internal validity of the present design (as suggested by Robson, 2011), along with strategies to minimise them, are discussed below.

Threat to Internal Validity	Relation to Present Study
Testing (practice and experience)	Repeated measures were used on a weekly basis. Testing could not have affected the reading measure but could have influenced school connectedness. Questions were completed in a random order each session to minimise repetition and each measure related to a different week that was being rated. The SDQ completed by teachers may have been vulnerable to testing effects.
Instrumentation (changes in measurement)	The repeated measures were conducted in the same way each week, with the author completing all testing. For one participant, different class teachers completed the SDQ, making this vulnerable to instrumentation.
Mortality (drop-out rate)	Six participants were initially selected to provide six SCEDs. The author felt this figure was large enough to afford the drop out of some participants. One participant was withdrawn after monitoring treatment fidelity.

Table 3.6: A table outlining the potential threats to internal validity and the strategies employed to minimise them

The pre and post SDQ data obtained for this study was collated at two time points. This is, therefore, more vulnerable to the threats of history, maturation and regression. History refers to the possibility that things could have changed in the participants' lives that were not related to the independent variable but may have influenced the data. Similarly, maturation is the potential for some participants to have grown, matured or changed in some way that was unrelated to the intervention. Regression relates to participants who have been selected for their atypical nature and who then produce less unusual scores when they are re-tested, therefore, regressing to the mean.

Additional threats to internal validity, including selection and diffusion of treatments were not relevant to this research, as it was not a group design and all individual participants received the same intervention, delivered using the same procedure.

The author also took guidance from the strategies outlined by Kratochwill (1992) who looked at improving valid inferences specifically in SCEDs. A summary of how these strategies were address is presented in the following table. An indication is given as to whether this correlates with a high or low inference strategy as suggested by Kratochwill (1992).

Research Characteristic	**Present Study**	**Low or High Inference Strategy**
Type of data	Observational data, related to reading accuracy and fluency and to school connectedness. The self-report school connectedness data is vulnerable to social desirability effects	High
Assessment occasions	Repeated measures were taken weekly throughout all three phases of the design	High
Planning and manipulation of intervention	The study was based on the implementation of a direct intervention, paired reading, which was actively manipulated as an independent variable.	High
Projections of performance	Reading ability had been a difficulty since arrival at present schools. Reading may have increased over time as a result of other factors, e.g. stability of placement or confidence in school, and so it is difficult to say for certain that it would not have changed at some point in time without intervention. The same is also true for school connectedness. This was only assessed during the baseline phase and so the duration of this factor prior to the study is difficult to ascertain.	High (reading) Low (school connectedness)
Number of subjects	The intervention was repeated with five different participants.	High
Heterogeneity of subjects	Participants had different backgrounds, contexts and learning experiences.	High
Standardisation of treatment	The intervention was carefully planned using the procedure advocated by the original authors and	High

	formalised in written form.	
Integrity of treatment	Integrity checks by both the TAs and author at different points throughout the study were used.	High
Impact of treatment	Multi-outcome measures were used, with three different dependent variables being measured on a weekly basis throughout the study	High
Generalisation and follow-up assessment	Formal generalisation and follow-up measures were not included.	Low

Table 3.7: A table outlining the strategies taken to improve valid inferences in the present study

3.11.4. Social Validity

The social validity of SCED research relates to the degree to which the intervention tested results in changes in socially important outcomes (Horner et al, 2005). The author felt that the existing research discussed in the literature review demonstrated the social value of increasing reading ability and school connectedness for LAC. Horner et al (2005) suggested that a SCED with high social validity should also have:

- An independent variable which can be applied by typical people in typical contexts
- Procedures that are deemed to be feasible with the resources available
- Procedures that are effective and are chosen to be continued after researcher input

The PR intervention required minimal resources and real world books are typically in plentiful supply in every primary school. The procedure was simple and was found to have been carried out well by the peers, under the supervision of TAs. The procedure became part of the school week and fitted into the learning context well. Some of the TAs commented on their intention to repeat the intervention with different children, indicating its perceived effectiveness by them.

3.11.5. Threats to Reliability

Reliability is the consistency with which something is measured. It relates to the

likelihood that when a piece of research is replicated the same effects are observed (Cohen et al, 2011). Four potential causes of low reliability in research are discussed below.

Reliability Factor	Description of Factor	Attempts to Reduce Factor in Present Research
Participant error	Performance may fluctuate due to external variables, e.g. tiredness	Majority of measures taken on the same day at a similar time for each participant. TAs asked to pass on or note any significant events which may impact on performance.
Participant bias	May respond in a way that they think is expected/desired	Weekly measures used. During first measure participants asked for examples for their ratings to ensure understanding. Participants reassured that school staff would not read their data.
Observer error	Errors in judgement when taking measures. Lack of consistency in measures across participants	Author took every measure for every participant. Repeated measures had been trialled in a pilot study. Reading calculations checked on calculator. Teachers provided with a week to complete the SDQ at leisure. SDQ was a standardised measure
Observer bias	Providing conscious or unconsciously biased ratings/measurements	Teachers not aware of which questions related to which scale on the SDQ. Measures taken were quantitative and self-report – no researcher interpretation required.

Table 3.8: A table outlining the potential causes of low reliability and the strategies employed to minimise them

Despite attempts to strengthen the reliability of the research, some limitations should be noted. These include the potential for social desirability effects in the participants' self-reported school connectedness ratings. This may be an increased threat for the participants, given their LAC status and the recent school and placement moves that some of them had experienced. Mood and reaction to external events could also have impacted on school connectedness ratings. Further discussion of the limitations with the reliability and validity of this research will be conducted in the final chapter.

3.12. Ethical Considerations

During the planning process it was imperative that the author reflected on and prepared for a range of ethical considerations. A number of documents were instrumental to this process, including guidance produced by the British Psychological Society (BPS, 2004), the Health Professions Council (HPC, 2008) and the University of Nottingham (2009). The author's approach to ethical issues was then evaluated and approved by the University of Nottingham Ethics Committee (Appendix 14). The following sections detail the author's response to the primary ethical areas.

3.12.1. Informed Consent

Informed consent is associated with the notion that participants are fully aware of the aims, procedure and measures of a research project and that, if applicable, they understand the potential impact it could have. (Cohen et al, 2011). Robson (2011) notes that informed consent is not always appropriate for a research project and that it is the duty of the researcher to carefully question the most effective method for conducting research, whilst remaining ethical.

For this research, informed consent was gained for all of the participants, peers and pilot participants from their social workers and parents/carers respectively. They were provided with an information sheet outlining the details of the study and were asked for their written agreement (see Appendices 15 to 20). Although social workers gave consent for the main participants they were also asked to discuss the research with foster carers so that they were also fully aware. None of the foster carers challenged the consent given by the social workers. Once social workers had consented, informed consent was also gained by the head teachers of the five primary schools. They were also provided with an information sheet which additionally detailed the requirements of the school (Appendix 21). All of the adults who were asked to consent were provided with an information sheet on PR to help them make an informed decision (Appendix 22).

Additional consent was gained from the participants and peers, although this was not fully informed. An information sheet was read to them describing the procedure and the measures (Appendices 23 to 25). Participants were not explicitly informed about

the research purposes to prevent desirability effects. The social workers and parents, therefore, provided consent on this aspect of the research on their behalf. For a copy of the participant consent form, see Appendix 26.

3.12.2. Confidentiality

Confidentiality of information is widely regarded as good practice when reporting on research and so was an important consideration in this study (Robson, 2011). The information sheets provided emphasised that the data collected would be treated in the strictest confidence, would be stored securely in a locked cabinet and would remain anonymous at all times. Pseudonyms have been given to all of the participants to ensure anonymity.

3.12.3. Right to Withdraw

Having the right to withdraw relates to the participants' understanding that they are free to leave the study at any time and are under no obligation to continue after they have provided consent (Robson, 2011). This is particularly significant in this research, due to the age and vulnerability of the participants. All of the participants and peers were made aware of their right to withdraw and were told that they could do this by speaking to either a parent, foster carer, social worker or teacher if they did not want to tell the author directly. The right to withdraw was also emphasised in the information sheets provided to social workers, parents and head teachers.

3.12.4. Protection of Participants

As reading interventions are frequently used in schools it was not anticipated that the PR would lead to undue stress for any of the participants. Despite this, TAs were asked by the author to be observant for any changes in character in any of the participants once the research had commenced and to report this immediately to the head teacher or author. It was not anticipated that the research measures would cause any undue stress or harm to the participants either. The reading measure closely resembled an everyday classroom reading activity and, as the school connectedness measure did not require the participants to provide detailed responses, it was not felt that their completion of the rating scale would be harmful.

3.12.5. Debriefing

A debriefing information sheet was created for the participants (see Appendix 27) and the peers (Appendix 28). Using age-appropriate language, this detailed the aims of the study; namely to find out whether PR with a peer helped to improve reading ability and feelings of connectedness to school. It also explained how the information collected would be used and reiterated that it would be kept confidential and anonymised. Additionally, the participants were reminded of their right to withdraw their data from the study and were provided with contact details for the researcher. The debriefing sheet was read to each of the LAC participants at the end of the research process. Andrew unexpectedly left the project prematurely, due to a school exclusion. A copy of the debriefing sheet was sent to his social worker so that he was able to access this.

Chapter 4: Results

4.1. Introduction to Chapter

This chapter will report the results obtained by the present study, in relation to the research questions identified in the first two chapters. It will begin by revisiting the research questions, before providing a description of the method of data analysis used. The way in which findings will be presented for each case and research question will then be addressed. A brief section will detail the number of intervention sessions delivered to each participant during the study, to enable consideration of this in Chapter 5. The data obtained by this study will then be presented graphically. Raw data for all participants is presented in Appendices 29-33.

4.1.1. Research Questions

Individual Research Questions:

1. Does paired reading with a peer improve the reading accuracy of looked-after children?

2. Does paired reading with a peer improve the reading fluency of looked-after children?

3. Does paired reading with a peer increase the school connectedness of looked-after children?

4. Are any increased school connectedness ratings maintained when the paired reading intervention is replaced with a non-structured peer intervention?

5. Is paired reading with a peer associated with a positive change in a teacher's perception of a looked-after child's social presentation in school?

4.1.2. Method of Data Analysis for Each Research Question

Research questions one to four were analysed by presenting data in SCED graphs and using visual analysis to comment on their level, trend, variability, immediacy of

effect and overlap, as outlined by Kratochwill et al (2010) and discussed in the previous chapter. The analysis for each graph was presented in a table and included each of the five features, a definition of which is summarised below.

Feature	Definition
Level	Mean scores for the data within a phase
Trend	Slope of the best fitting straight line for the data within a phase
Variability	The range of data about the best fitting line
Immediacy of effect	The change in level between the last three data points in one phase and the first three data points of the next phase.
Overlap	The proportion of data from one phase that overlaps with data from the previous phase.

Table 4.1: A table summarising each of the visual analysis features and their definitions

An inter-observer agreement rating was gained for each graph analysis in an attempt to increase the validity of the data analysis process. The fifth research question was addressed by presenting the pre and post Strengths and Difficulties Questionnaire data in a bar chart and summarising the findings from this.

4.1.3. Presentation of Results

Single case designs involve the separate analysis of each participant's data and so the findings for each research question will be presented by participant. This section of the chapter will, therefore, have the following structure and content:

- Participant name and details
- Reading accuracy findings, including three SCED graphs, a summary table and a summary paragraph
- Reading fluency findings, including three SCED graphs, a summary table and a summary paragraph
- School connectedness findings, including three SCED graphs, a summary table and a summary paragraph
- Results from the pre and post SDQ presented in a bar chart, with an accompanying summary paragraph.

4.1.4. Inter-Rater Agreement for Visual Analysis

As previously discussed, a criticism of the visual analysis method is the potential for subjectivity during the analysis procedure. In an attempt to acknowledge and limit this, the author introduced an inter-rater task for each of the graphs. This was intended to introduce a measure for the degree of certainty that a change had been the result of an intervention phase. The process involved the author and a fellow trainee Educational Psychologist viewing each SCED graph and rating them on a scale of 1-5, where 1 represented strongly disagree and 5 represented strongly agree. This approach was adapted from a study by Brossart et al (2006), who explored ways to strengthen the validity of visual analysis procedures. The ratings were done in response to two statements for each graph:

'There is a significant change in reading accuracy/fluency/school connectedness rating when the paired reading intervention is introduced'

'There is a significant change in reading accuracy/fluency/school connectedness rating when the paired reading intervention is replaced with the C phase intervention'

As a trainee Educational Psychologist, the second rater had an understanding of, and experience with, visual analysis. They also had access to the variety of graphs and tables that were created to illustrate the different elements of the analysis. After the graphs had been rated, a level of inter-rater agreement was calculated using the linear weighted version of Cohen's Kappa coefficient (Cohen, 1968). This statistical measure is frequently used to assess the inter-rater reliability of ordinal data obtained from rating scales, as noted by Barlow et al (2009). The weighted version of the measure was selected for its sensitivity to the differences between the ratings assigned by each rater (Cohen, 1968). The Kappa coefficient was then analysed in terms of Fliess's (1981) recommended ratings. This will be discussed in the final section of this chapter. It was hoped that a high Kappa coefficient would provide additional reliability to the analysis process, by indicating that the interpretation of the changes shown in the graphs was supported by an independent observer.

4.1.5. Summary of Intervention Delivery

Each peer was asked to complete a log of PR and C phase intervention sessions. This was viewed regularly by the author to ensure that a minimum number of sessions were conducted. The log was then used to calculate the total number of sessions each participant received, which was converted into a percentage of the number that was recommended. This information is important when considering any changes in results during the different phases.

Participant	**Number of Paired Reading Sessions**			**Number of C Phase Sessions**		
	Recommended	Actual	Percentage Delivered	Recommended	Actual	Percentage Delivered
Matthew	15	11	73%	9	6	67%
Mike	15	11	73%	9	6	67%
Sarah	15	9	60%	9	7	78%
Claire	18	14	78%	9	7	78%
Andrew	15	9	60%	9	-	0%

Table 4.2: A table summarising the number of paired reading and C Phase intervention sessions received by each participant

Claire had a greater number of recommended sessions during the intervention phase. This was because she achieved a stable baseline in two of the three measures by week three of the baseline phase, leaving a six week intervention phase. Every other participant had a four week baseline phase and a five week intervention phase. All participants had a three week C phase. The intervention phase included one week half term holiday, where no data was collected. Sarah has an additional holiday week in her intervention phase, again where no data was collected.

4.1.6. Summary of Intervention Integrity Checks

During the PR intervention three integrity checks were conducted. Two of these were completed by the TA and one by the author. This information has been collated and displayed in table form to make comparisons between participants easier and to highlight any specific aspects of the intervention which were observed less frequently. A copy of this can be found in Appendix 34. This information revealed

that, on the whole, PR was implemented in a way that was largely consistent with the training provided by the author. One aspect which was observed significantly less frequently was peer praise for participant self-correction. Praise for the participant choosing to read independently was also observed less frequently.

4.2. Participant One: Matthew

4.2.1. Matthew's Profile

Sex: Male Age: 8 years 1 month (at onset of the research)

Year Group: 3 Peer: Female, Year 5

4.2.2. Research Question One: Reading Accuracy

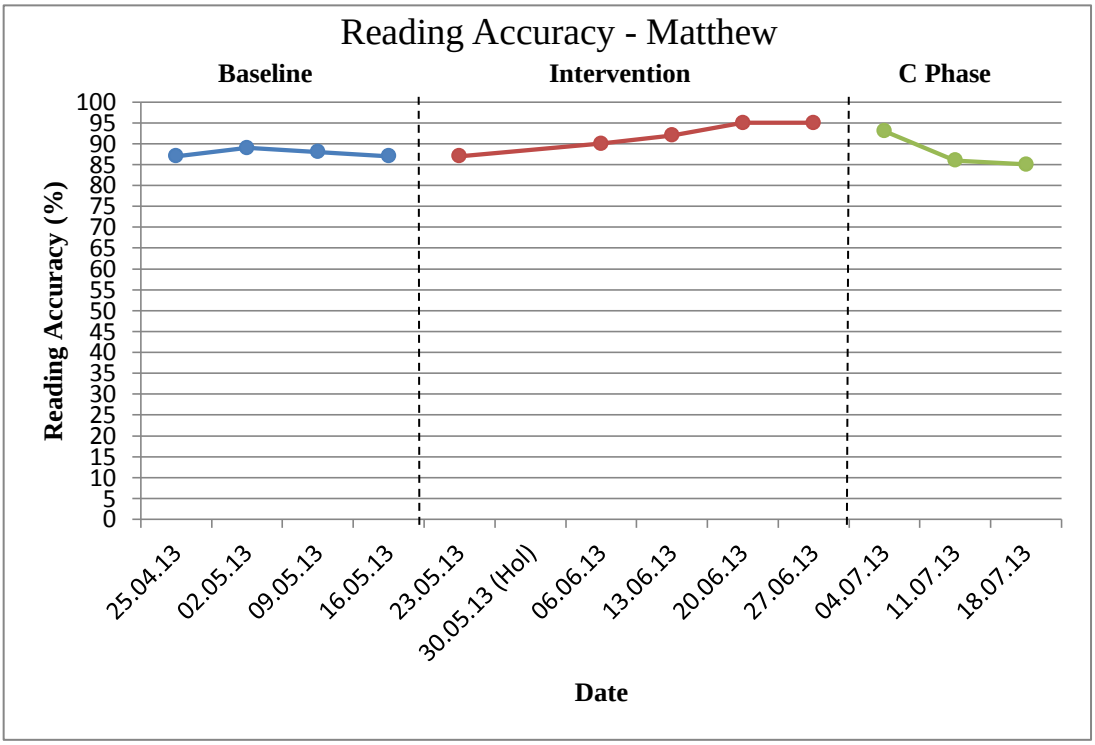


Figure 4.1 A line graph to show the percentage of words read correctly in three minutes across all three phases (Matthew)

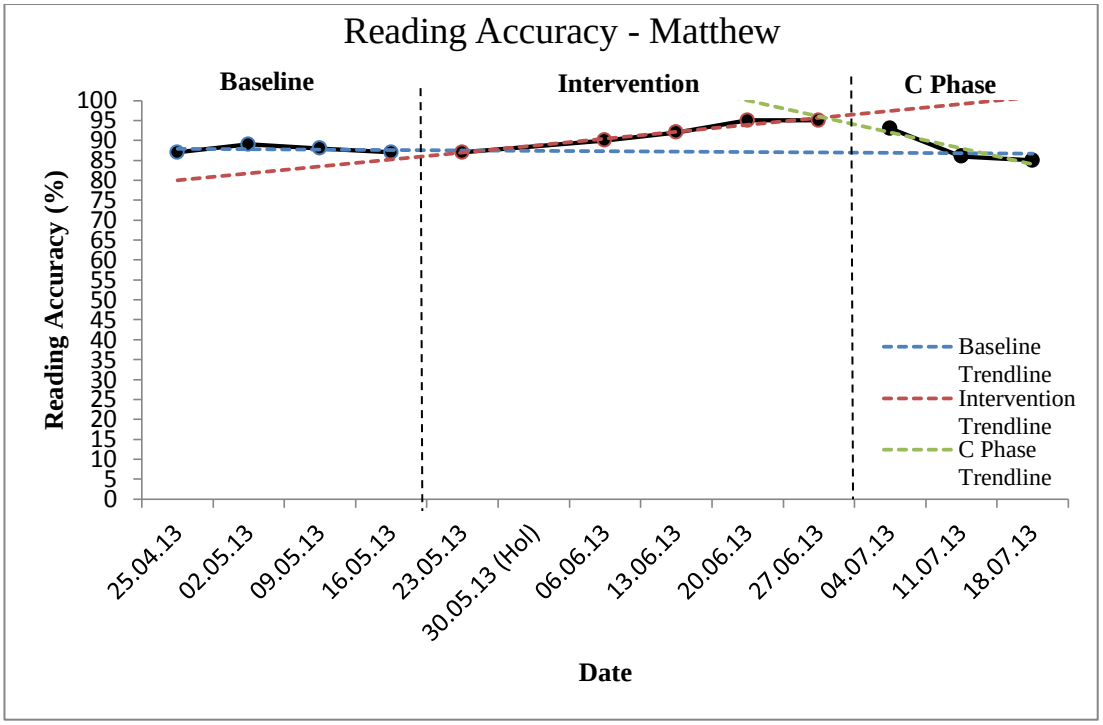


Figure 4.2: A line graph to show the percentage of words read correctly in three minutes across all three phase **with trend lines** (Matthew)

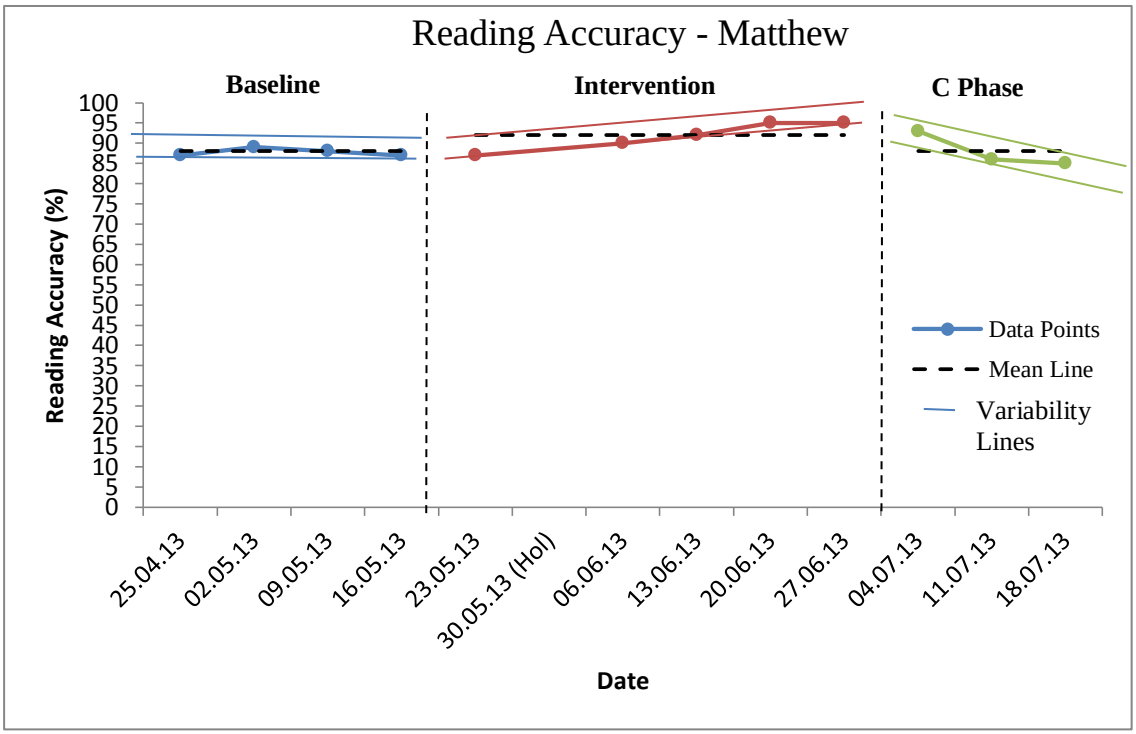


Figure 4.3: A line graph to show the percentage of words read correctly in three minutes across all three phases **with mean lines and variability lines** (Matthew)

Feature	Visual Analysis
Changes in Level	Figure 4.3 shows a mean level increase from baseline (88) to intervention phase (92). This is a +4 increase. There is a mean level decrease from intervention to C phase (88). This is a -4 decrease.
Changes in Trend	Figure 4.2 shows the baseline phase to have a fairly horizontal trend line with a slight deceleration. The intervention trend line has a steeper, accelerating trend line. The C phase has a similar slope to the intervention phase but with a decelerating trend line.
Changes in Variability	The baseline data has very low variability, as does the intervention data. The C phase has slightly more variability than the previous two phases (Figure 4.3)
Immediacy of effect	From Figure 4.1 a slight positive increase can be seen in the first three data points of the intervention phase. There is a more rapid change in the C phase, where the first three data points decline more quickly.
Overlap of data	Shown on Figure 4.1, a fairly small proportion of intervention data points overlap with the baseline phase (20%). The number of C phase data points overlapping is also fairly low (33%).

Table 4.3: A table summarising the visual analysis of Matthew's reading accuracy graphs.

4.2.2.1. Summary of Reading Accuracy (Matthew)

The visual analysis suggests that PR had a positive impact on accuracy, which gradually improved following the introduction of the intervention. This is reflected in the difference between level and trend. The variability for the two phases remains consistently low, as does the percentage of data overlap. The graph also indicates a decrease in accuracy when PR is replaced with the C phase. This change is more abrupt and has a slightly higher level of variation than the baseline and intervention phases. Accuracy level by the end of the C phase is similar to that in the baseline phase.

4.2.3. Research Question Two: Reading Fluency

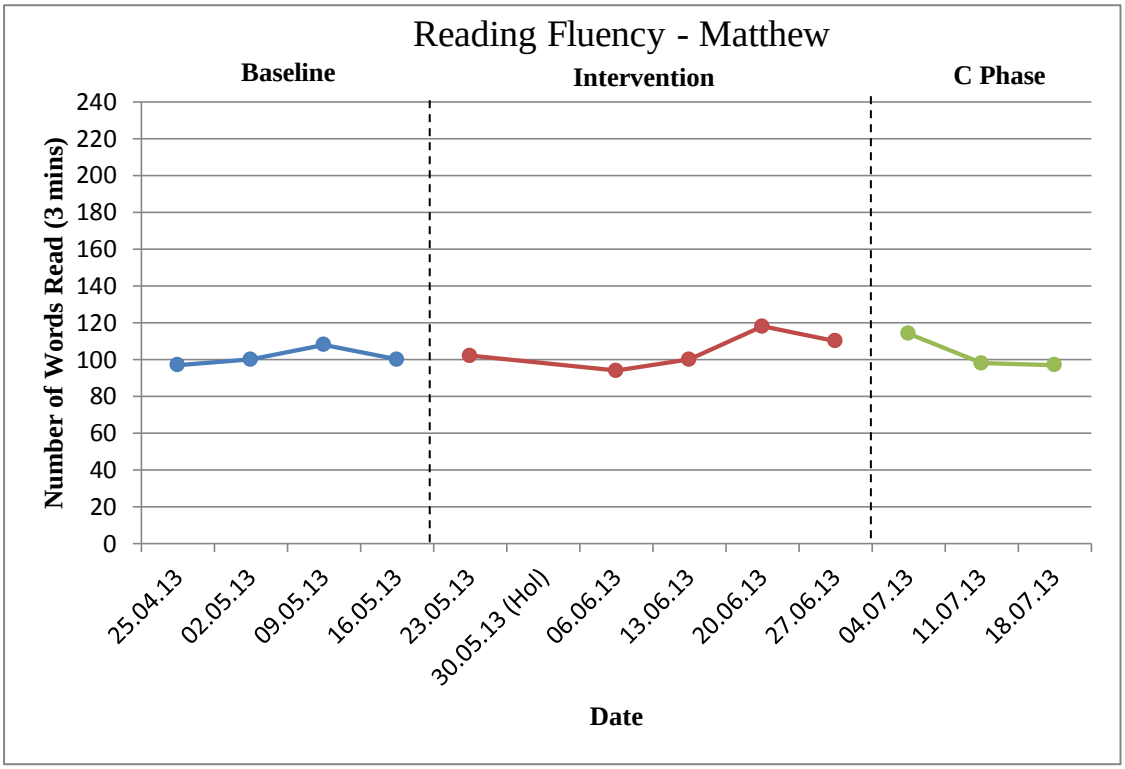


Figure 4.4 A line graph to show the total number of words read in three minutes across all three phases (Matthew)

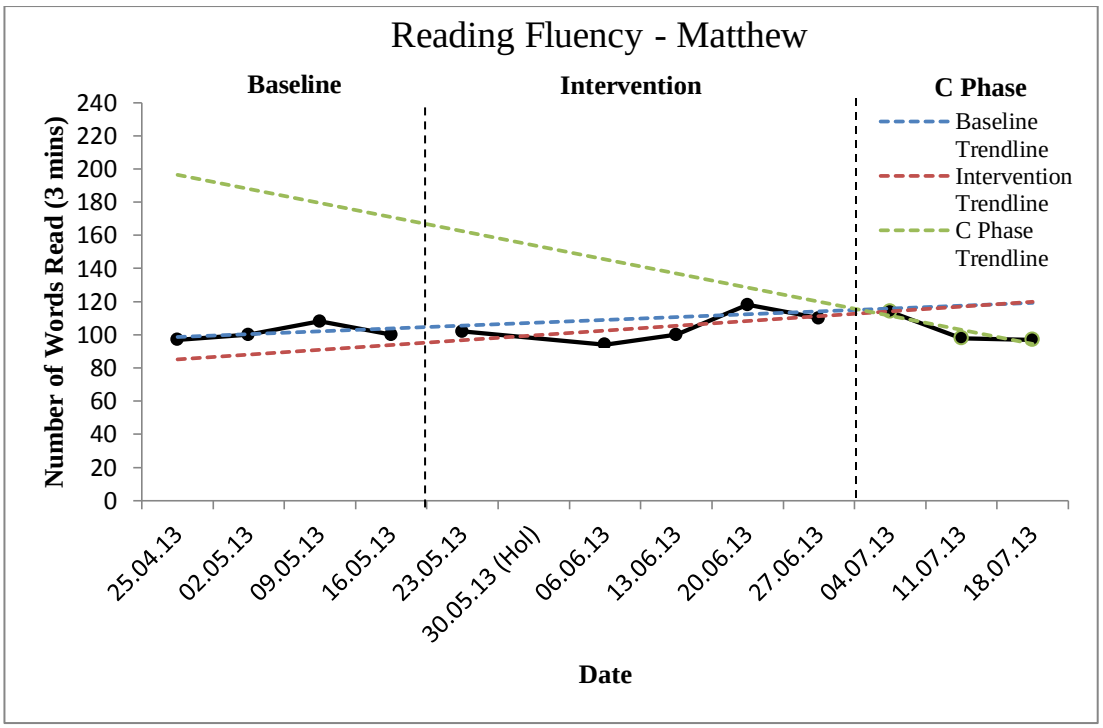


Figure 4.5: A line graph to show the total number of words read in three minutes across all three phases **with trend lines** (Matthew)

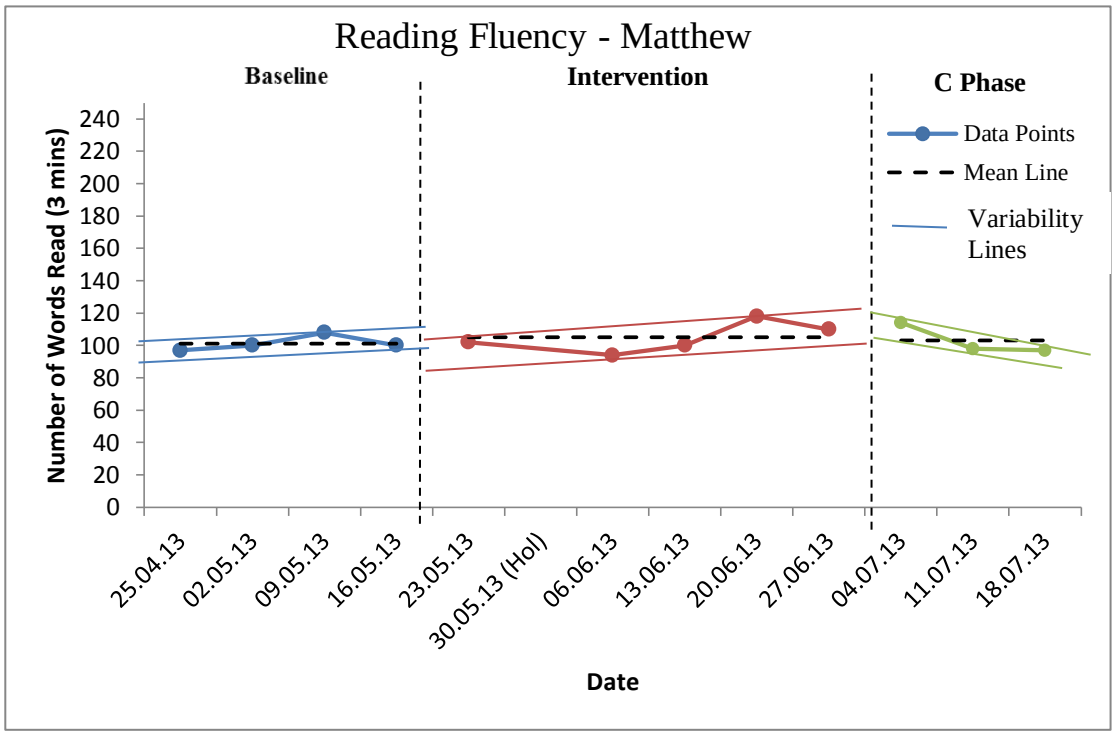


Figure 4.6: A line graph to show the total number of words read in three minutes across all three phases **with mean lines and variability lines** (Matthew)

Feature	Visual Analysis
Changes in Level	Figure 4.6 shows a mean level increase from baseline (101) to intervention phase (105). This is a +4 increase. There is a slight mean level decrease from intervention to C phase (103). This is a -2 decrease. The C phase mean level is slightly higher than the baseline mean level.
Changes in Trend	Figure 4.5 shows a slightly accelerating trend line for the baseline data. The intervention data has a slightly steeper accelerating trend line. The C phase data has a decelerating trend line with a much steeper incline.
Changes in Variability	On Figure 4.6 there is a fairly low level of variability in the baseline data. The variability is greater for the intervention phase and reduces for the C phase. The C phase variability is similar to the baseline variance.
Immediacy of effect	An immediate effect cannot be observed when comparing the baseline and intervention data points. The change is also not very pronounced when looking at the C phase data (Figure 4.4)
Overlap of data	From Figure 4.4, it can be seen that there are some overlapping intervention data points (40%). All of the C phase data points overlap with the intervention phase (100%).

Table 4.4: A table summarising the visual analysis of Matthew's reading fluency graphs

4.2.3.1. Summary of Reading Fluency (Matthew)

The visual analysis suggests that PR did not have a significant impact on fluency. This is shown through a similar trend across phases. An immediate effect is not observable, with a difference in trend only being observed by the fourth data point in the intervention phase. The final two intervention data points have increased the level for this phase, suggesting a greater difference between phases than observed using the other analysis features. The graphs also show a slight decrease in fluency during the C phase, returning the data points to a level more consistent with the baseline and the majority of the intervention phase. The variability for all three phases is low, however there is an overlap of almost half of the data points between baseline and intervention and all of the data points between intervention and C phase.

4.2.4. Research Question Three: School Connectedness

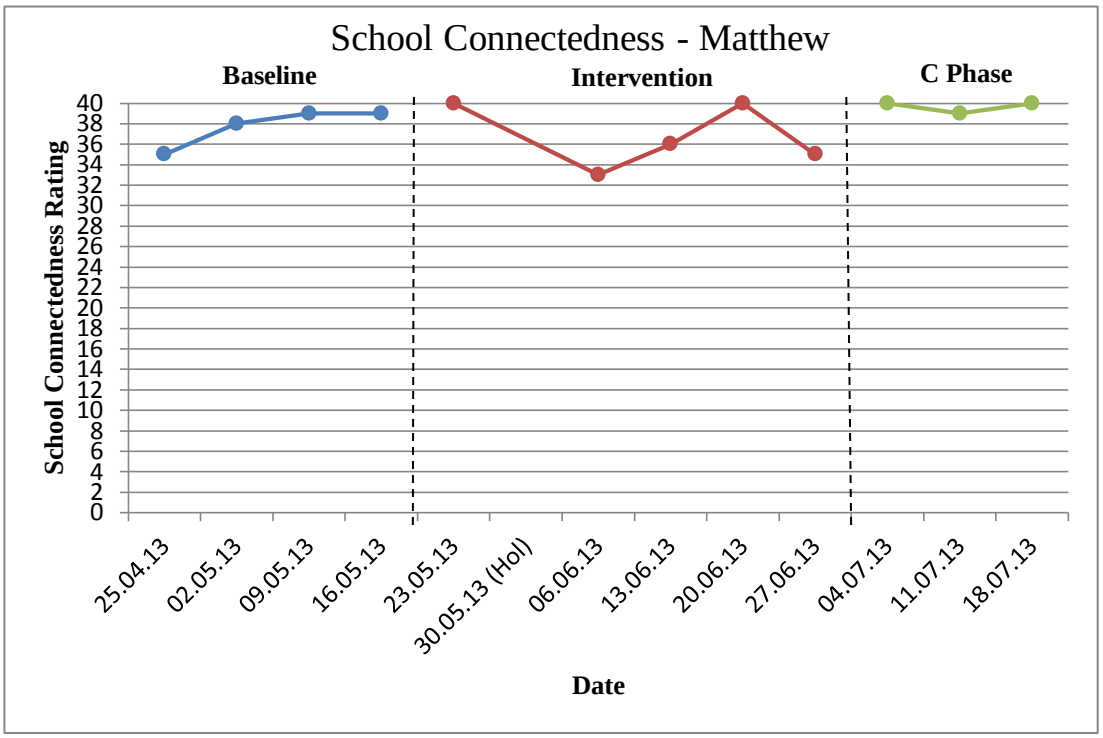


Figure 4.7: A line graph to show school connectedness ratings across all three phases (Matthew)

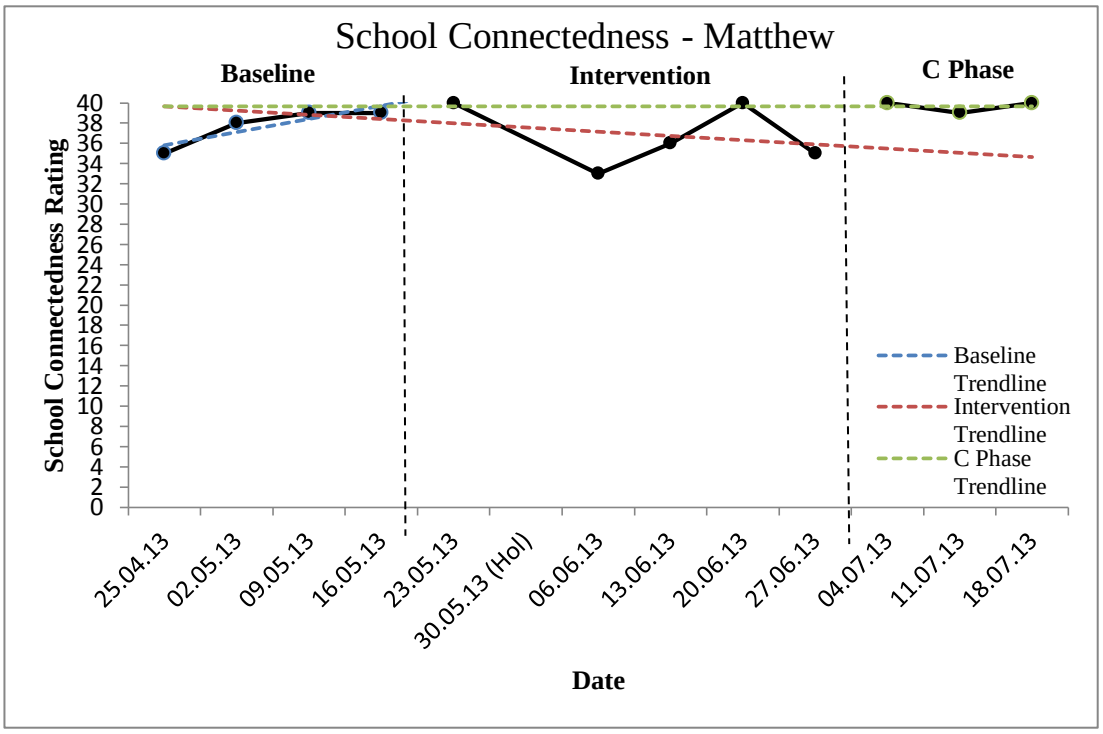


Figure 4.8: A line graph to show school connectedness ratings across all three phases **with trend lines** (Matthew)

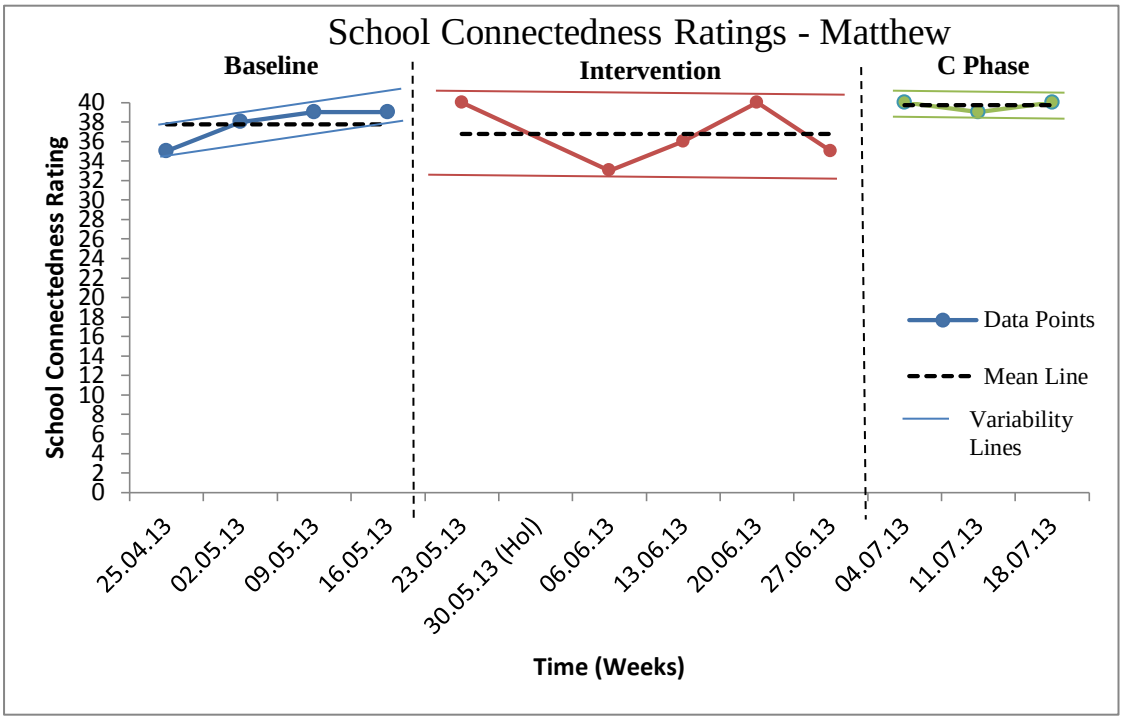


Figure 4.9: A line graph to show school connectedness ratings across all three phases **with mean and variability lines** (Matthew)

Feature	Visual Analysis
Changes in Level	Figure 4.9 shows a slight mean level decrease from baseline phase (38) to intervention phase (37). This is a difference of -1. There is a more pronounced mean level increase from intervention phase to C phase (40). This is a difference of +3.
Changes in Trend	Figure 4.8 shows that the baseline data has quite a steep accelerating trend line. The intervention phase has a less steep decelerating trend line. The C phase has a horizontal trend line.
Changes in Variability	On Figure 4.9, the baseline data has a relatively low level of variability between data points. This increase quite significantly in the intervention phase. The variability returns to a much lower level in the C phase.
Immediacy of effect	There is an immediate decelerating effect in the intervention phase, when compared to the baseline phase. The C phase data also shows an immediacy of effect, with the level increasing and becoming more stable (Figure 4.7)
Overlap of data	There is a fairly low proportion of intervention data overlapping baseline data (40%). There is a higher proportion of C phase data overlapping the intervention phase (100%) (Figure 4.7).

Table 4.5: A table summarising the visual analysis of Matthew's school connectedness graphs

4.2.4.1. Summary of School Connectedness (Matthew)

A stable baseline was not achieved, with an accelerating trend visible, making analysis less reliable. Visual analysis indicates a slightly lower level and slightly decelerating trend for the intervention phase, suggesting slightly lower school connectedness ratings during PR. There is, however, significantly greater variability in the data points in the intervention phase and almost half overlap with the baseline phase. Visual analysis suggests that the replacement of PR with the C phase led to more stable connectedness ratings, which had a slightly higher level than the baseline. The variability of these points has also decreased, although they all overlap with the points from the intervention phase.

4.2.5. Research Question Four: Social Presentation in School

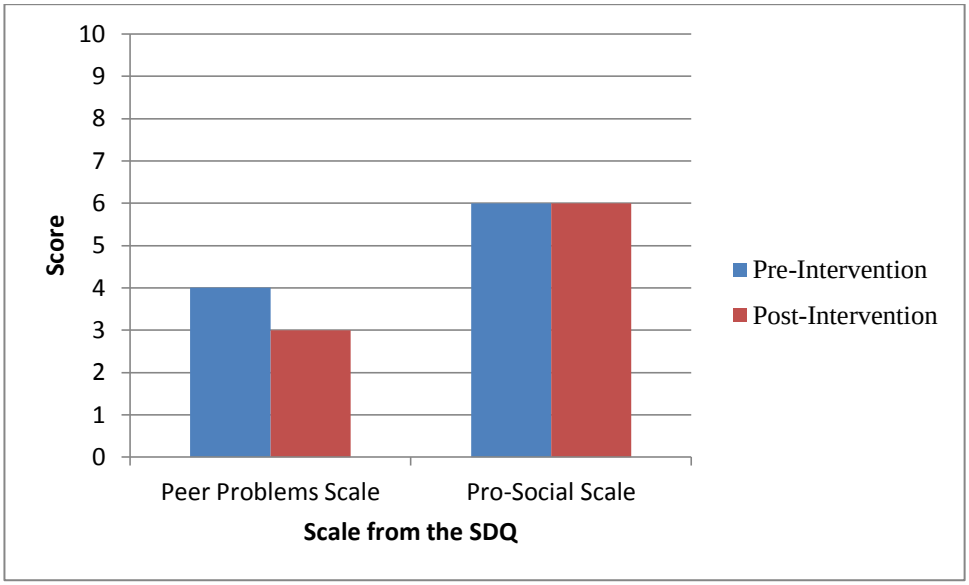


Figure 4.10: A bar chart to show the pre and post scores obtained on two scales of the SDQ (Matthew)

Figure 4.10 shows that there was a slight decrease in Matthew's score on the peer problems scale. This was a difference of one point and meant that his score went from being in the 'borderline' range of the SDQ analysis, to the 'normal' range. His score on the pro-social scale remained the same both before and after the intervention and was within the 'normal' range.

4.3. Participant Two: Mike

4.3.1. Mike's Profile

Sex: Male Age: 6 years 8 months (at onset of the research)

Year Group: 2 Peer: Female, Year 5

4.3.2. Research Question One: Reading Accuracy

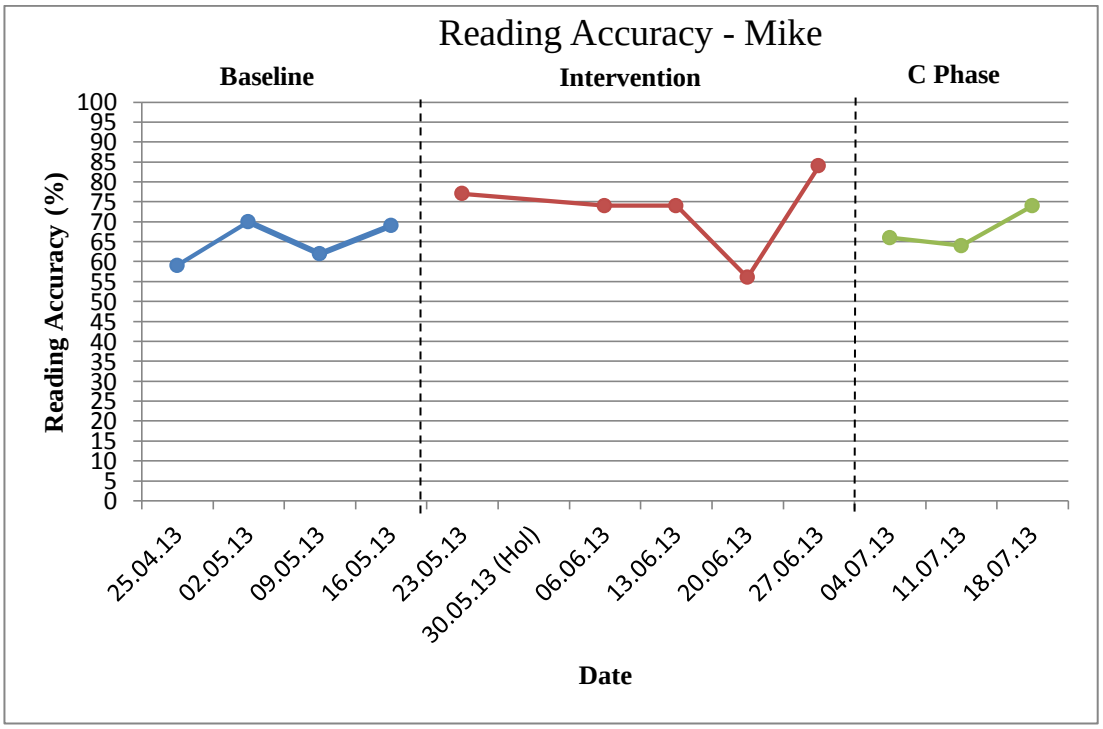


Figure 4.11: A line graph to show the percentage of words read correctly in three minutes across all three phases (Mike)

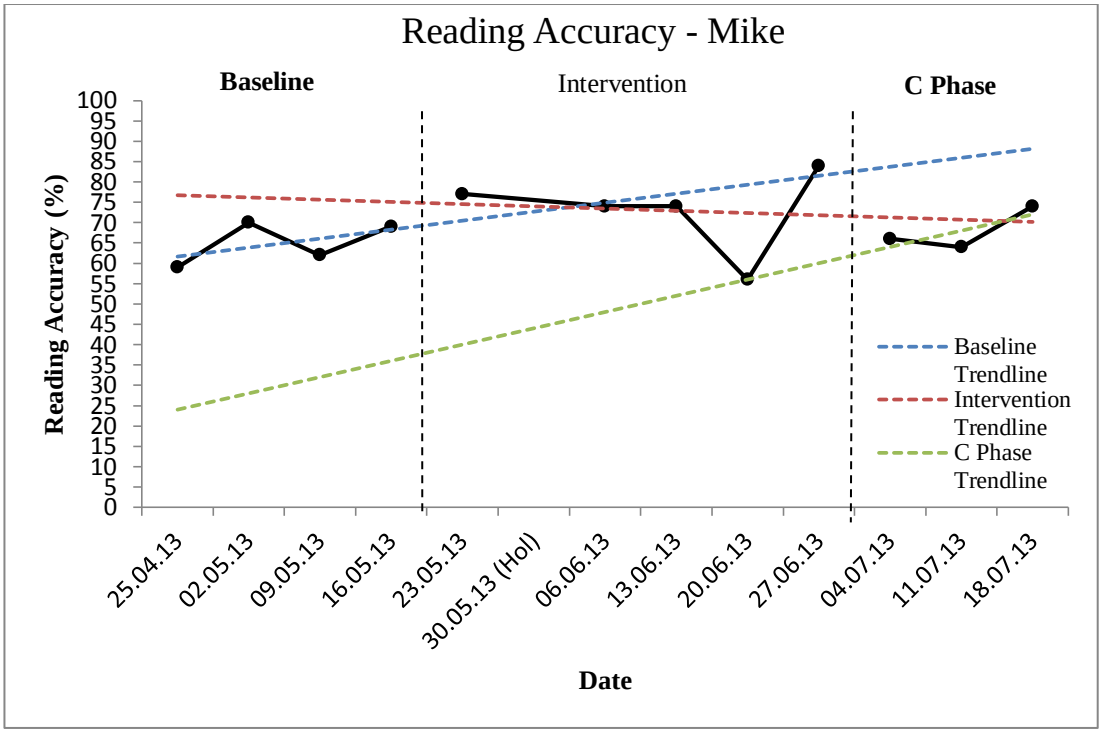


Figure 4.12: A line graph to show the percentage of words read correctly in three minutes across all three phases **with trend lines** (Mike)

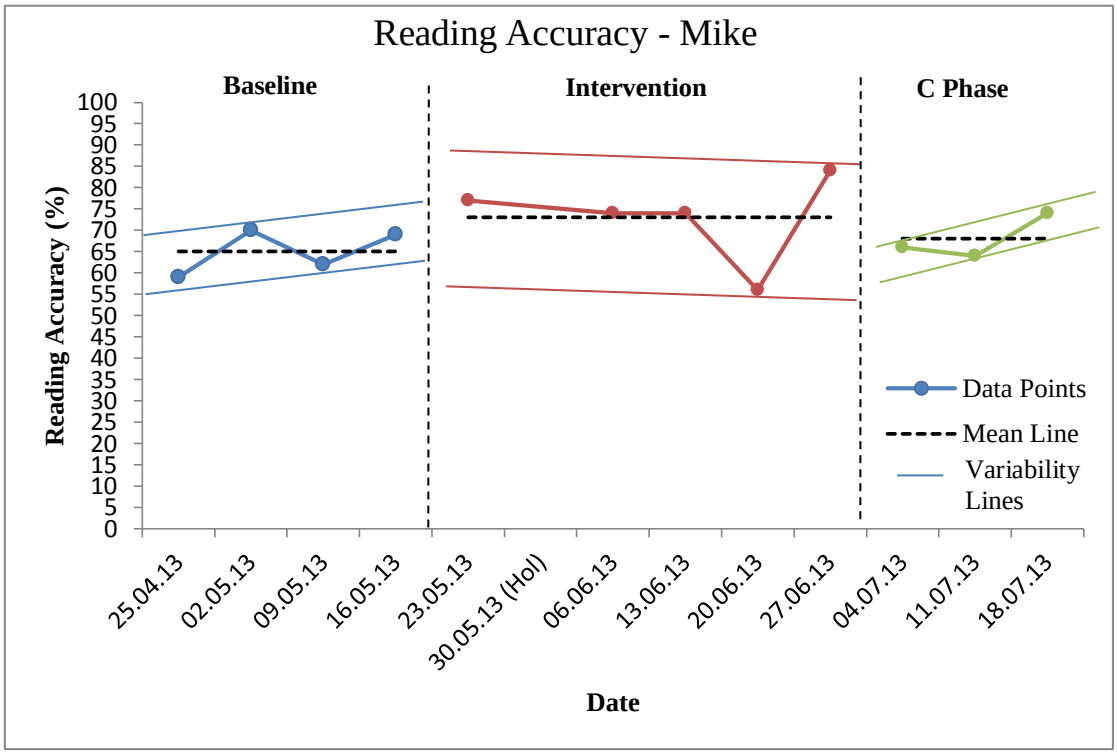


Figure 4.13: A line graph to show the percentage of words read correctly in three minutes across all three phases **with mean and variability lines** (Mike)

Feature	Visual Analysis
Changes in Level	Figure 4.13 shows there is a moderate increase in mean level from baseline (65) to intervention (73) (+8 difference). There is a decrease in mean level from intervention (73) to C phase (68) (-5 difference). The mean level of the C phase remained slightly higher than that of the baseline.
Changes in Trend	Figure 4.12 shows there is an accelerating trend line for the baseline data. The trend line for the intervention data is less steep and shows a slight deceleration. The trend line for the C phase is steeper than the baseline trend line and is accelerating.
Changes in Variability	Figure 4.13 shows there to be a small amount of variability in the baseline data. The intervention data has significantly greater variability, approximately more than double. The variability of the C phase data is small, and less than that of the baseline data.
Immediacy of effect	From Figure 4.11 it can be seen that there is an immediate change in level between the baseline data and intervention data. There is also an immediate change in level between the intervention data and C phase data, although this is less consistent.
Overlap of data	From Figure 4.11 it can be seen that there is one intervention data point overlapping with the baseline data (20%). All of the C phase data points overlap with the intervention data (100%).

Table 4.6: A table summarising the visual analysis of Mike's reading accuracy graphs

4.3.2.1. Summary of Reading Accuracy (Mike)

Visual analysis suggests PR did have a positive impact on accuracy, as there was an immediate change in the level of data. There was also only a very small amount of data overlapping with the baseline phase. The trend of the intervention data has a slight deceleration, although it is likely that this was significantly influenced by the one lower data point on 20.06.13. This data point also led to a greater variability in the results from the intervention phase. Reading accuracy decreased during the C phase, with an immediate effect. Despite this, there was an overall accelerating trend due to the final data point in this phase.

4.3.3. Research Question Two: Reading Fluency

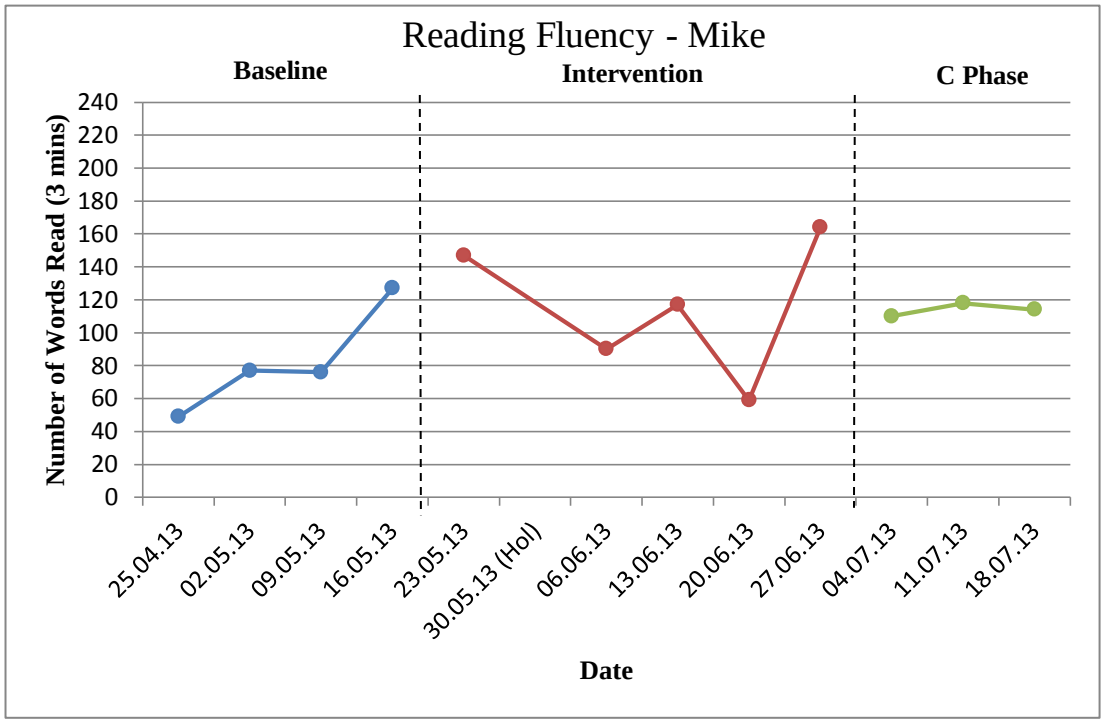


Figure 4.14: A line graph to show the total number of words read in three minutes across all three phases (Mike)

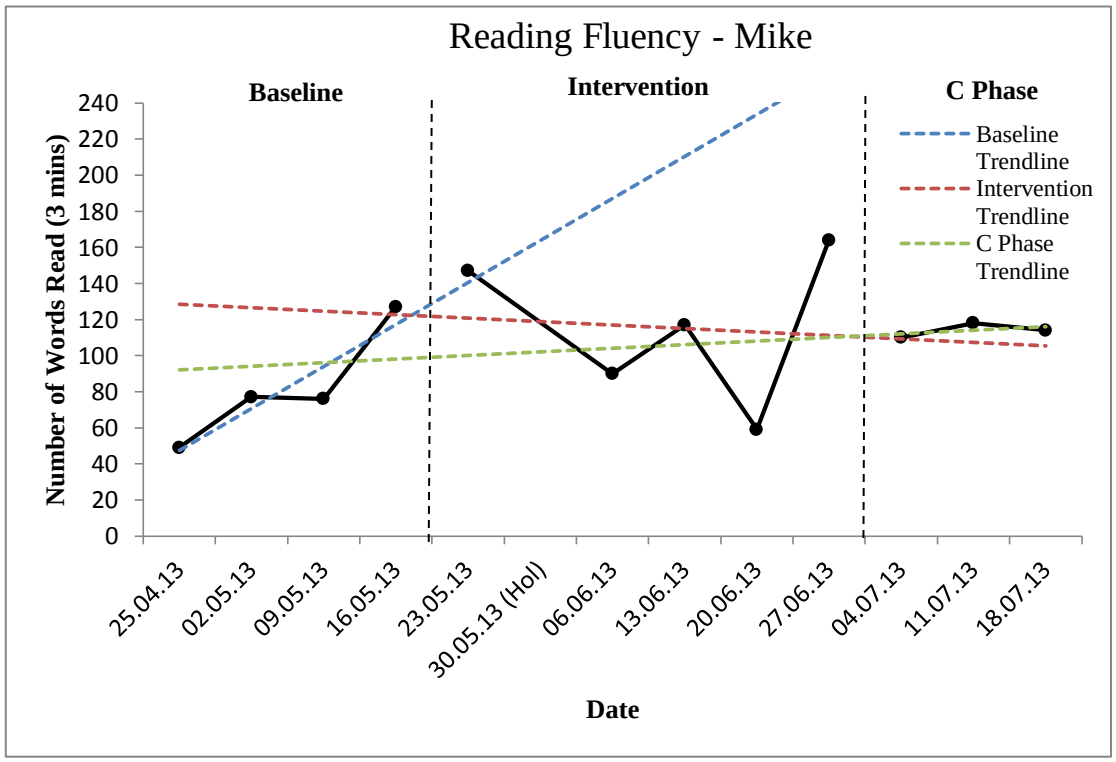


Figure 4.15: A line graph to show the total number of words read in three minutes across all three phases **with trend lines** (Mike)

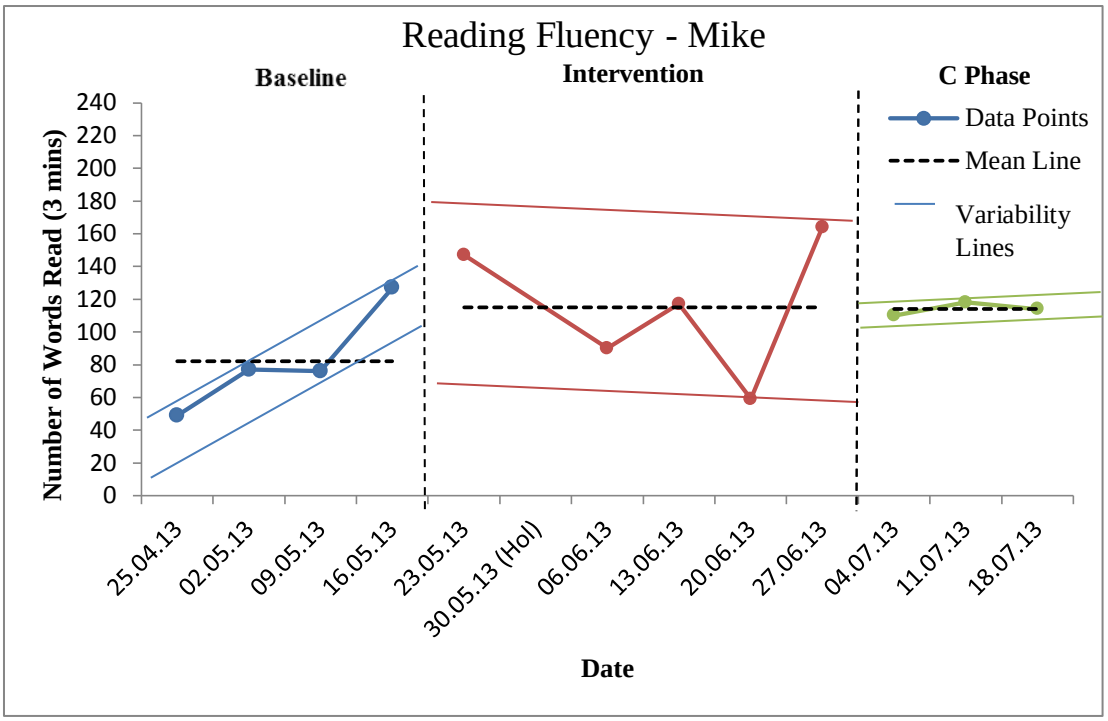


Figure 4.16: A line graph to show the total number of words read in three minutes across all three phases **with mean and variability lines** (Mike)

Feature	Visual Analysis
Changes in Level	Figure 4.16 shows that there is quite a large increase in mean level between baseline (82) and intervention phase (115). This is a difference of +33. There is a slight decrease in mean level between intervention (115) and C phase (114), which is a difference of -1.
Changes in Trend	Figure 4.15 shows that the baseline phase has a very steep accelerating trend line, indicating that this data is not stable. The intervention has a more level trend line, which is slightly decelerating. The C phase has a slightly accelerating trend line, which crosses the intervention trend line.
Changes in Variability	Figure 4.16 shows that the baseline data has a fairly small level of variability. This increases significantly in the intervention phase and is approximately three times larger. The variability in the C phase is very small and less of that than the baseline phase.
Immediacy of effect	From Figure 4.14 there is an immediate increase in level of the first intervention data point, however the second two points are much lower and more consistent with the baseline data. The C phase data points show an immediate change in level and change in consistency of level.

Overlap of data	Over half of the intervention data points are overlapping with the baseline data points (60%). All of the C phase data points are overlapping with the intervention phase data points (100%). This is observable by analysing Figure 4.14

Table 4.7: A table summarising the visual analysis of Mike's reading fluency graphs

4.3.3.1. Summary of Reading Fluency (Mike)

Fluency scores were not stable in the baseline phase, making it more difficult to infer a causal effect. Level of fluency did increase quite significantly during the intervention phase; however this should be treated with caution due to the large variability in data and the large proportion of overlapping data points. The trend for this data also shows a slight deceleration, although this will have been influenced by the more extreme values found in this phase. The replacement of PR with the C phase led to more stable scores and significantly less variability. The mean level decreased slightly but remained higher than the mean level for the baseline phase. All of the data points overlapped with the intervention phase and there was a slight accelerating trend.

4.3.4. Research Question Three: School Connectedness

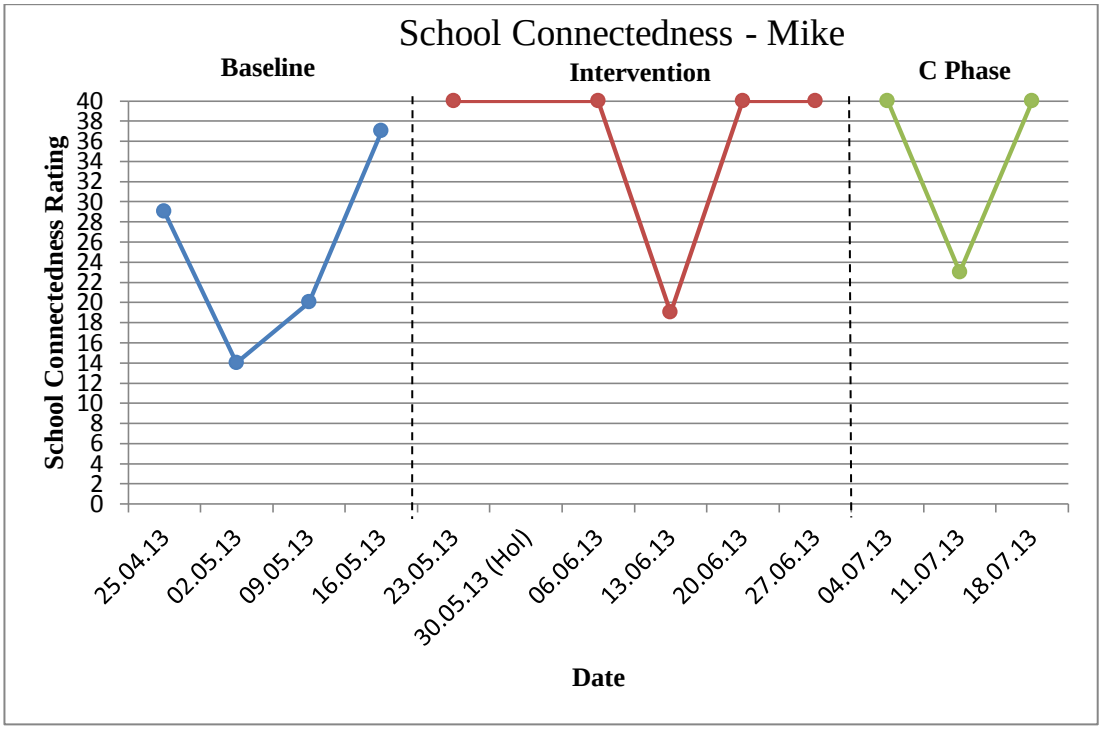


Figure 4.17: A line graph to show the school connectedness ratings across all three phases (Mike)

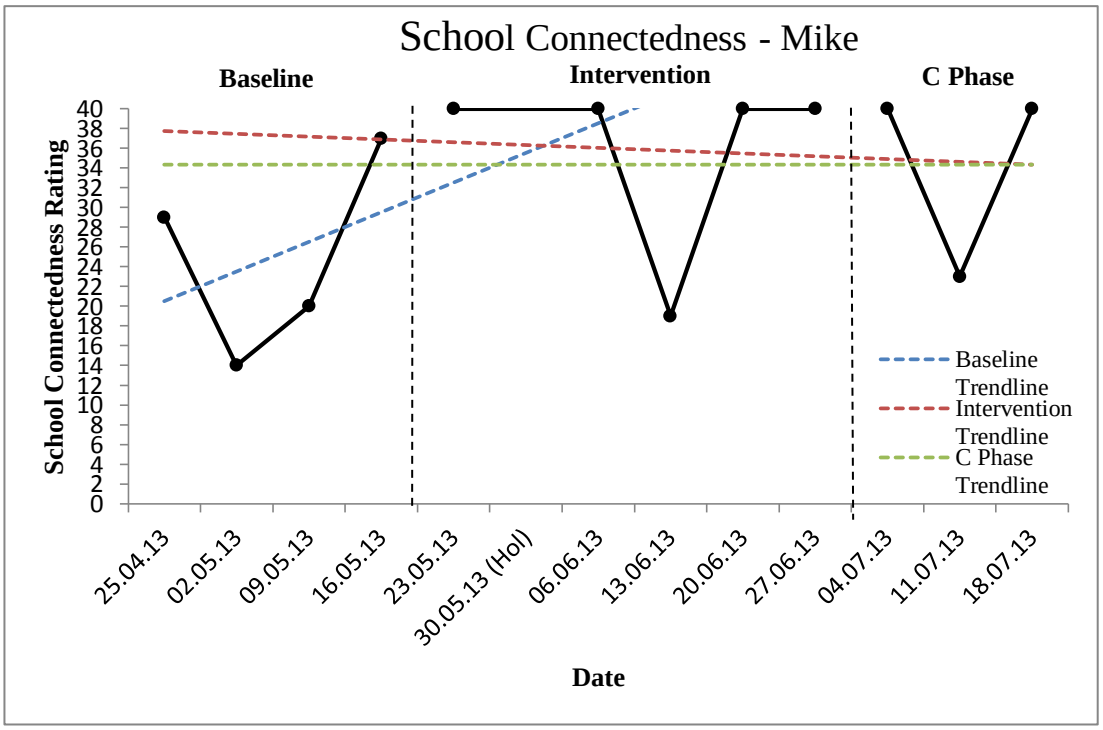


Figure 4.18: A line graph to show the school connectedness ratings across all three phases **with trend lines** (Mike)

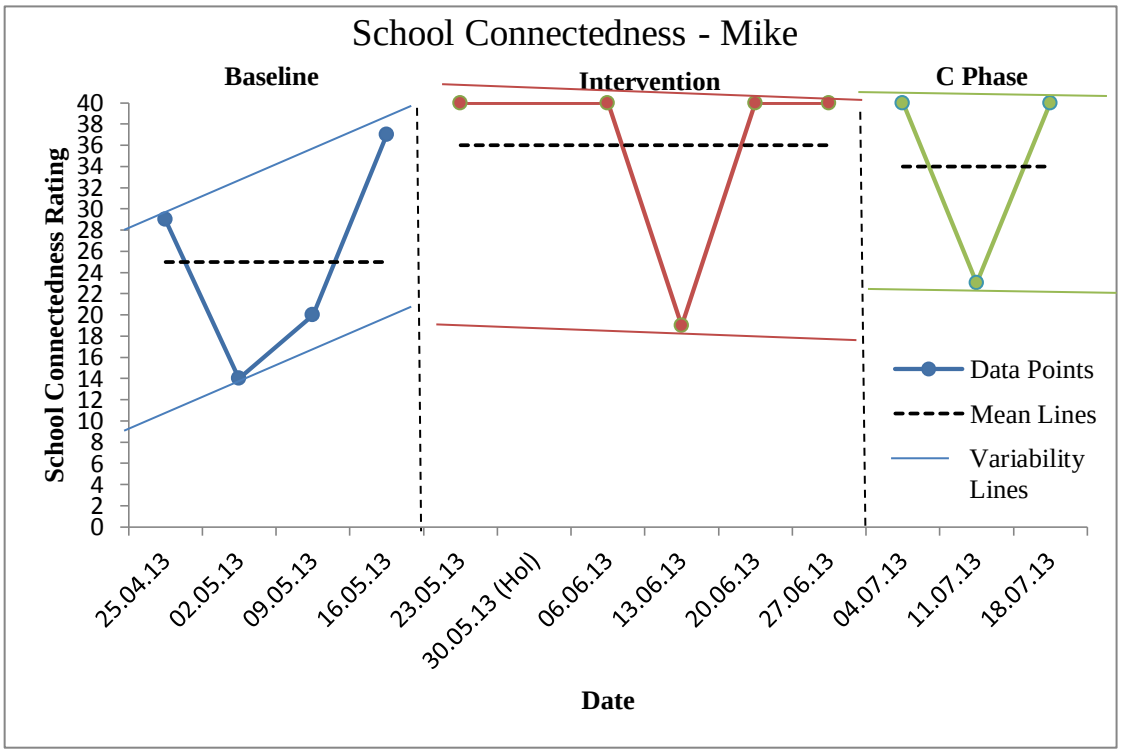


Figure 4.19: A line graph to show the school connectedness ratings across all three phases **with mean and variability lines** (Mike)

Feature	Visual Analysis
Changes in Level	Figure 4.19 shows quite a large increase in mean level between the baseline (25) and the intervention phase (36). This is a difference of +11. There is a slight decrease in mean level between intervention (36) and C phase (34). This is a difference of -2.
Changes in Trend	Figure 4.18 shows quite a steep accelerating trend line for the baseline phase data, indicating that a stable baseline was not achieved. The trend line for the intervention data is more stable with a slight deceleration. The C phase trend line is even more stable than this, again with a very slight deceleration.
Changes in Variability	Figure 4.19 shows a large level of variability for all of the school connectedness data. The intervention phase has the largest amount of variability and the baseline and C phases have a similar amount of variability, which is just less than the intervention phase.
Immediacy of effect	The first two data points in the intervention phase show an immediate change, however the third point shows a significant decrease. The first and third data points in the C phase are consistent with the last two points of the intervention phase; however the second C phase point shows a sharp decline (Figure 4.17).

Overlap of data	There is a low level of overlap in the intervention phase, with only one data point overlapping with the baseline (20%). All of the C phase data overlaps with the intervention phase (100%), although two of these data points overlap because they are at the limit of the school connectedness rating scale (Figure 4.17).

Table 4.8: A table summarising the visual analysis of Mike's school connectedness graphs

4.3.4.1. Summary of School Connectedness (Mike)

A stable baseline was not achieved. Visual analysis indicates that PR did lead to an increase in school connectedness ratings, as shown by the large increase in mean level, immediacy of effect for the first two data points and the low amount of data overlap. The clarity of this judgement is reduced slightly by the significantly lower rating provided on 13.06.13, which has increased the variability of the intervention data and given the trend a slight deceleration. The graphs also indicate a positive impact of the C phase intervention on school connectedness. High ratings are maintained throughout this phase, with the exception of one low rating. Again, this has impacted on the variability and trend for the phase.

4.3.5. Research Question Four: Social Presentation in School

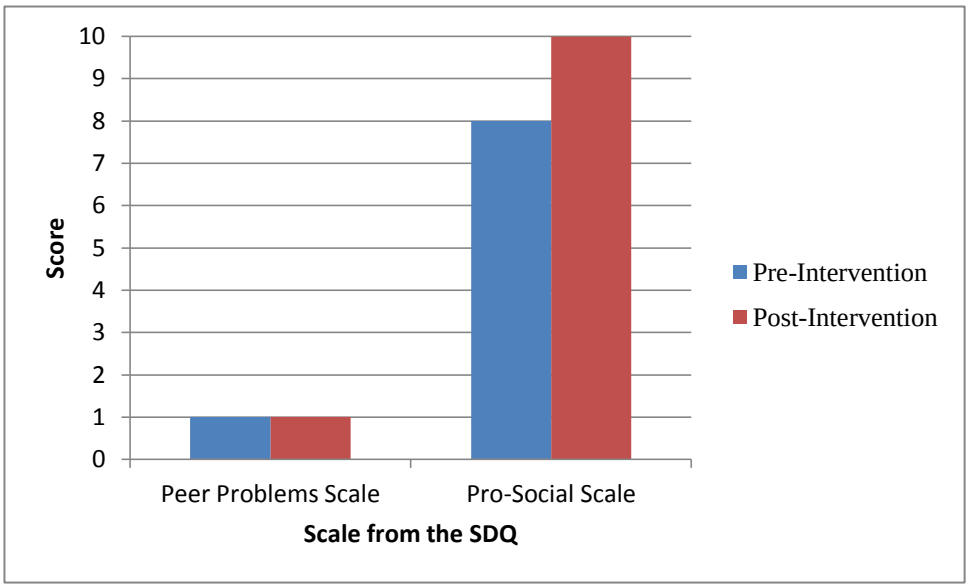


Figure 4.20: A bar chart to show the pre and post scores obtained on two scales of the SDQ (Mike)

Figure 4.20 shows that Mike's score on the peer problems scale remained consistent pre and post intervention. This score was low and within the 'normal' range. Mike's score on the pro-social scale showed a slight increase of two points post-intervention. Both scores were high and within the 'normal' range.

4.4. Participant Three: Sarah

4.4.1. Sarah's Profile

Sex: Female Age: 7 years 5 months (at onset of the research)

Year Group: 2 Peer: Female, Year 5

4.4.2. Research Question One: Reading Accuracy

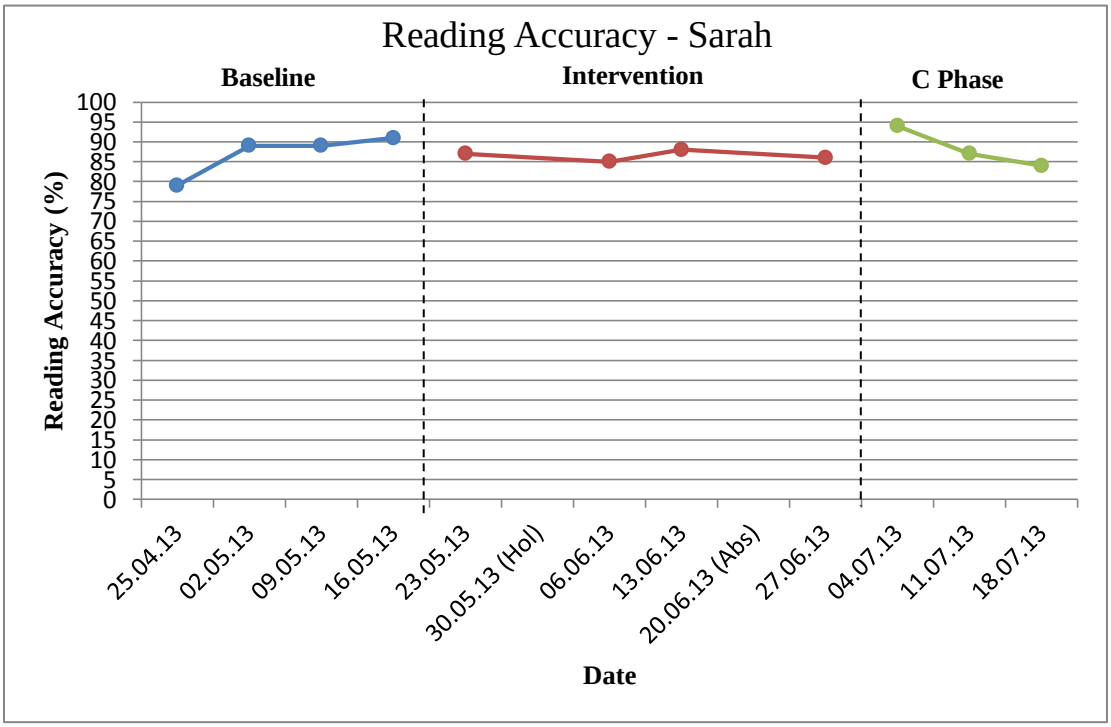


Figure 4.21: A line graph to show the percentage of words read correctly in three minutes across all three phases (Sarah)

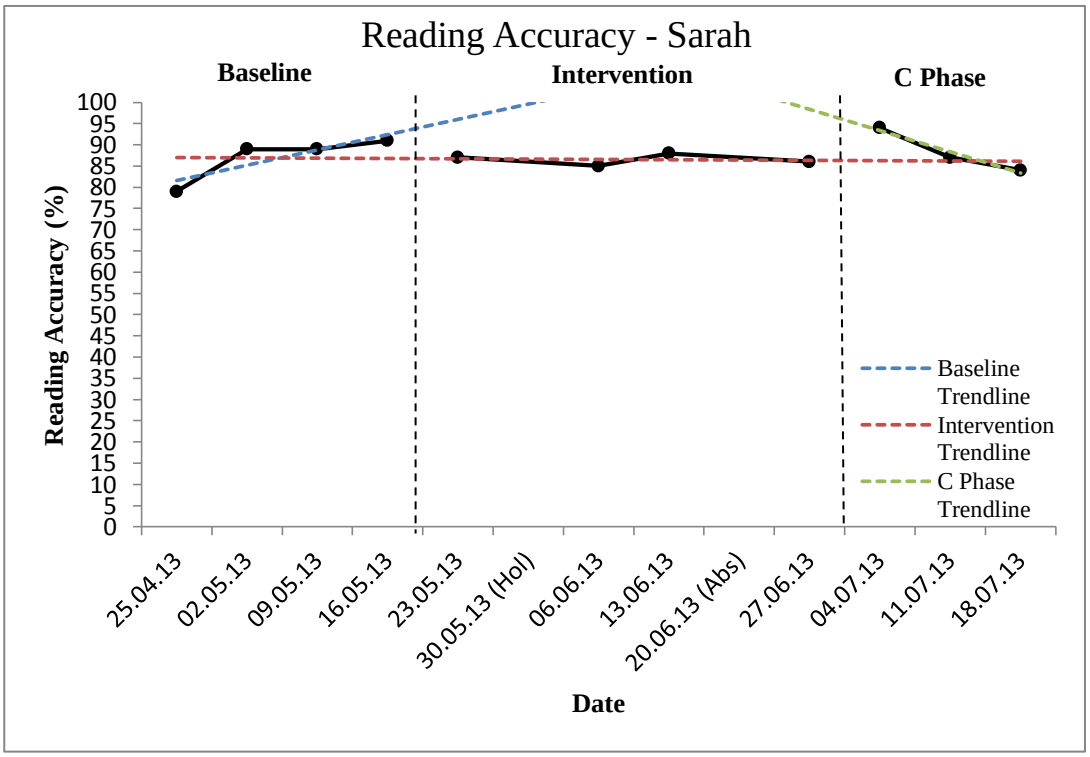


Figure 4.22: A line graph to show the percentage of words read correctly in three minutes across all three phases **with trend lines** (Sarah)

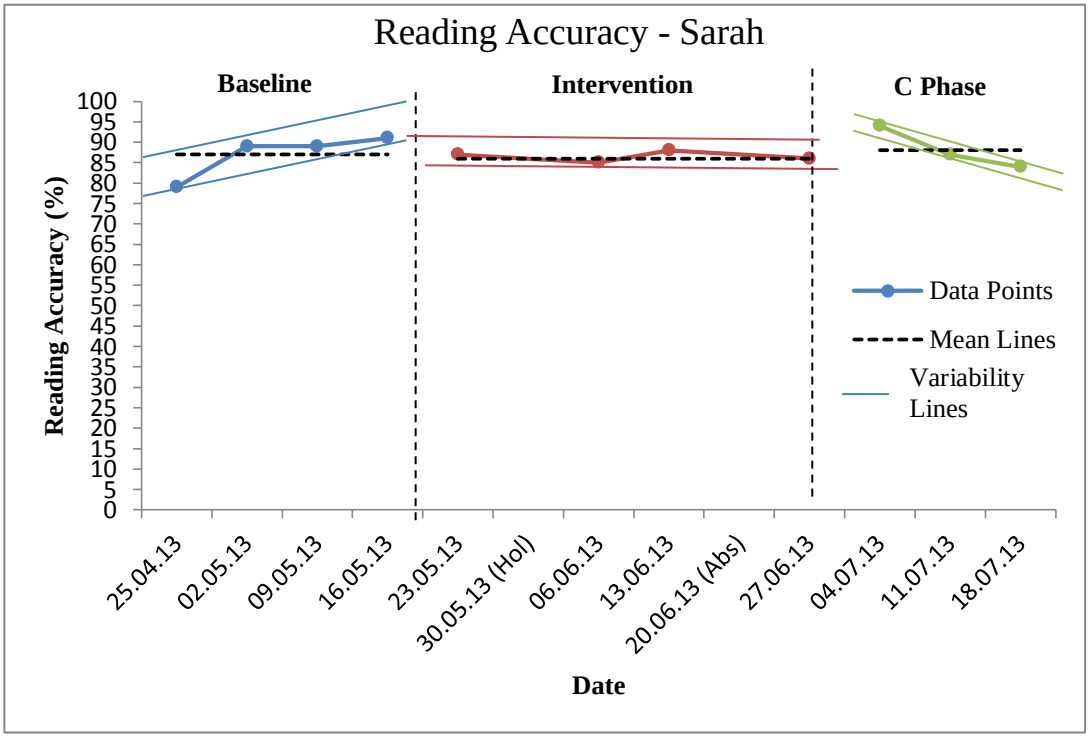


Figure 4.23: A line graph to show the percentage of words read correctly in three minutes across all three phases **with mean and variability lines** (Sarah)

Feature	Visual Analysis
Changes in Level	Figure 4.23 suggests there is not a significant difference in mean level between baseline phase (87) and intervention phase (86), with a difference of -1. There is also a very small difference in mean level between intervention phase (86) and C phase (88), with a difference of +2.
Changes in Trend	Figure 4.22 shows a fairly steep accelerating trend line for the baseline data. The trend line in the intervention phase is stable and horizontal. A fairly steep decelerating trend line can be seen in the C phase.
Changes in Variability	Figure 4.23 illustrates a low level of variability across all three phases, with very low variability in the intervention and C phases.
Immediacy of effect	Analysing from Figure 4.21 it cannot be said that there is any immediate change in values between baseline and intervention phase or between intervention phase and C phase.
Overlap of data	All of the intervention data points overlap the baseline data points (100%) and a high proportion of the C phase data points overlap the intervention phase data points (67%). (Figure 4.21)

Table 4.9: A table summarising the visual analysis of Sarah's reading accuracy graphs

4.4.2.1. Summary of Reading Accuracy (Sarah)

Visual analysis indicates that PR did not have a significant impact on reading accuracy. This is shown through the lack of an observable difference between level, trend and immediacy of effect in the two phases. Both baseline and intervention phase have a very small amount of variability. Additionally, there is no observable change in accuracy during the C phase, although the mean level is slightly higher than the intervention and there appears to be a decelerating trend in the data. Despite this, there is a large amount of data overlap and it is difficult to establish a definite conclusion from the three data points included in the C phase.

4.4.3. Research Question Two: Reading Fluency

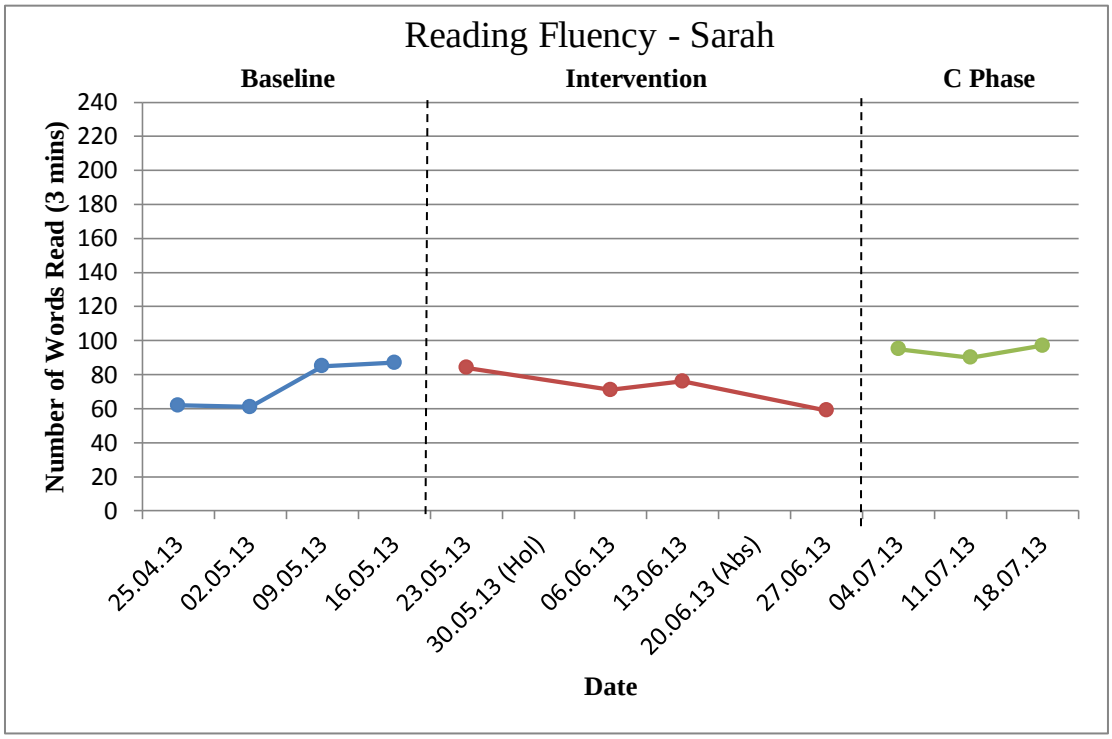


Figure 4.24: A line graph to show the total number of words read in three minutes across all three phases (Sarah)

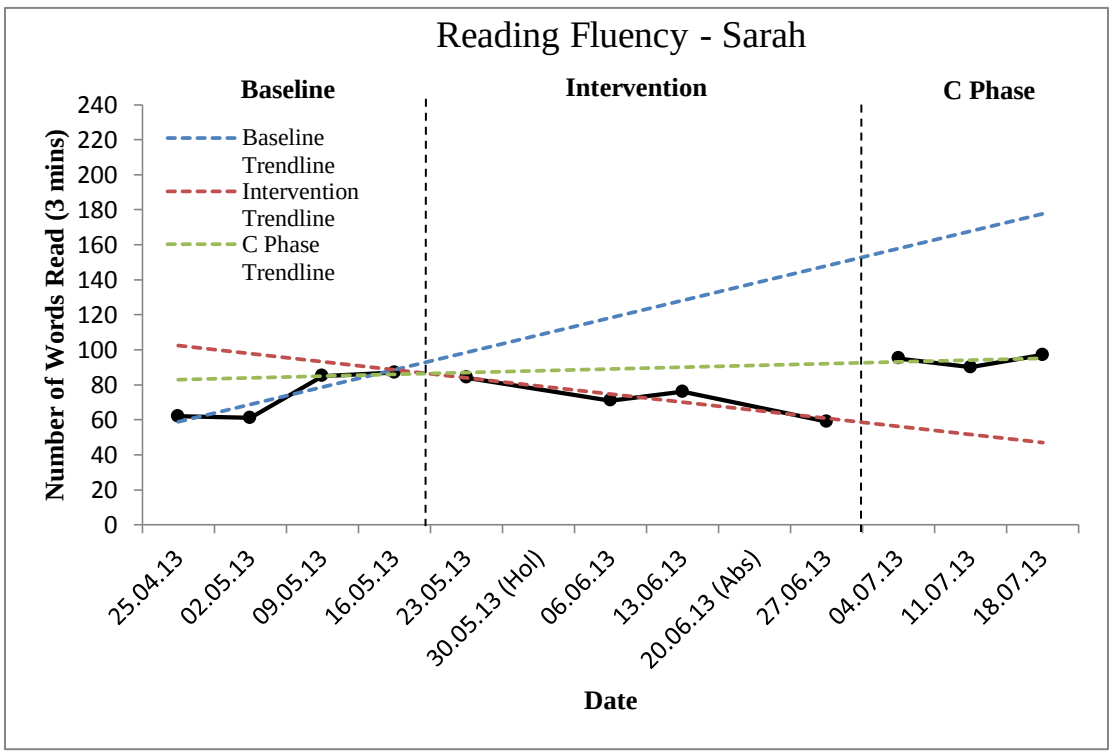


Figure 4.25: A line graph to show the total number of words read in three minutes across all three phases **with trend lines** (Sarah)

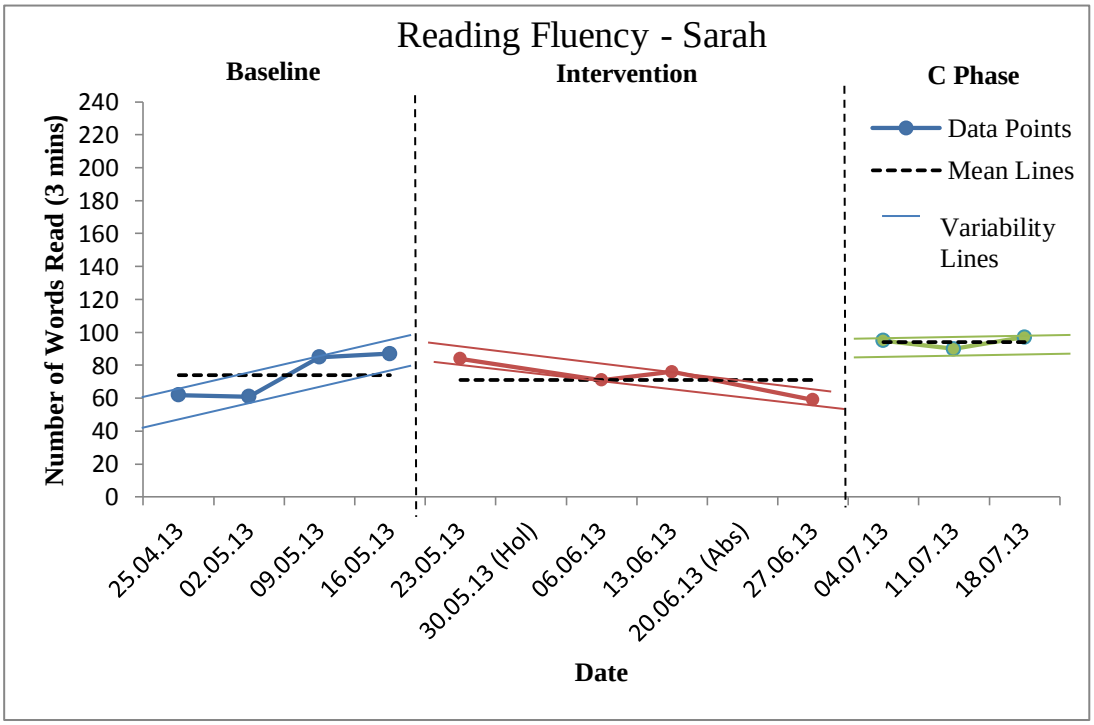


Figure 4.26: A line graph to show the total number of words read in three minutes across all three phases **with mean and variability lines** (Sarah)

Feature	Visual Analysis
Changes in Level	Figure 4.26 shows that there is a small mean level difference between the baseline (74) and the intervention (71) phases. This is a difference of -3. There is a larger mean level difference between the intervention phase (71) and the C phase (94). This is a difference of +23.
Changes in Trend	As seen in Figure 4.25, the baseline data has a fairly steep accelerating trend line. The intervention data has a less steep decelerating trend line. The C phase data has a more stable trend line which is very slightly accelerating.
Changes in Variability	There is a low level of variability in the data of all three phases. The baseline data has slightly more variability than the intervention and C phases (Figure 4.26).
Immediacy of effect	Analysis of Figure 4.24 shows that there is not an immediately observable change in data between the baseline and intervention phases. There is an observable change in the C phase, where all three data points have a higher level than the intervention data points.
Overlap of data	A large proportion of the intervention data points overlap with the baseline phase (75%). None of the C phase data points overlap with the intervention phase (0%) (Figure 4.24)

Table 4.10: A table summarising the visual analysis of Sarah's reading fluency graphs

4.4.3.1. Summary of Reading Fluency (Sarah)

The visual analysis suggests that PR did not have a significant impact on reading fluency. A stable baseline was not achieved; however the intervention results did not follow the same trend and, instead, demonstrated a slight deceleration. There is a small difference in mean level, a large overlap of data points and there is not an immediately observable change during the first three data points of the intervention phase. The data in the C phase had a higher mean level, an accelerating trend line, an immediately observable effect and none of the data points overlapped with the intervention.

4.4.4. Research Question Three: School Connectedness

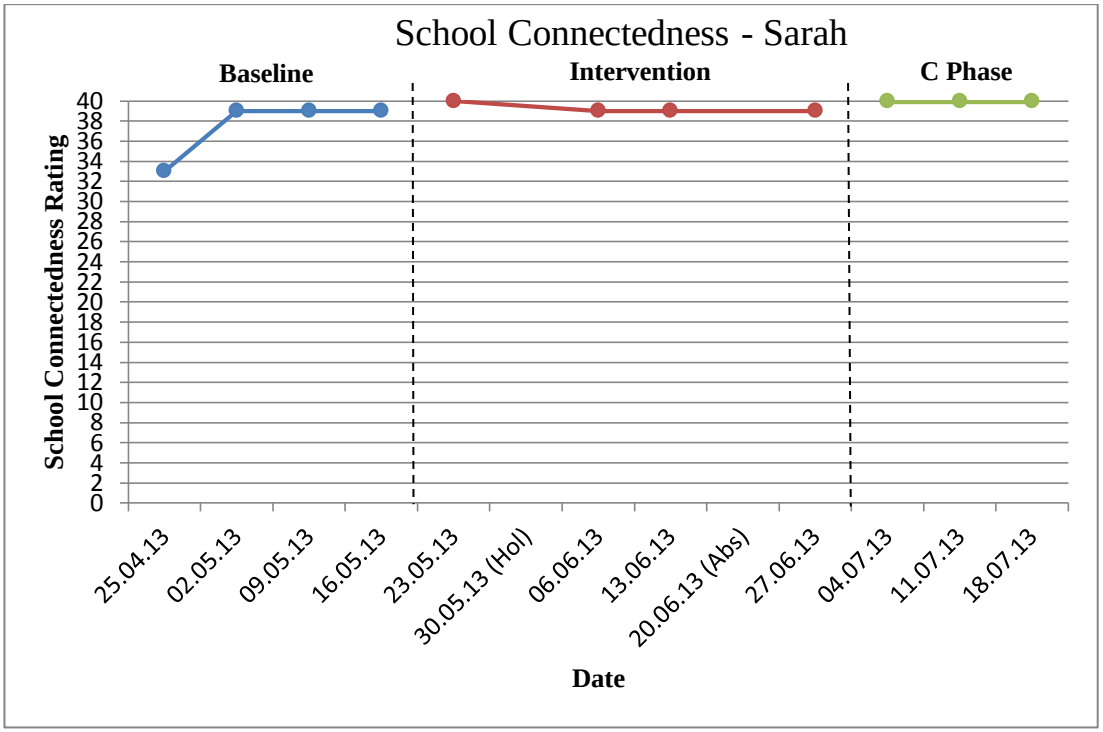


Figure 4.27: A line graph to show the school connectedness ratings across all three phases (Sarah)

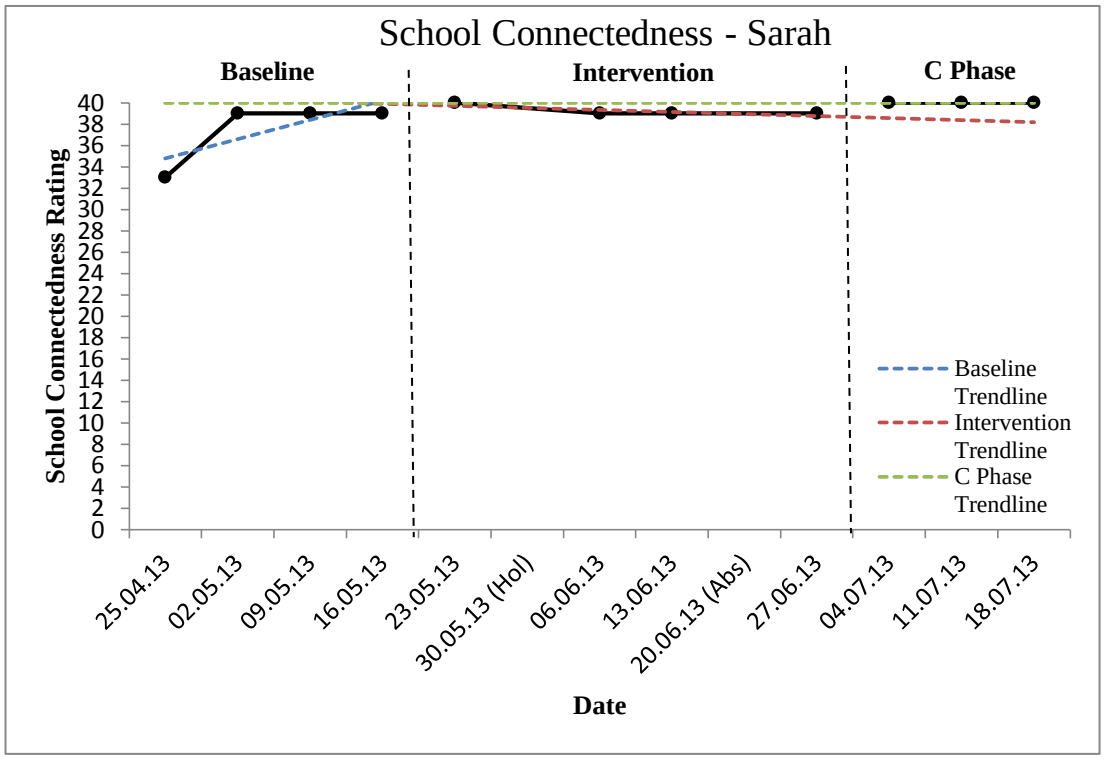


Figure 4.28: A line graph to show the school connectedness ratings across all three phases **with trend lines** (Sarah)

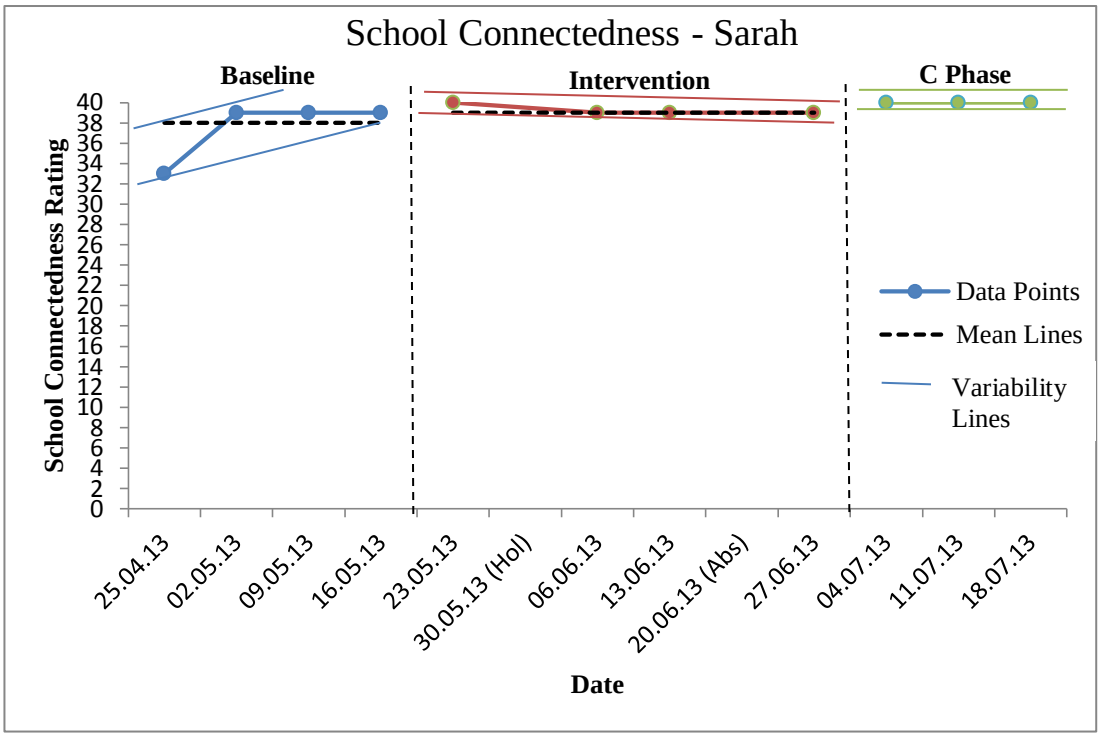


Figure 4.29: A line graph to show the school connectedness ratings across all three phases **with mean and variability lines** (Sarah)

Feature	Visual Analysis
Changes in Level	Figure 4.29 shows a slight increase in mean level between baseline (38) and intervention (39) phases. This is a difference of +1. There is a slight increase in mean level between the intervention phase (39) and the C phase (40). This is a difference of +1.
Changes in Trend	Figure 4.28 shows a fairly steep, accelerating trend line in the baseline phase. The intervention phase has a more stable trend line which is very slightly decelerating. The C phase has a completely horizontal trend line.
Changes in Variability	Figure 4.29 shows a fairly high level of variability in the baseline phase, which is significantly affected by the first data point. There is a much lower level of variability in both the intervention and C phases.
Immediacy of effect	The first intervention data point shows an immediate change, however the remaining points are more consistent with the last three baseline data points. There is an immediate change in the C phase, with all three data points being higher than the intervention phase (Figure 4.27)
Overlap of data	In Figure 4.27 it can be seen that there is a high level of intervention data points overlapping with the baseline (75%). All of the C phase data points overlap with the intervention phase (100%).

Table 4.11: A table summarising the visual analysis of Sarah's school connectedness graphs

4.4.4.1. Summary of School Connectedness (Sarah)

The visual analysis indicates that there is no significant effect of PR on school connectedness. The mean level has increased a minimal amount and only the first intervention data point has a higher level than the majority of baseline data points. There is also a slightly decelerating trend in the intervention phase, compared with a steeply accelerating trend in the baseline. The C phase intervention appears to have had some impact on school connectedness. This is shown through the slightly raised mean level and the immediacy of effect. The C phase has a horizontal trend line, showing consistently high ratings in this phase.

4.4.5. Research Question Four: Social Presentation in School

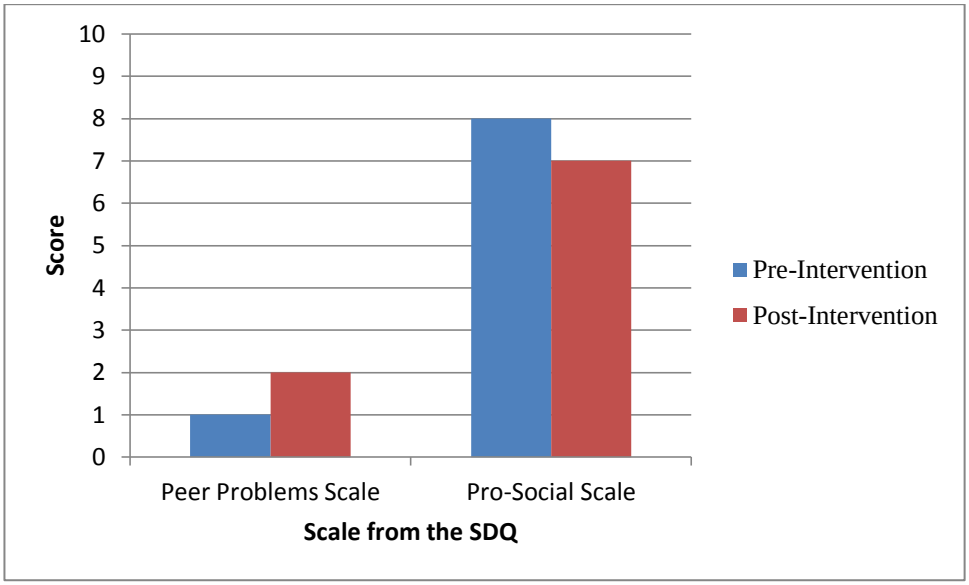


Figure 4.30: A bar chart to show the pre and post scores obtained on two scales of the SDQ (Sarah)

The bar chart shows a small increase in score on the peer problems scale at the post-intervention time point. The chart also shows a slight decrease in pro-social score post intervention. Both differences are by one point. All scores fall into the 'normal' range as defined by the authors of the SDQ.

4.5. Participant Four: Claire

4.5.1. Participant Overview

Sex: Female Age: 8 years 1 month (at onset of the research)

Year Group: 3 Peer: Female, Year 5

4.5.2. Research Question One: Reading Accuracy

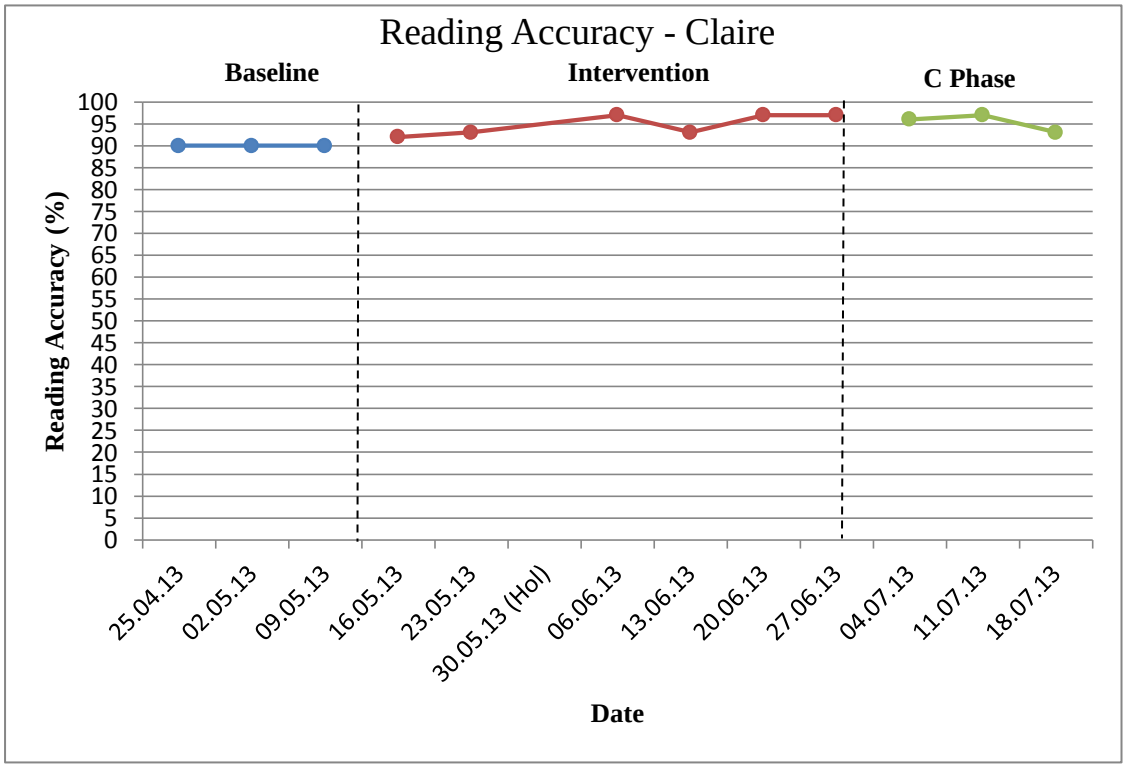


Figure 4.31: A line graph to show the percentage of words read correctly in three minutes across all three phases (Claire)

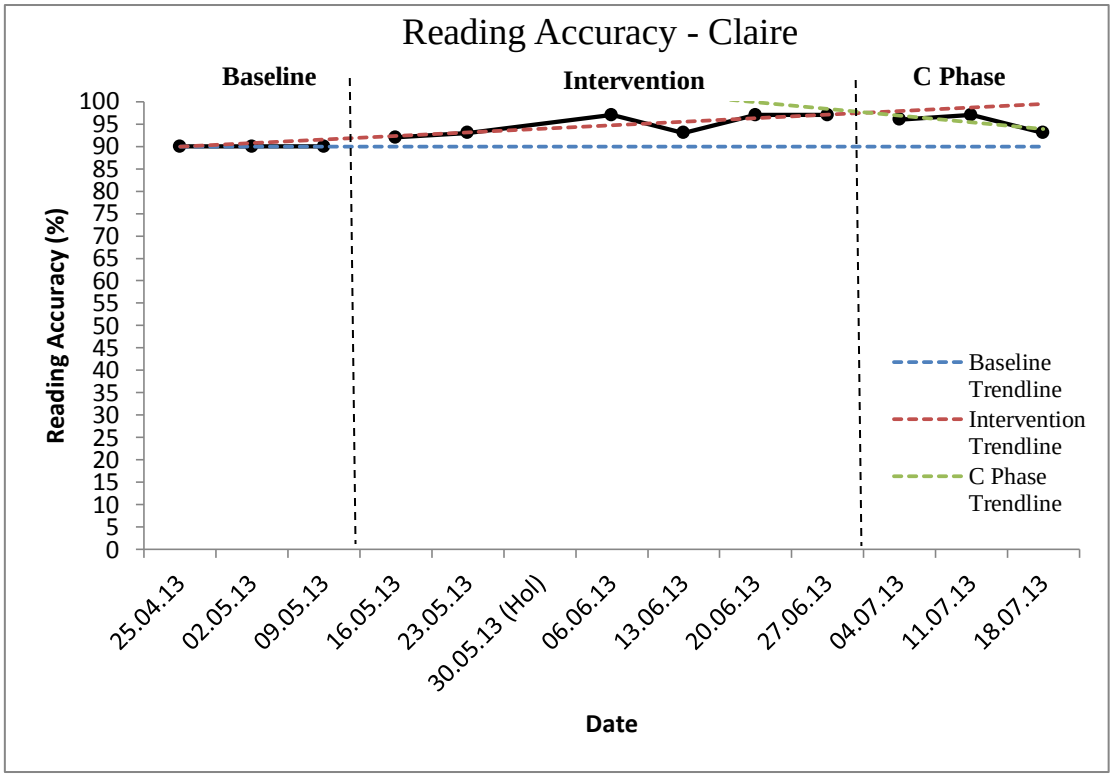


Figure 4.32: A line graph to show the percentage of words read correctly in three minutes across all three phases **with trend lines** (Claire)

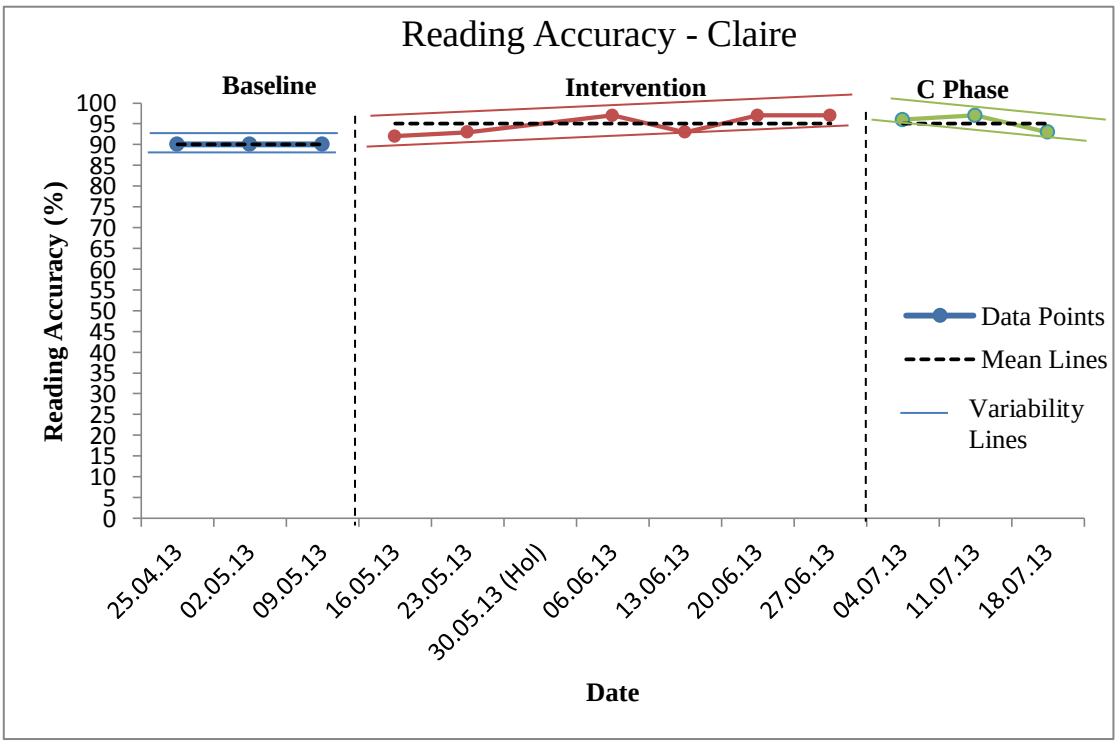


Figure 4.33: A line graph to show the percentage of words read correctly in three minutes across all three phases **with mean and variability lines** (Claire)

Feature	Visual Analysis
Changes in Level	Figure 4.33 shows an increase in mean level between the baseline (90) and the intervention phase (95). This is a difference of +5. There is a continuity of mean level between the intervention and C phase, with both having a mean of 95.
Changes in Trend	On Figure 4.32 a perfectly horizontal trend line is shown for the baseline data. The intervention data has a slightly accelerating trend line and the C phase data has a slightly decelerating trend line.
Changes in Variability	Figure 4.33 shows that there is a very low, consistent level of variability across all three phases of the study.
Immediacy of effect	From Figure 4.31 an immediate change is observed in the level of the results in the intervention phase. An immediate change cannot be observed in the data points of the C phase.
Overlap of data	Figure 4.31 can be used to see that there are no intervention data points overlapping with the baseline (0%). All of the C phase data points overlap with the intervention (100%).

Table 4.12: A table summarising the visual analysis of Claire's reading accuracy graphs

4.5.2.1. Summary of Reading Accuracy (Claire)

The measures used suggest a positive impact of PR on reading accuracy. This can be seen in the increased mean level, the accelerating trend line, the low percentage of overlapping data and the immediacy of effect. The replacement of PR with the C phase has not resulted in a significant change in accuracy, suggesting the gains were maintained. The mean level for the data remains the same and there is not an immediately observable change. The final data point has introduced a decelerating trend.

4.5.3. Research Question Two: Reading Fluency

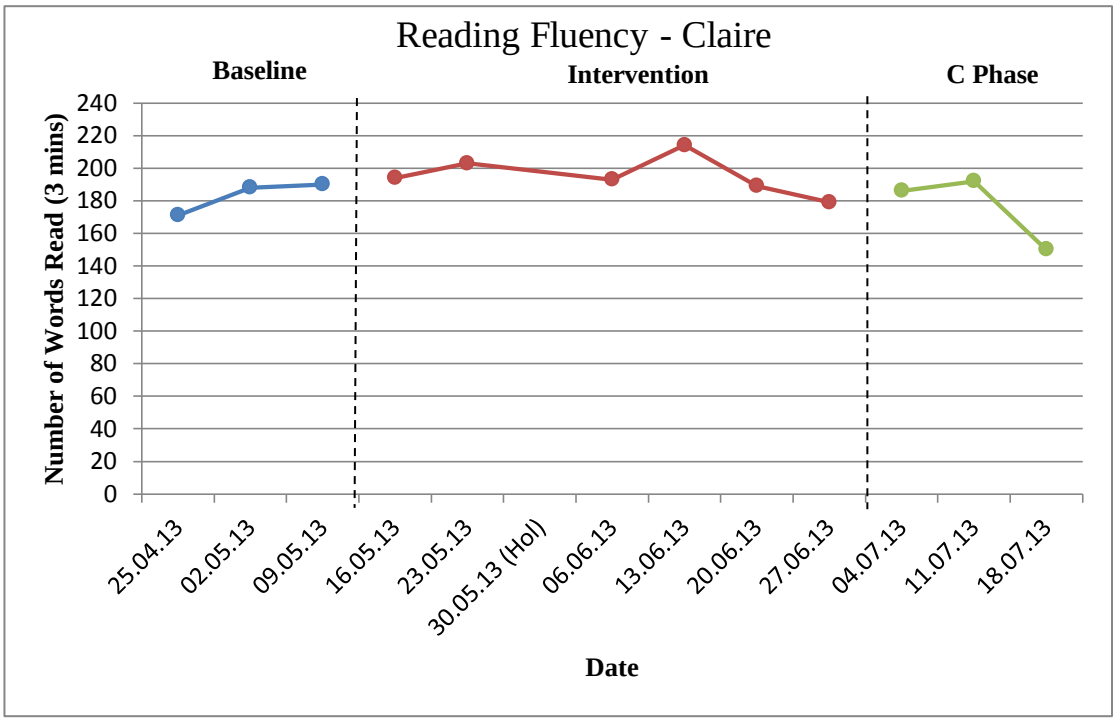


Figure 4.34: A line graph to show the total number of words read in three minutes across all three phases (Claire)

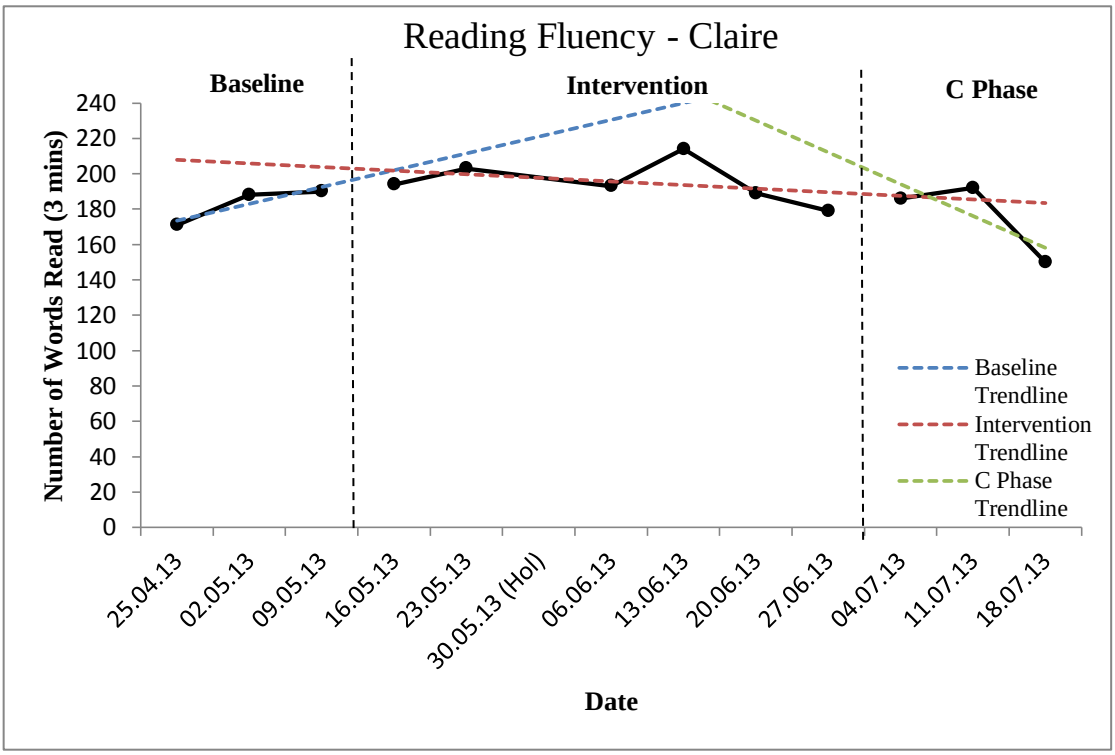


Figure 4.35: A line graph to show the total number of words read in three minutes across all three phases **with trend lines** (Claire)

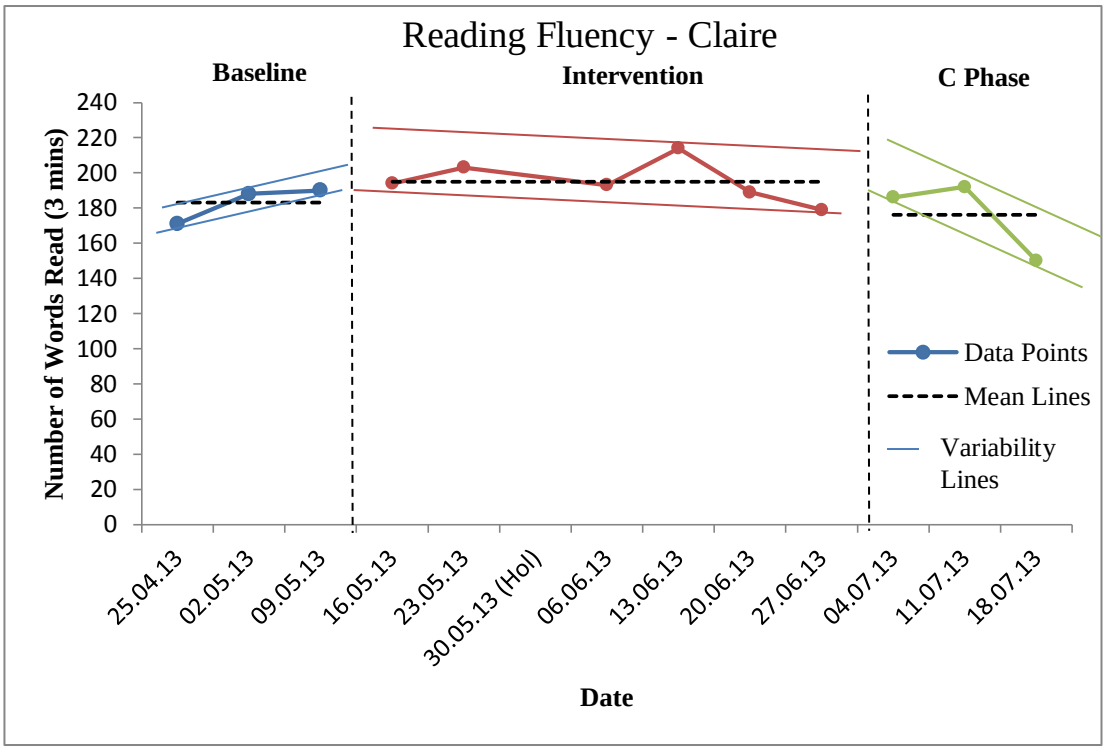


Figure 4.36: A line graph to show the total number of words read in three minutes across all three phases **with mean and variability lines** (Claire)

Feature	Visual Analysis
Changes in Level	Figure 4.36 shows quite a large mean level increase from baseline (183) to intervention phase (195). This is a difference of +12. There is also quite a significant decrease in mean level from the intervention (195) to the C phase (176). This is a difference of -19.
Changes in Trend	Figure 4.35 shows a fairly steep accelerating trend line in the baseline phase. In the intervention phase there is a slightly decelerating trend line and in the C phase there is a much steeper decelerating trend line.
Changes in Variability	Figure 4.36 shows a very low level of variability during the baseline phase. There is a greater level of variability, approximately more than double, in the intervention phase. A similar level of variability to this is also seen in the C phase.
Immediacy of effect	From Figure 4.34 an immediate change in level can be seen during the first three data points of the intervention phase. An immediate change is not as observable in the C phase, with only the final data point showing a significantly lower level.
Overlap of data	Figure 4.34 can be used to show a fairly low number of intervention data points overlapping with the baseline (33%). A higher proportion of the C phase data points overlap with the intervention (67%).

Table 4.13: A table summarising the visual analysis of Claire's reading fluency graphs

4.5.3.1. Summary of Reading Fluency (Claire)

A stable baseline was not achieved. There is little indication that PR improved fluency, although there is a higher level of mean scores and an immediately observable change in level. The trend line for this data shows a slight deceleration, although this is influenced by the final intervention data point. There is also greater variability in the intervention data. The C phase data suggests that Claire's fluency continued to fluctuate once PR was withdrawn. There is a lower mean level and a more steeply decelerating trend line although this is significantly influenced by the final data point. The greater proportion of data overlap in this phase suggests that a significant change in fluency had not taken place.

4.5.4. Research Question Three: School Connectedness

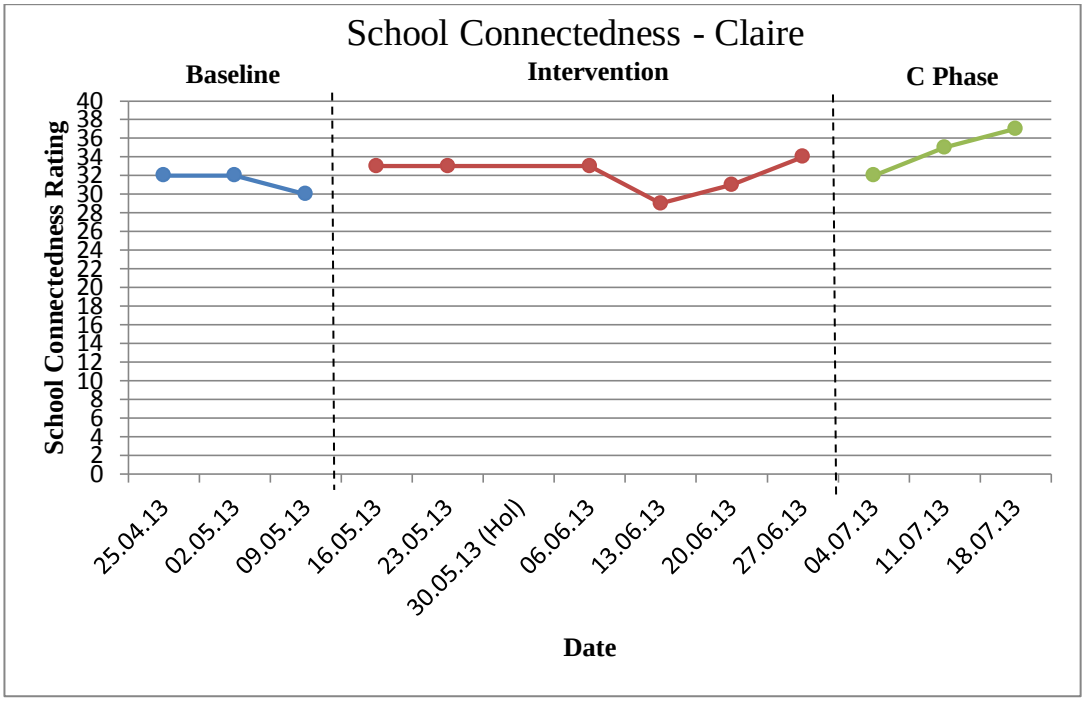


Figure 4.37: A line graph to show the school connectedness ratings across all three phases (Claire)

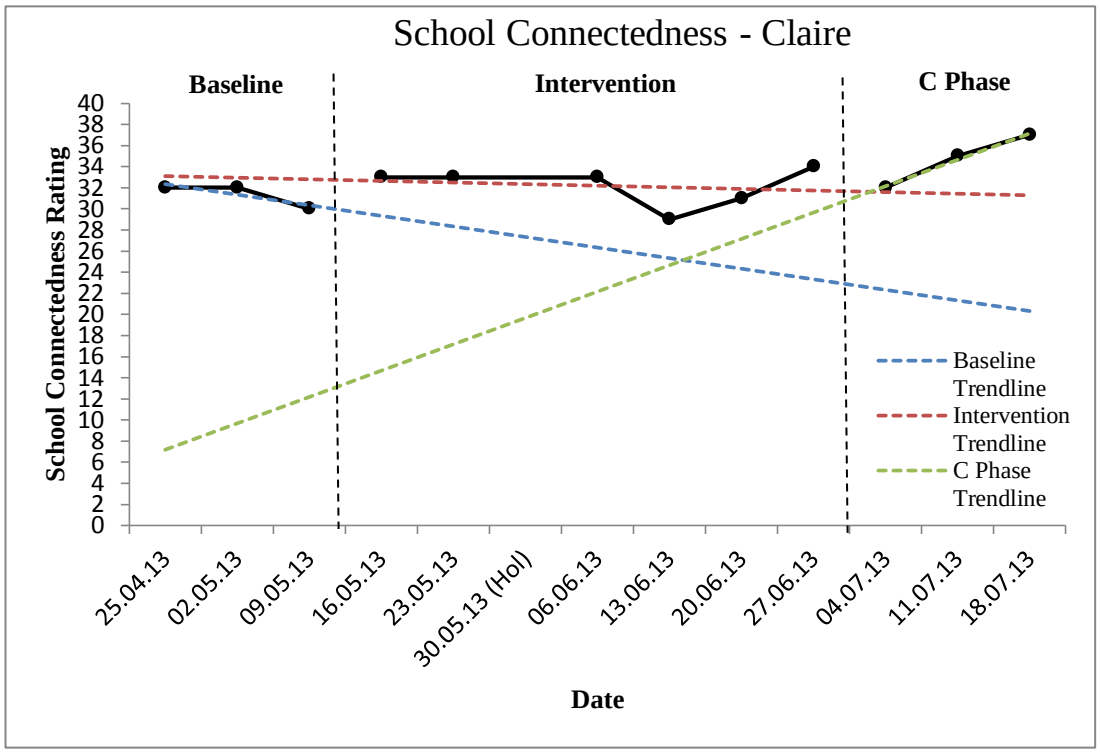


Figure 4.38: A line graph to show the school connectedness ratings across all three phases **with trend lines** (Claire)

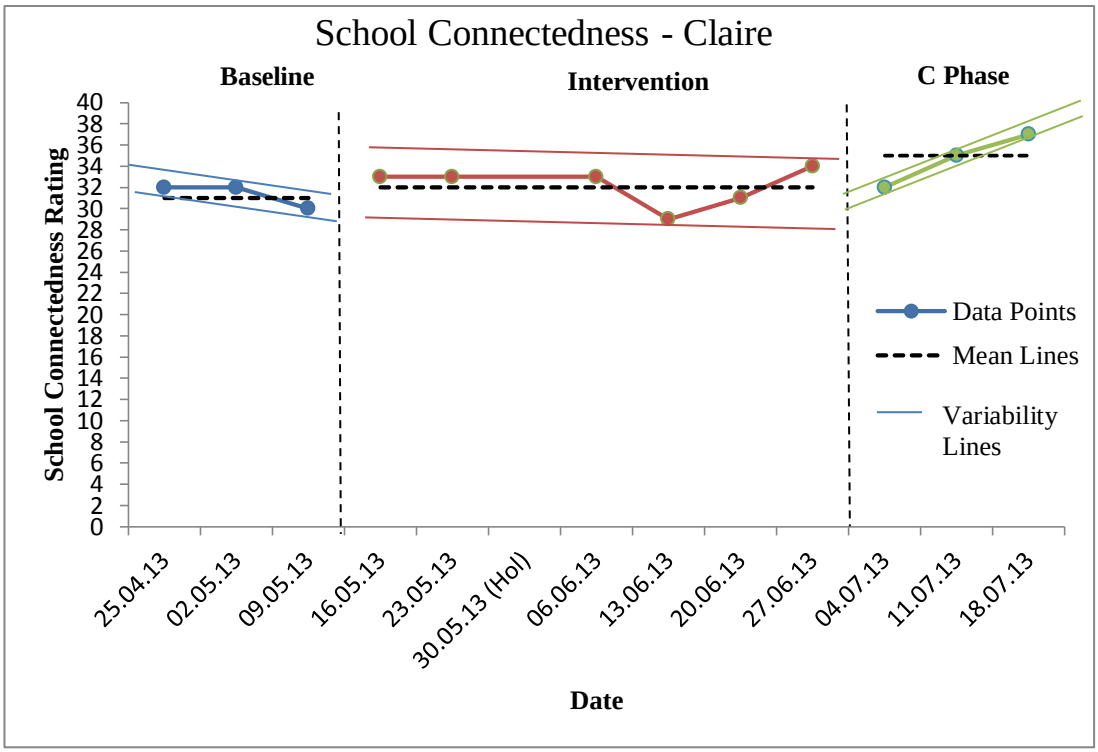


Figure 4.39: A line graph to show the school connectedness ratings across all three phases **with mean lines and variability lines** (Claire)

Feature	Visual Analysis
Changes in Level	Figure 4.39 shows a slight increase in mean level between baseline (31) and intervention phase (32). This is a difference of +1. There is a larger increase in mean level between the intervention phase (32) and the C phase (35).
Changes in Trend	Figure 4.38 shows that the baseline data has a decelerating trend line. The intervention data has a more horizontal trend line which has a very slight deceleration. The trend line for the C phase data has a much steeper incline than the other lines and is accelerating.
Changes in Variability	Figure 4.39 shows a low level of variability in the baseline data. The intervention phase has a larger amount of variability; more than double that of the baseline. The C phase has the smallest amount of variability of all the phases.
Immediacy of effect	Figure 4.37 can be used to see an immediate change in level in the intervention data. An immediate change can also be seen in the C phase data.
Overlap of data	A relatively small proportion of intervention data points overlap with the baseline data (33%). The same amount of C phase data points overlap with the intervention data (33%) (Figure 4.37).

Table 4.14: A table summarising the visual analysis of Claire's school connectedness graphs

4.5.4.1. Summary of School Connectedness (Claire)

A fairly stable baseline was achieved, although the final data point was slightly lower. Visual analysis suggests that PR may have had a small impact on school connectedness, as there was an increase in mean level and the trend line had an incline that was more horizontal than the baseline. There was also an immediate change in the results with a fairly low proportion of overlapping data. Visual analysis suggests there may have been a slightly larger impact on school connectedness when the C phase intervention was introduced. The mean level increased by a greater amount and the trend became a steeply accelerating line. An immediacy of effect and a small proportion of data overlap were also present.

4.5.5. Research Question Four: Social Presentation in School

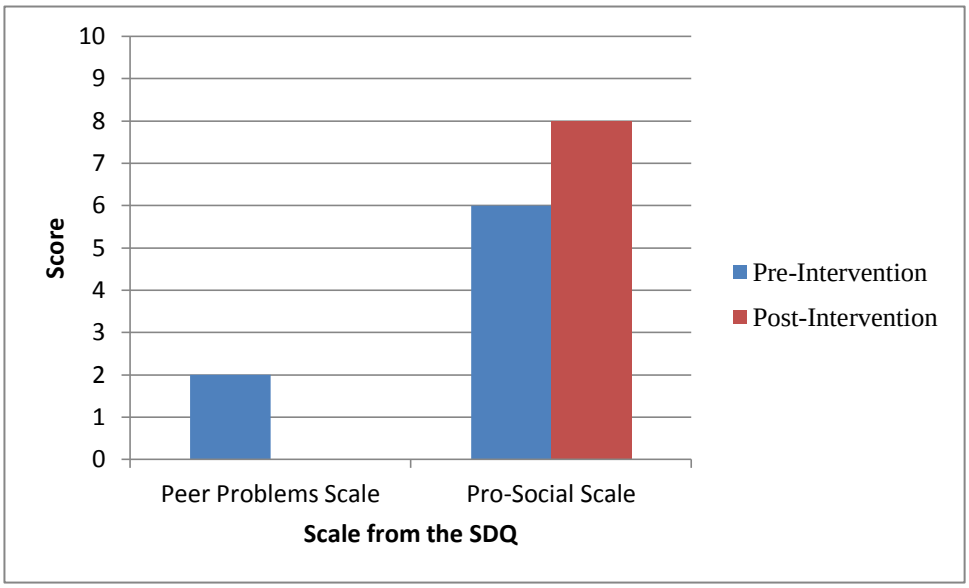


Figure 4.40: A bar chart to show the pre and post scores obtained on two scales of the SDQ (Claire)

The SDQ data shows that there was a decrease of two in the score given on the peer problems scale at the post-intervention time point. There was also an increase of two on the pro-social scale. This suggests that Claire had fewer peer problems and a greater pro-social ability following the intervention.

4.6. Participant Five: Andrew

4.6.1. Participant Profile

Sex: Male Age: 9 years 0 months (at onset of the research)

Year Group: 4 Peer: Female, Year 5

Unfortunately, Andrew was permanently excluded from his primary school at the end of the paired reading intervention. This meant that he was withdrawn from the study and did not participate in the C phase. The author decided to include Andrew's data in this thesis, as he had been involved in the majority of the research.

4.6.2. Research Question One: Reading Accuracy

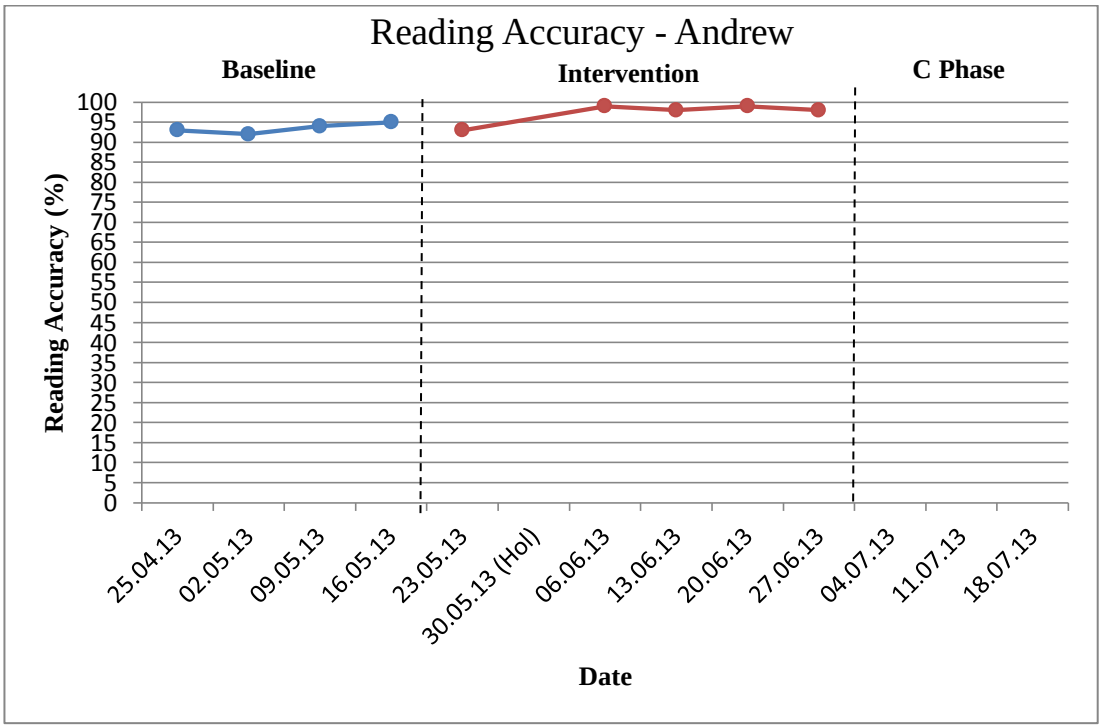


Figure 4.41: A line graph to show the percentage of words read correctly in three minutes across the baseline and intervention phases (Andrew)

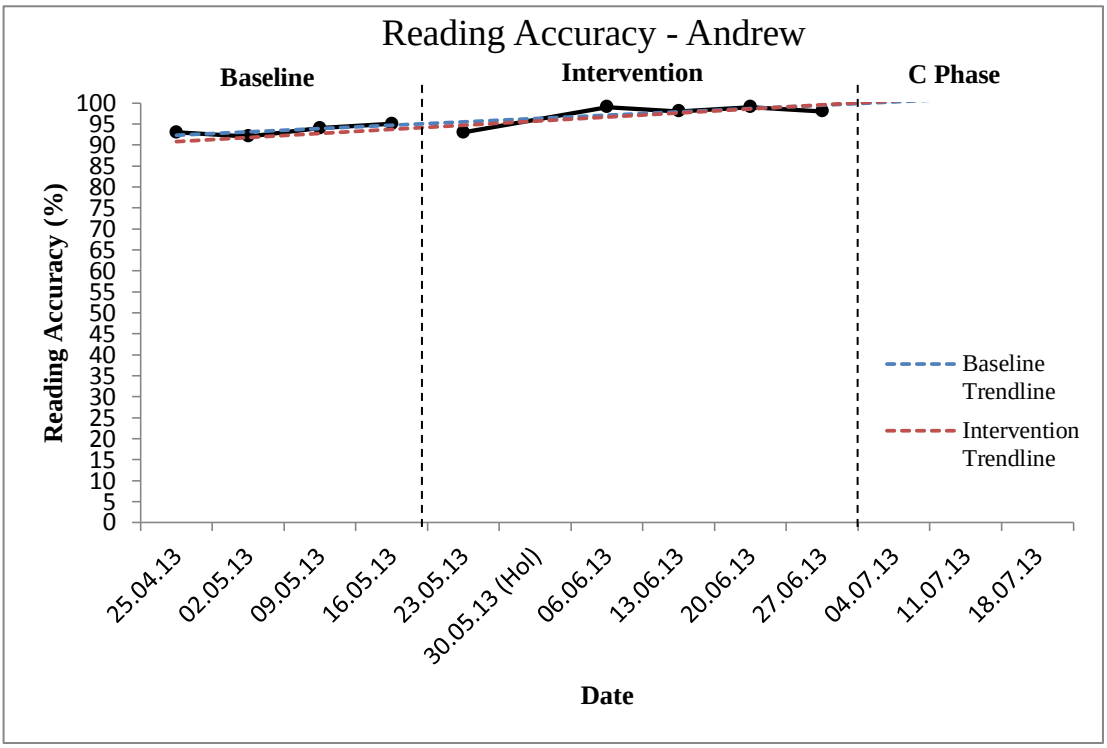


Figure 4.42: A line graph to show the percentage of words read correctly in three minutes across the baseline and intervention phases **with trend lines** (Andrew)

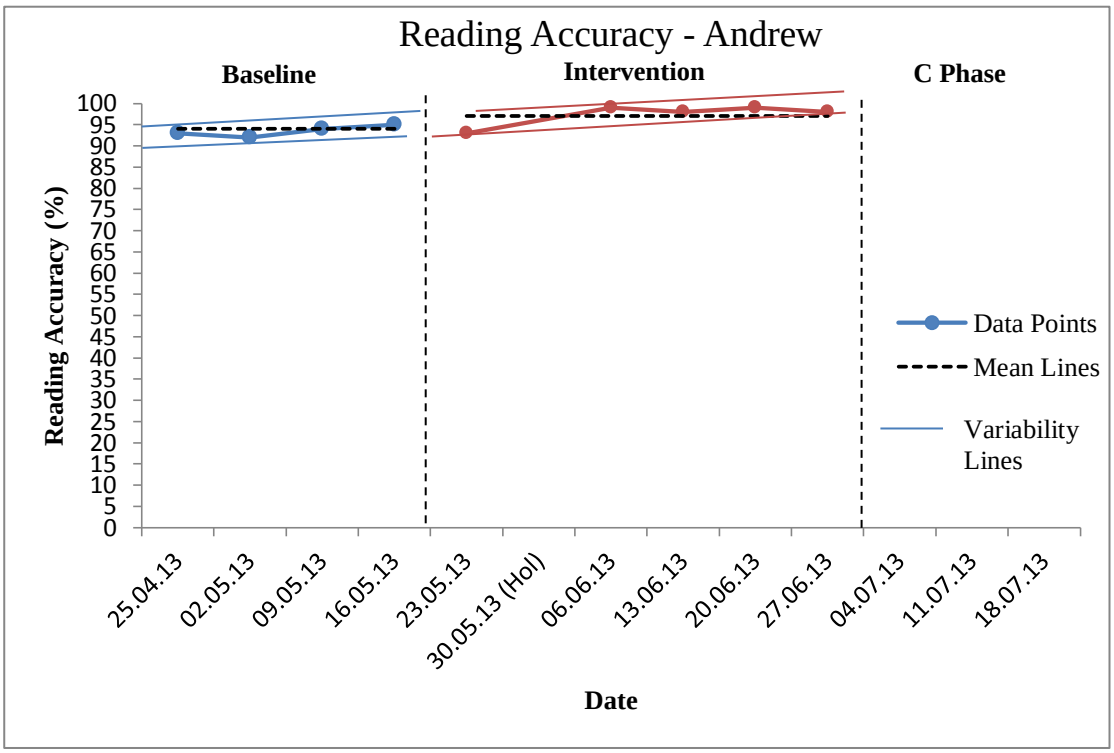


Figure 4.43: A line graph to show the percentage of words read correctly in three minutes across the baseline and intervention phases **with mean and variability lines** (Andrew)

Feature	Visual Analysis
Changes in Level	Figure 4.43 shows a positive mean level change between baseline (94) and intervention (97) phase. This is a shift of +3.
Changes in Trend	Figure 4.42 shows that the trend lines for the baseline and intervention phases are very similar. The intervention trend line has a very slightly steeper incline. Both lines show slight acceleration.
Changes in Variability	The variability of the data is small and very similar in the baseline and intervention phases (Figure 4.43)
Immediacy of effect	From Figure 4.41 it can be seen that there is an immediately observable change in level, although this change is relatively small.
Overlap	From Figure 4.41 it can be seen that there is one intervention data point overlapping with the baseline phase (20%).

Table 4.15: A table summarising the visual analysis of Andrew's reading accuracy graphs

4.6.2.1. Summary of Reading Accuracy (Andrew)

The measures used indicate there may have been a small positive impact of PR on reading accuracy. The mean level increased slightly and the trend line showed more acceleration. There was also a small proportion of overlapping data and a low level of variability. Analysis is more difficult due to the fact that Andrew's scores were at the upper limit of the percentage measurement.

4.6.3. Research Question Two: Reading Fluency

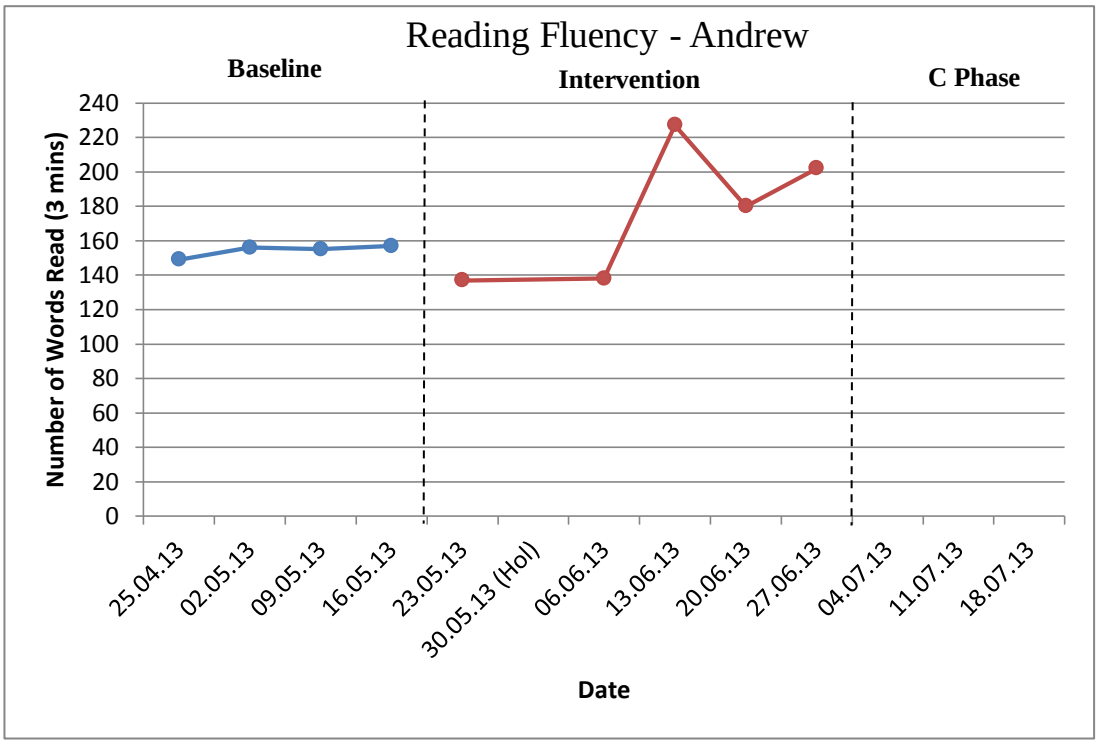


Figure 4.44: A line graph to show the total number of words read in three minutes across the baseline and intervention phases (Andrew)

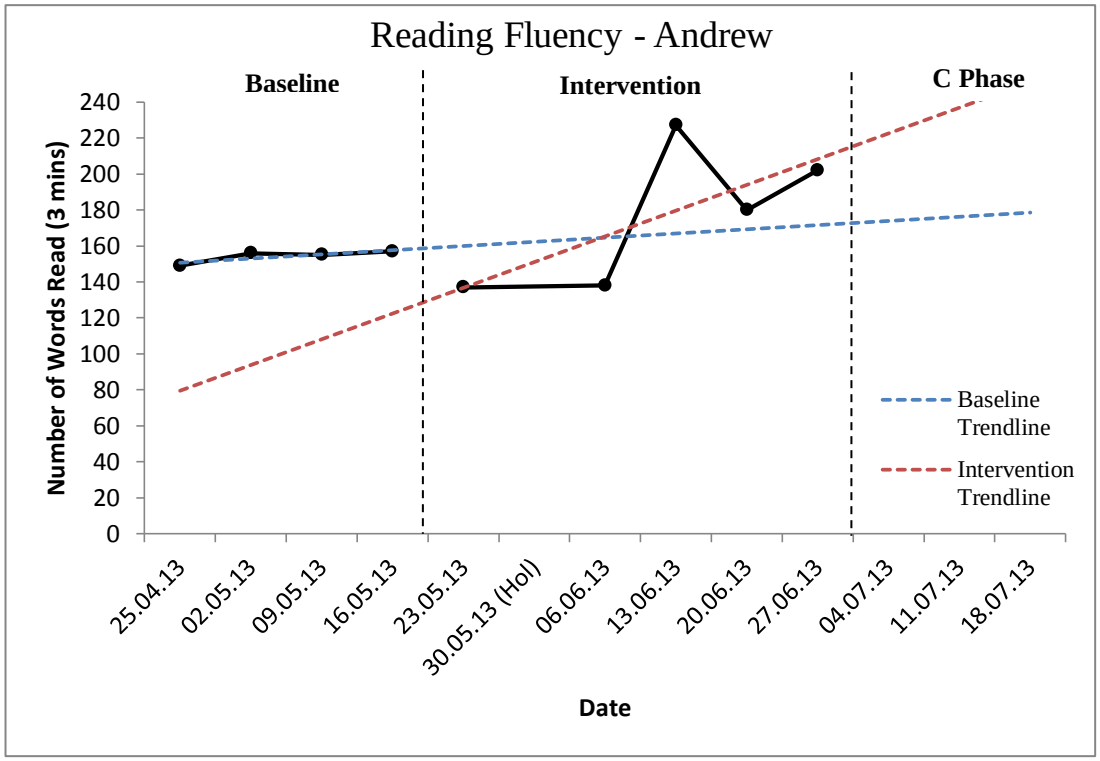


Figure 4.45: A line graph to show the total number of words read in three minutes across the baseline and intervention phases **with trend lines** (Andrew)

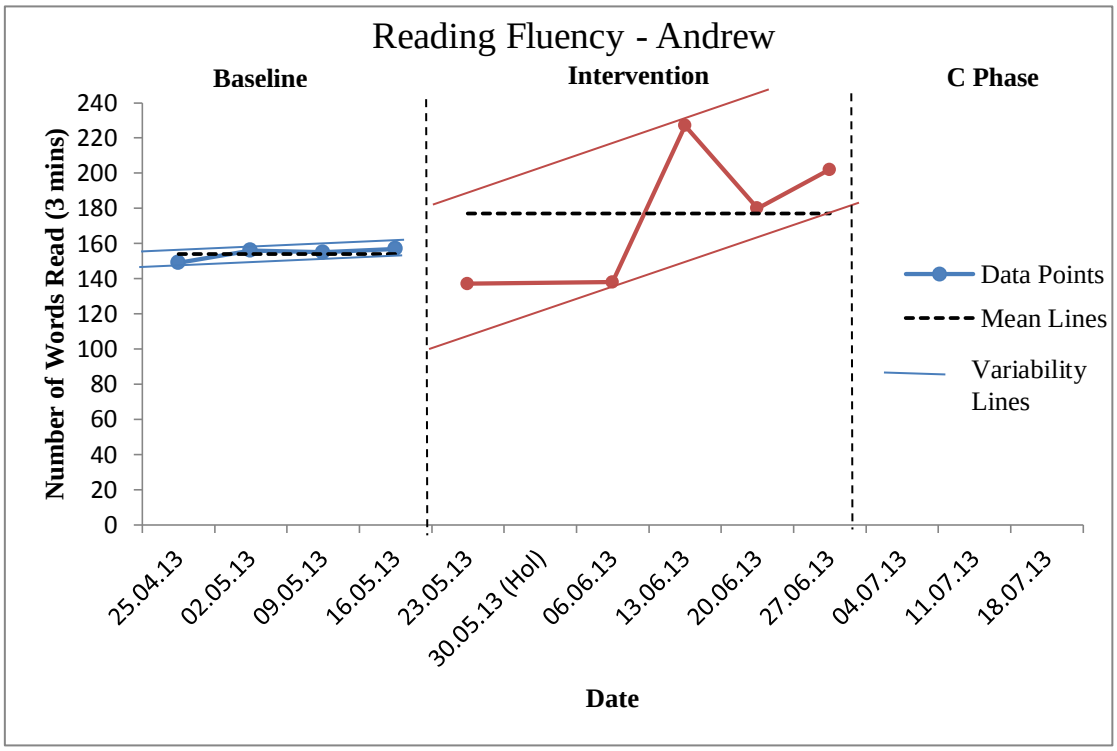


Figure 4.46: A line graph to show the total number of words read in three minutes across the baseline and intervention phases **with mean and variability lines** (Andrew)

Feature	Visual Analysis
Changes in Level	Figure 4.46 shows a large increase in mean level between the baseline phase (154) and the intervention phase (177). This is a shift of +23
Changes in Trend	Figure 4.45 shows that the baseline data has a trend line which is accelerating at a fairly low incline. In contrast, the intervention data has an accelerating trend line which has a much steeper incline.
Changes in Variability	Figure 4.46 shows that the baseline data has a very small amount of variability. The intervention data has a much larger amount of variability, more than five times as much as the baseline.
Immediacy of effect	It can be seen on Figure 4.44 that a change in data is observed from the third data point. The first two intervention data points are at a lower level than the baseline.
Overlap of data	Figure 4.44 can be analysed to show that the intervention data has a fairly small proportion of overlap with the baseline (40%).

Table 4.16: A table summarising the visual analysis of Andrew's reading fluency graphs

4.6.3.1. Summary of Reading Fluency (IOA)

The measures used suggest that PR did have some impact on fluency. The mean level of the intervention data is quite significantly higher than that of the baseline. There is also an accelerating trend line which has a much steeper incline than the baseline and a fairly low level of overlapping data. Despite this, there is a much higher amount of variability in the intervention phase and an immediate change is only observed by the third data point, with the first two intervention points having a lower level than the baseline.

4.6.4. Research Question Three: School Connectedness

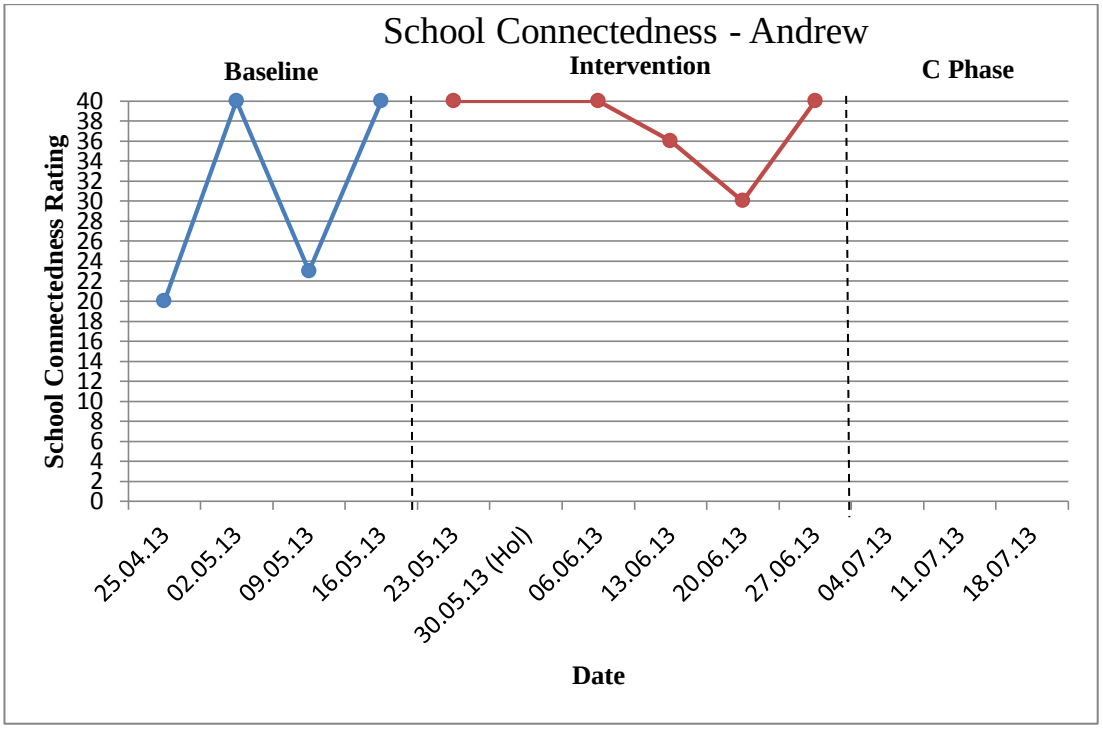


Figure 4.47: A line graph to show the school connectedness ratings across the baseline and intervention phases (Andrew)

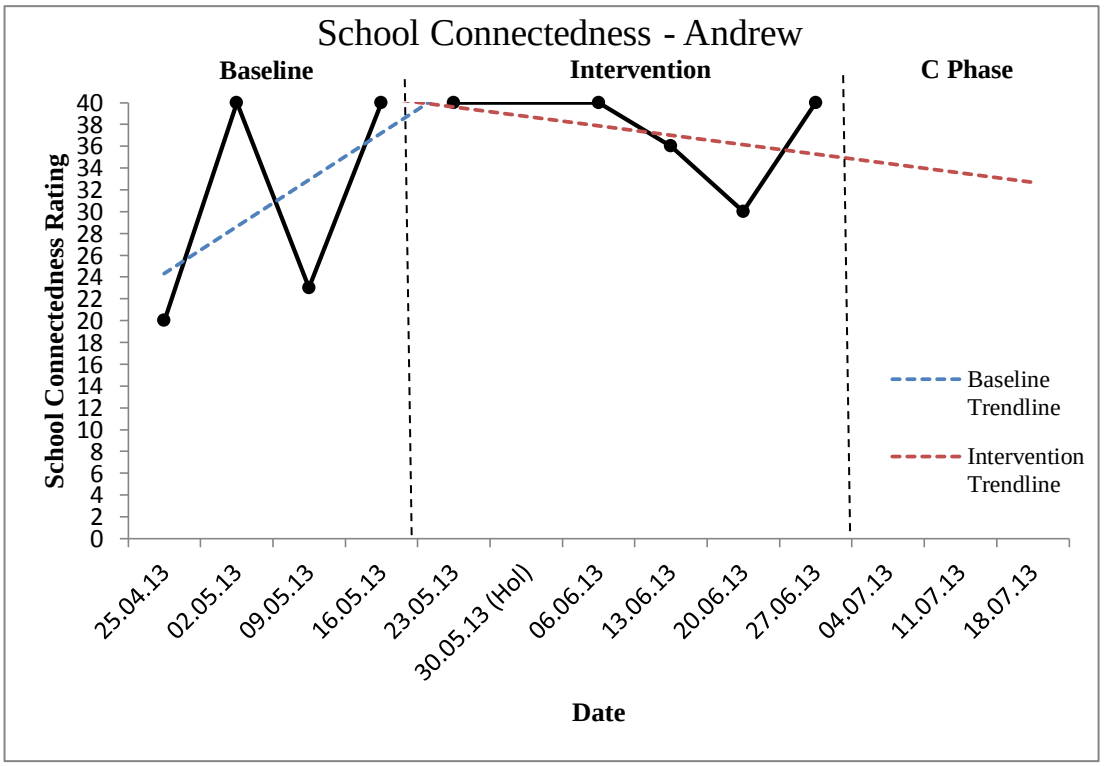


Figure 4.48: A line graph to show the school connectedness ratings across the baseline and intervention phases **with trend lines** (Andrew)

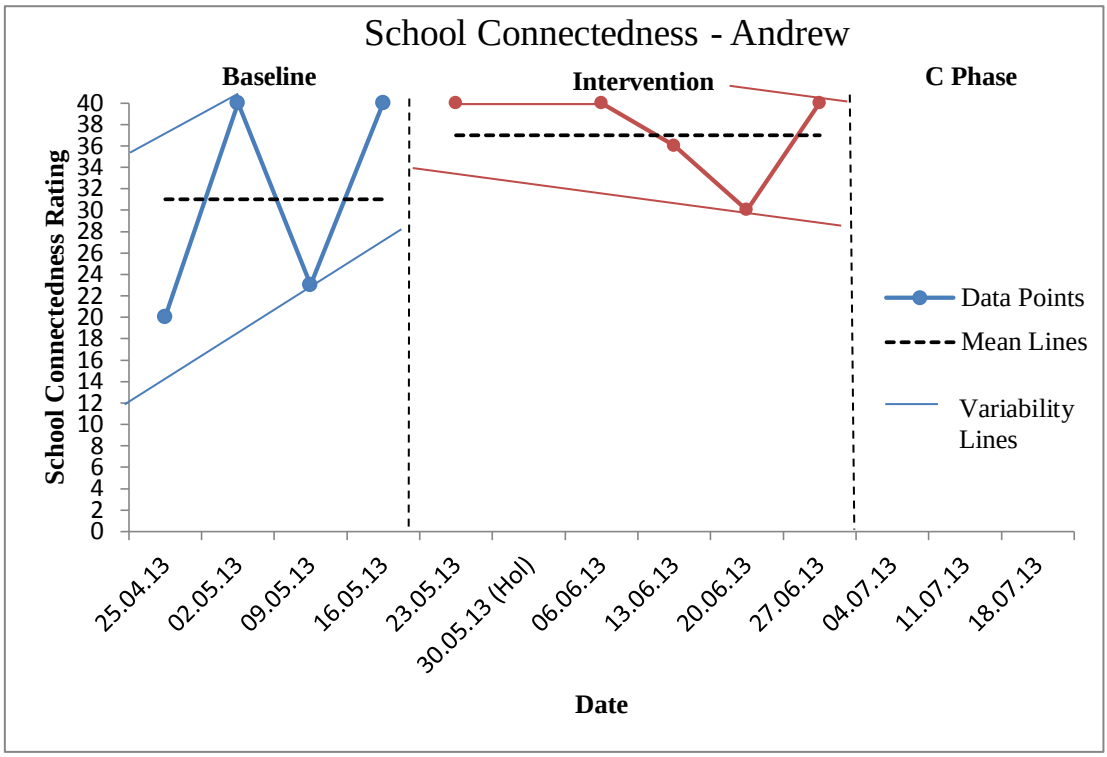


Figure 4.49: A line graph to show the school connectedness ratings across the baseline and intervention phases **with mean and variability lines**

Feature	Visual Analysis
Changes in Level	Figure 4.49 shows a relatively large increase in mean level between baseline phase (31) and intervention phase (37). This is a difference of +6.
Changes in Trend	Figure 4.48 shows a very steep accelerating trend line in the baseline data. The intervention phase data has a decelerating trend line which has a much lower incline.
Changes in Variability	Figure 4.49 shows that there is a very large amount of variability in the data of both the baseline and intervention phases. The baseline phase has slightly more variability than the intervention phase.
Immediacy of effect	From Figure 4.47 there does appear to be an immediate change in the overall level of the first three intervention data points. They are collectively at a higher level than the last three data points of the baseline phase.
Overlap of data	Figure 4.47 can be used to show that all of the intervention data overlaps with the baseline data (100%).

Table 4.17: A table summarising the visual analysis of Andrew's school connectedness graphs

4.6.4.1. Summary of School Connectedness (Andrew)

A stable baseline was not achieved and there is a very high level of variability in this phase. Visual analysis shows that there is an increased mean level in the intervention phase and that a change in level can be observed immediately. Despite this, there is a high proportion of overlapping data and a very high level of variability in the intervention phase. Additionally the trend line presents with a deceleration. From the visual analysis it is, therefore, difficult to conclude how much PR impacted on school connectedness.

4.6.5. Research Question Four: Social Presentation in School

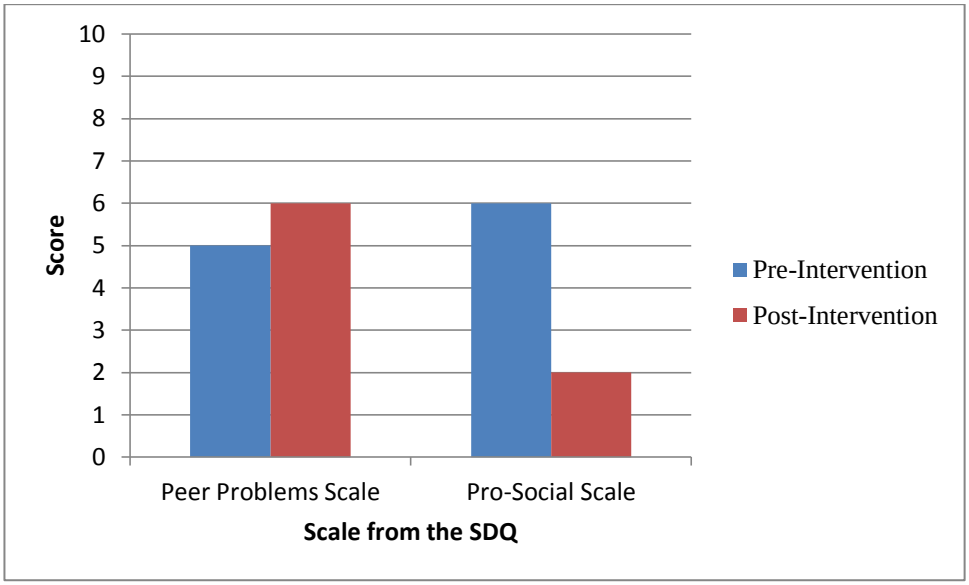


Figure 4.50: A bar chart to show the pre and post scores obtained on two scales of the SDQ (Andrew)

The SDQ data shows that Andrew's score on the peer problems scale increased by one point post-intervention. Both of the peer problems scores are categorised as being in the 'abnormal' range. Andrew's score on the pro-social scale fell by four points post-intervention. At pre-intervention, Andrew's pro-social score was within the 'normal' range and at post-intervention it was within the 'abnormal' range. It should be noted that the SDQ was completed by different teachers pre and post, due to the replacement of Andrew's teacher half way through the intervention phase.

4.7. Inter-Rater Agreement for SCED Graphs

A copy of the individual ratings assigned to each graph can be found in Appendix 35, along with a copy of the Cohen's Kappa statistical process (Cohen, 1968) (Appendix 36). The Kappa statistic achieved for the ratings of the graphs was 0.7, which suggests that there was a total level of agreement of 70%. Using Fliess's (1981) category ratings, this suggests that the inter-rater reliability fell into the 'fair-good' range, which is assigned to ratings between 0.4 and 0.7. This provides some additional reassurance about the reliability of the visual analysis process, by illustrating a good level of agreement between two independent raters when assessing the degree of change shown in each graph.

Chapter 5: Discussion

5.1. Introduction to Chapter

This chapter will begin by summarising the main findings of the research, in relation to the research questions and hypotheses stated in the opening chapters. The chapter will also include a discussion of the study's implications and its place within the evidence base, whilst acknowledging the limitations of the research.

5.2. Overview of the Research

The present study attempted to explore the impact of PR with a peer on the reading ability and school connectedness of looked-after children. Drawing on the existing literature, five research questions were created. To address the questions, the author adopted an ABC single case experimental design with five participants. Although this design does not afford comparison between participants, the main research findings are discussed by research question, with common themes identified across the five participants.

5.3. Summary of Findings by Research Question

5.3.1. Question One: Does paired reading with a peer increase the reading accuracy of looked-after children?

This question was one of two intended to explore the impact of PR with a peer on reading ability. Reading accuracy was defined as the participant's ability to read a greater percentage of individual words correctly. This was measured by timing the participant reading for three minutes and noting the number of incorrect words read, as well as the total words read. This information was then used to calculate the accuracy of the reading as a percentage. The research question linked to existing research suggesting that PR can improve accuracy. Its involvement in the present research enabled the author to ascertain whether PR could be an effective reading intervention for children, when conducted with a peer.

5.3.1.1. Main Findings

Matthew

PR appeared to have a positive impact on Matthew's reading accuracy, which increased following the introduction of the intervention. When PR was replaced with the C phase intervention, Matthew's reading accuracy appeared to decline, which may suggest that the gains made in accuracy were not maintained once PR was stopped.

Mike

The findings from the accuracy measure suggest that PR did have a positive impact on Mike's accuracy, as this increased during the intervention phase. This increase was not immediately maintained when the intervention was changed to the C phase, although the final C phase data point was higher. It is possible that this was a natural increase or that the measure used that day contained more words that Mike was familiar with.

Sarah

Sarah's accuracy data did not demonstrate a significant change when PR was introduced and so the intervention did not appear to have a positive effect for her. There was also no observable change in accuracy levels when the intervention was replaced.

Claire

Claire's data indicated a small, positive impact of PR, with her percentage accuracy increasing from 90% to 97%. During the C phase, it appeared that Claire's accuracy gains had been maintained, with similar data points to the intervention phase. The final data point did decrease, however it is difficult to determine whether this was the start of a decline in accuracy or whether it was a dip caused by factors relating to the book used or extraneous variables. The smaller number of data points in the C phase makes a conclusion about maintenance less reliable.

Andrew

There does appear to be an increase in Andrew's reading accuracy, following the introduction of PR. After the first intervention data point, the remainder of points remain at a consistently higher level than the baseline. This effect appears quite modest on the graph; however this is a consequence of Andrew's scores being at the upper limit of the percentage scale. It may be that, had a more difficult reading measure been used, a greater impact of the intervention may have been observed. Due to Andrew's withdrawal from the research, it is unknown whether his improvements in accuracy were maintained without PR.

5.3.1.2. Common Themes Identified Across Participants

In four of the five cases, a positive impact of PR on reading accuracy was observed, although the strength of this varied by case. The participants who demonstrated an improvement were typically those who had received a higher percentage of the intervention sessions. Sarah was the only participant whose data did not demonstrate a positive effect on reading accuracy. She received the fewest number of intervention sessions, along with Andrew, although it is possible that this lack of improvement can be explained by other factors. Of the participants that did show improvement, only one (Claire) appeared to maintain this into the C phase. Matthew and Mike both demonstrated a decline in accuracy once PR was removed. It is unknown whether Andrew's accuracy gains would have been maintained due to his withdrawal from the study.

5.3.1.3. Potential Explanations for Reading Accuracy Findings

The majority of findings indicate that PR with a peer can increase reading accuracy. Kratochwill et al (2010) recommend an effect be present across a minimum of three participants before inferences are made, which this study has achieved. The present results are consistent with the existing research, which identified a positive impact on accuracy (Fiala & Sheridan 2003; Morgan, 1976; Morgan & Gavin, 1988; Morgan & Lyon, 1970; Overett and Donald, 1998). These findings link back to earlier theories which suggest that reading development may have a semantic basis, or at least a semantic component (Goodman, 1967) and can be improved by using 'whole book' and shared reading approaches (Soler & Openshaw, 2009).

There was more variation in the maintenance of reading accuracy once PR was replaced. Two participants (Matthew and Mike) appeared unable to maintain their higher accuracy levels, whilst one (Claire) did show a maintained change. This may reflect individual differences between participants and their learning development. Theories relating to the hierarchy of learning (Gagne, 1962) suggest that the learning process develops in layers and that different learning experiences and durations of support impact on the learner's ability to access the deeper levels of learning associated with autonomy, maintenance and fluency. Paris (2005) discusses this process in relation to reading and notes that the mastery of skills is achieved at different times for different people. Additionally, some skills are mastered by all eventually, whereas others, such as vocabulary, are mastered to different levels following a normal distribution. In this sense, it may be that Matthew and Mike had not received enough PR to support their reading ability at a deeper level or that Claire was further along in the learning process prior to the intervention. It should be noted that Claire had an additional week of PR and so the potential impact of this on her ability to maintain accuracy should be considered. It is also important to acknowledge that the C phase only included three data points and so it is possible that a different pattern of results may have been observed in an extended maintenance phase.

There are several potential explanations for why Sarah's accuracy did not increase. Sarah received the fewest number of PR sessions, along with Andrew, which may have impacted on her response. She may also have engaged less with the intervention, although this was not reflected in the integrity checks. Alternatively, it is possible that PR, as an intervention, did not complement Sarah's reading development. She may have benefited from a different type of intervention, such as a phonics-based intervention, as discussed in the literature review (Solity, 2000). It could also be that her reading development was influenced by levels of attention and motivation, as discussed by McCardle, Scarborough and Catts (2001) and that PR was not successful in raising these. Her performance could also be a response to the repeated measures context, for example reading a book that was not self-chosen or reading to a more unfamiliar adult.

5.3.2. Question Two: Does paired reading with a peer improve the reading fluency of looked-after children?

This question accompanied the accuracy focus, in order to contribute to conclusions about reading ability. A proportion of the literature has demonstrated increased reading fluency as a result of PR and has linked this to the intervention's focus on shared, uninterrupted reading (Fiala & Sheridan, 2003; Nes, 2003; Winter, 1986). This question was measured by counting the total number of words read in three minutes. It was included so that the author could determine whether PR would lead to increased fluency when it was delivered by a peer.

5.3.2.1. Main Findings

Matthew

There was not an observable increase in Matthew's fluency following the introduction of PR. Additionally, his results remained fairly consistent across the intervention phase, with small levels of variability. Matthew's fluency once PR was withdrawn continued this pattern.

Mike

There was not an observable increase in Mike's fluency during PR. There was significantly greater variability in the intervention phase data than the other two phases, which may indicate that PR had led to some kind of change in Mike's reading. When PR was withdrawn, Mike's fluency became more stable but was within the range of both the baseline and intervention data, making inferences about the removal of PR less reliable.

Sarah

Sarah's fluency did not increase when PR was introduced; her scores remained within a similar range to her baseline scores. On initial observation, Sarah's scores appeared to increase when PR was replaced, however closer analysis reveals this may not be the case. Sarah's final intervention data point is her lowest across all phases and occurs after a week absent from school. This score may, therefore, be explained by a break from intervention or general classroom teaching or by a lower level of motivation and concentration due to the period away. If this score was

higher, the C phase data would not appear to increase as significantly in level and would potentially reflect a more natural increase in fluency. This could reflect the natural learning process or it could be a result of additional opportunities to read during the repeated measures process, rather than as a significant result of PR.

Claire

Claire's data suggests that PR did not lead to a significant increase in fluency. The intervention scores increased in level but did not indicate an accelerating trend. They do, however, show a large increase in variability in comparison to the baseline data. This will be considered further when identifying themes across the participants. The C phase data also fails to illustrate a significant change in fluency when PR is replaced.

Andrew

Andrew's fluency appears to increase as a result of PR; however the reliability of this must be questioned due to the lack of an immediate effect and the large variability in the intervention data. Andrew did not participate in the C phase and so the maintenance of this potential fluency increase cannot be evaluated.

5.3.3.2. Common Themes Identified Across Participants

Four of the five participants did not demonstrate an increase in reading fluency during PR. An identifiable theme is that three of the five participants demonstrated a significantly greater level of variability in their fluency scores during the intervention phase and for two of these participants the variability reduced again when PR was replaced with the C phase.

5.3.3.3. Potential Explanations for Reading Fluency Findings

Few existing studies have focused specifically on fluency, despite a number of researchers claiming it can provide information about word recognition and decoding ability (Deno et al, 1998; Law & Kratochwill, 1993). Of the studies that have assessed fluency, there have been mixed results. Previous authors have suggested that fluency may require longer intervention to obtain significant results, although the length of the current study was sufficient to observe changes in accuracy. This

would potentially leave a hypothesis that fluency development takes longer than accuracy. Additionally, the context of the repeated measures may have impacted on fluency in this study. Factors including: the novelty of being out of class, potential distractions outside of the testing room, reading to an unfamiliar adult and reading a book which may not have been of interest may all have contributed to lower rates of reading.

The increase in variability of data during the intervention phase is a trend identified amongst three of the participants. This may potentially be explained by reflecting on the skill acquisition process. Rather than a smooth increase in fluency, this measure may have more peaks and troughs, as participants encounter texts with higher and lower levels of familiar words. As accuracy increases through greater exposure to vocabulary and retention of decoding skills, some texts may be read more quickly, whilst others, that have greater levels of novel vocabulary, may slow the reader down at the processing stage and decrease fluency. Several studies have looked at the relationship between reading development and fluency and have highlighted the trend for fluency to increase as word knowledge and experience expands (Fuchs et al, 2001; La Berge & Samuels, 1974). This could be a potential explanation for why more observable changes were seen in accuracy but more variability was seen in fluency during PR. It may also explain why, for two participants, variability reduced to a level similar to that in the baseline, once they entered the C phase.

5.3.3. Research Question Three: Does paired reading with a peer increase the school connectedness of looked-after children?

This question stemmed from existing literature into school connectedness and the role of peer-based interventions. School connectedness was measured in this study by administering a weekly self-report rating scale to participants. This question was included to determine whether PR with a peer had the ability to increase school connectedness levels in LAC.

5.3.3.1. Main Findings

Matthew

A stable baseline was not achieved for this data, with an accelerating trend shown. In the intervention phase PR did not appear to improve school connectedness scores. The variability of the intervention data was significantly larger than the baseline data but showed a slightly decelerating trend.

Mike

A stable baseline was not achieved for this data; however Mike's scores did appear to show that PR had led to more positive school connectedness ratings during the intervention phase. There was large variability in this data; however this was significantly influenced by one particularly low data point. Throughout the research it was noted that a very small event could affect Mike's ratings, for example when his cousin was absent from school and Mike was upset about this, on the 13.06.14, all of his connectedness ratings were very low. Despite this, the majority of Mike's intervention scores were significantly higher than his baseline.

Sarah

Sarah's school connectedness ratings were already at the higher end of the scale during the baseline. During PR, there did not appear to be a significant change in the ratings, with the majority of intervention scores matching the majority of baseline scores.

Claire

PR did appear to have a positive impact on Claire's school connectedness ratings. This was shown through changes in the mean level, trend line and an observable immediacy of effect. Despite this, there was also a larger amount of variability in this data than the other two phases, making a causal inference less reliable.

Andrew

A stable baseline was not achieved for the data. There were some positive differences when PR was introduced, such as an increased mean level and slightly more stable ratings, however a decelerating trend was observed along with a large

amount of variability in both baseline and intervention phases. This, therefore, makes it difficult to define whether PR did positively influence the ratings or whether they continued to fluctuate between the extreme ends of the scale in response to other variables. It should be noted that Andrew was permanently excluded from his school at the end of the intervention phase, which is likely to have influenced how he rated school connectedness at this time.

5.3.3.2. Common Themes Identified Across Participants

Three out of five participants did not appear to show increased levels of school connectedness during PR and so this is the prominent theme. However, one of these participants (Andrew) did show some positive changes, such as an increased mean level. The high amount of variability in the data made this finding less reliable. Two participants did appear to show increases in school connectedness. Using Kratochwill et al's (2003) recommendation for a minimum of three participants to demonstrate an effect, this study would appear to suggest that PR does not increase school connectedness levels. However, considering Andrew's less reliable data and the two participants that did demonstrate an effect, the author does not feel that this can be a definitive conclusion and suggests further exploration with greater numbers of participants over a longer period of time may produce different results.

5.3.3.3. Potential Explanations for School Connectedness Findings

This was the first study, to the author's knowledge, that attempted to explicitly explore the impact of PR with a peer on a social factor, like school connectedness and, as such, there are no findings from other studies to draw on when making direct conclusions. There are a number of reasons why PR may not have improved school connectedness ratings for the majority of participants in this study. One explanation would be that the intervention does not afford the same kind of peer interaction as peer-mentoring interventions (used in existing literature) and so the opportunity to develop close affective, relationships with others is not present, as it was in previous studies (King et al, 2002., Karcher, 2005). This explanation could be challenged, however, by the two participants that did show increased connectedness ratings. A second explanation could be that school connectedness is a difficult construct to measure and that it is vulnerable to many extraneous variables, which could not be

controlled for in a study of this nature. This was indicated in Mike's connectedness ratings, which were significantly affected by small events that happened during the day. His ratings on these days may, therefore, have been a measure of events that were unconnected to the intervention and may not have necessarily reflected how he would rate school connectedness on a different day. This explanation could also account for the large variability in other participants' data and the fact that a stable baseline was difficult to achieve for the majority of participants.

Another potential explanation for the different results observed could revolve around the peer participants. The peers were selected by school staff and were chosen for being pupils who were deemed capable of delivering a reading intervention effectively. The peers may not have necessarily been pupils that the focus participants would have chosen to interact with and so this could have influenced the development of relationships and subsequent school connectedness ratings. This may be particularly true for the male participants who were paired with a female peer. Winter (1986) encouraged participants to select their own peers and all chose a same sex peer.

Alternatively, during the intervention phase participants were required to follow the PR process, which is highly structured. Some participants may have enjoyed this process more than others and this may also have influenced how they subsequently rated school connectedness.

5.3.4. Research Question Four: Are any increased school connectedness ratings maintained when the paired reading intervention is replaced with a non-structured peer intervention?

This research question was included so that the author could make firmer conclusions about school connectedness, if it was shown to increase during the intervention. The question could have indicated whether either the 'affective relationships' or the 'investment to do well in school' aspect had more influence over connectedness, as the first aspect was present in both interventions whilst the second was likely to be more prevalent in PR. The author hypothesised that increased connectedness ratings during the intervention would be maintained into the C phase, as the participants were continuing to spend time with their peer on a regular basis, whilst engaging in a meaningful activity with them. The research

question was measured by continuing the weekly school connectedness rating scales into the C phase.

5.3.4.1. Main Findings

Matthew

Matthew did not demonstrate increased school connectedness as a result of PR. However, the introduction of the C phase intervention did lead to more stable school connectedness ratings, which had a higher level than the baseline ratings. This may suggest that the peer-led C phase intervention was more effective in increasing school connectedness than PR with a peer for Matthew.

Mike

Mike did appear to show increased school connectedness ratings during PR and this was maintained during the C phase intervention. The majority of Mike's ratings were high, with one data point which was significantly lower. This reflected the pattern observed during the intervention phase and suggests that Mike was still vulnerable to extraneous factors influencing his ratings.

Sarah

Sarah's school connectedness ratings did not demonstrate a significant increase during PR. Despite this, her ratings did appear to increase when the C phase intervention was introduced. Although present, this effect was less easily observable as all of her connectedness ratings were towards the upper limit of the scale.

Claire

Claire did demonstrate a slight increase in connectedness ratings during PR and this was maintained, with a further elevation during the C phase. This is reflected in a mean level that is higher than the intervention phase and a trend line that is accelerating more steeply. This suggests that continuing to work alongside her peer further increased Claire's ratings of school connectedness.

Andrew

Andrew was withdrawn from the study after the intervention phase and so there is no data about his school connectedness during the C phase.

5.3.4.2. Themes Identified Across Participants

The two participants who demonstrated an increase in school connectedness during PR (Mike and Claire) appeared to maintain this higher level when the C phase intervention was introduced and, in Claire's case, this effect became more pronounced. This supports the hypothesis that school connectedness could be maintained through continued interaction with the peer participants and that it would not significantly drop when PR was removed. The two participants who did not show increased school connectedness during PR (Matthew and Sarah) did appear to show an increase during the C phase. This suggests that this type of intervention was more effective in increasing school connectedness ratings for them.

5.3.4.3. Potential Explanations for School Connectedness in the C phase

The maintenance of the increased school connectedness ratings into the C phase supported the author's hypothesis. A potential explanation for this could be that the increased ratings during the intervention had originated from the development of a close, affective relationship with the peers, as suggested by Catalano et al (2004) and that this was supported to continue when PR was replaced with a different peer activity. Alternatively, the participants may have enjoyed the increased attention that they were receiving during both phases (through the interventions, focus of the TAs and weekly time with the author) and that this led to higher ratings in both phases.

There are also a number of reasons why the two participants who had not previously shown increased connectedness did as a response to the C phase. Firstly, it is possible that the less structured C phase intervention afforded more social opportunities than PR and that, through this, the participants developed closer relationships with their peers. Secondly, the participants may not have enjoyed the PR intervention itself and so, when replaced with different activities, their enjoyment increased, leading to greater connectedness ratings. Another potential explanation is that the participants took longer to develop affective relationships with their peers and so increases were only observable during the C phase. In the existing literature, Karcher (2005) found a correlation between length of time with a peer and change in connectedness ratings. This explanation may suggest that longer periods of PR could also lead to increased school connectedness.

5.3.5. Research Question Five: Is paired reading with a peer associated with a positive change in a teacher's perception of a looked-after child's social presentation in school?

This research question was included to add some triangulation to the data, by incorporating the views of the participants' teachers. The author also wanted to ascertain whether improvements in some of the aspects of school connectedness were visible in the wider school context to afford generalisation away from the repeated measures data. This question was addressed by administering the Strengths and Difficulties Questionnaire to the teachers pre and post PR intervention and analysing differences between scores on the two social scales: peer problems and pro-social behaviour.

5.3.5.1. Main Findings

The main findings for this question can most effectively be illustrated in a table (for raw data relating to all of the SDQ scores, see Appendix 37). Table 5.1 shows that there were very small differences between pre and post scores for the majority of participants, suggesting that PR did not have a significant effect on perceived social presentation in school. There were larger differences in Andrew's scores; however this data is less reliable, as it was completed by different teachers. Additionally, the post data was collected during the period that Andrew was permanently excluded from school, which may have influenced teacher perceptions of his presentation. Apart from Andrew, Sarah's scores were the only ones that changed in a negative direction, with peer problems increasing and pro-social skills decreasing, however both scales changed by a very small increment and so this was not deemed to be a significant change.

Participant	Pre-Intervention		Post-Intervention		Direction of Difference	
	Peer Problems Scale	Pro-Social Scale	Peer Problems Scale	Pro-Social Scale	Peer Problems Scale	Pro-Social Scale
Matthew	4	6	3	6	**-1**	**0**
Mike	1	8	1	10	**0**	**+2**
Sarah	1	8	2	7	**+1**	**-1**
Claire	2	6	0	8	**-2**	**+2**
Andrew	5	6	6	2	**+1**	**-4**

Table 5.1: A table summarising the pre and post SDQ data for each participant

5.3.5.2. Themes Identified Across Participants

Aside from Andrew's data, minimal differences were found between the perceived social presentation of the participants pre and post PR intervention.

5.3.5.3. Potential Explanations for Perceived Social Presentation

The author had hypothesised that perceived social presentation in school would increase following PR; however this trend was not observed. Aside from Andrew, whose data is unreliable due to different respondents and the impact of his recent permanent exclusion, the participants' data changed by a maximum of two points. The author considers the most likely explanation for this to be the timeframe of the teacher ratings. It is possible that, had the intervention lasted longer, the teachers may have identified more differences in the participants' social behaviour. A second potential explanation could be that PR did not result in differences that were observable in the wider school context, which may explain why there were not significant differences in the SDQ data of the participants who did show increased school connectedness. School connectedness may potentially increase internally in the participants' perceptions before it is displayed outwardly by their behaviour and acknowledged by others.

5.4. Evaluation of the Methodology Employed

5.4.1. Research Design

The ABC SCED adopted by this study has greater levels of reliability than the basic

AB design, however the design could have been strengthened by incorporating additional phases or by using a multiple baseline design (Barlow et al, 2009). The author felt unable to implement either of these due to time restraints in the research process. A similar limitation is the length of the individual phases and the number of data points obtained. Ideally, the author would have extended the phases, which may have resulted in less variability in the data and provided additional time for potential trends to emerge. Despite this, the author followed the recommendations made by Kratochwill et al (2010) which state a minimum number of three data points for any one phase.

5.4.2. Non-Standardised Repeated Measures and Self-Reported Data

Many of the previous studies evaluating PR have used a standardised measure of reading accuracy pre and post intervention (Morgan & Lyon, 1979; Morgan & Gavin, 1988; Overett & Donald, 1998). Whilst this suggests a greater level of validity in the measure, the author chose not to adopt a similar approach. The author was aware that a frequently used measure, the Neale Analysis of Reading, could indicate significant reading age gains when very few additional questions were answered correctly (Miller et al, 1986). Additionally, the SCED required repeatable measures that could be used weekly, without being vulnerable to practice effects. Measuring percentage accuracy and fluency with a levelled text is an approach which is present in some PR studies and so guidance was taken from this (Fiala & Sheridan, 2003; Law & Kratochwill, 1993). The author feels that the data collection approach was appropriate for this study and that the accuracy results obtained add to the evidence base promoting this approach.

The author could not obtain a standardised measure of school connectedness that matched the definition adopted by this study and so a novel measure was created. Care was taken to draw on existing standardised measures which contained similar themes (Ivens, 2007; Voelkl, 1996; Walton & Cohen, 2007) and the measure was piloted with a small group of children to check validity. A pilot with a greater number of participants may have improved the validity of this measure and provided more assurance that the statements chosen were reflective of the school connectedness themes. In using the school connectedness measure, the author discovered the difficulty of ensuring validity for responses, as it appeared that school

connectedness could be highly vulnerable to a wide range of variables for some participants. This will be discussed further when the concept of school connectedness is considered.

Self-report data was the most appropriate type to collect when answering the school connectedness research questions and is present in the existing research (Karcher, 2005; King et al, 2002). There are limitations associated with this in terms of subjectivity, social desirability effects, boredom and the potential for the ratings to be influenced by extraneous variables (Cohen et al, 2011; Robson, 2011). As the author had decided to explore a very subjective concept, school connectedness, the limitation of this form of data collection was accepted. Additionally, the author did attempt to introduce triangulation to the data by obtaining the perceived perceptions of the participants' teachers.

5.4.3. Use of Visual Analysis

As documented in Chapter 3, there are some criticisms of visual analysis, including the potential for subjectivity and low instances of inter-rater reliability (Brossart et al, 2006). In response to this, the author considered a range of statistical analyses which could be applied as an alternative but failed to find a consensus in the literature about the most appropriate and reliable type. The author also felt that the principles behind visual analysis, that a significant trend should be observable without statistical calculation (Kazdin, 2003), echoed her own beliefs about real world research and her desire to demonstrate the effectiveness of an intervention in a way that could be observable in the school context. Despite this, the author has sought to acknowledge limitations in the visual analysis of the data by identifying when definitive conclusions cannot be made. Additionally, a second observer analysed the graphs to raise reliability.

5.5. Limitations of the Research

As with any research, the current study has limitations which must be acknowledged. They will be discussed in turn, along with the implications for the validity and reliability of the present research.

5.5.1. Generalisability of the Findings

As discussed in Chapter 3, the SCED adopted makes generalisability to the wider population difficult (Dugard et al, 2012). However, it was always the author's intention for this research to provide a detailed exploration of PR with a LAC sample, which is highly heterogeneous in nature. It is the author's view that alternative research designs, which can afford more generalisability, would have failed to yield the rich amount of data provided by this study and would not have been appropriate for the chosen sample and research questions.

5.5.2. Lack of Stable Baselines

The author acknowledges that for some participants stable baselines were not achieved prior to PR implementation, which contrasts with existing recommendations (Barlow et al, 2009; Kratochwill et al, 2010). This was particularly true for the fluency and school connectedness measures. During the design process, the difficulty in ensuring stable baselines across three different measures was identified, leading the author to prioritise the accuracy and school connectedness baselines. For participants who did not achieve a stable baseline within four weeks, the decision was made to introduce the intervention phase. This was done to meet the time restrictions of the research and ensure an adequate duration of PR. It became clear during the baseline phase that school connectedness data had the potential for large amounts of variability, which has been discussed as a finding of this study. The author has taken care to ensure that unstable baselines are acknowledged and that conclusions are treated with appropriate levels of caution.

5.5.3. Paired Reading Delivery

During the PR training, an emphasis was placed on the recommended number of hours required for the intervention, taking guidance from existing literature

(Topping, 1989; Topping et al, 2012; Winter, 1986). Head teachers, TAs and peers were advised that the intervention was expected to take place three times a week for approximately 15 minutes. Despite this, none of the participants received the recommended amount of intervention. The percentage of PR time varied between 60% and 78% of the recommended time. The lowest recipients were Andrew, who occasionally refused to engage and Sarah, who missed some of the intervention time due to an additional holiday during term time. Despite this, the author would have preferred the participants to receive a greater amount of intervention, which will be discussed in the following 'Implications' section. The findings are, however, representative of one of the limitations of real world research, as outlined by Robson (2011); the school setting provided a higher level of ecological validity, however the busy schedule and unexpected events that are typical in a primary school influenced how the intervention was ultimately delivered.

The integrity checks suggest that PR was delivered using the correct procedure for the most part. Despite this, there were some observations by both the author and TAs relating to the lack of praise given by the peers for good reading. This correlated with findings in previous studies (Morgan & Gavin, 1988; Topping et al, 2011). Praise was an aspect of the intervention that required on-going reminders and may have had an impact on the affective relationships and investment in wanting to do well in school that the author was hoping to create.

5.5.4. Explanations for Intervention Efficacy

The final limitation is one that has been a frequent criticism of PR studies, as noted by Winter (1990); the research fails to identify the specific aspect of PR which resulted in the increased reading accuracy and school connectedness scores. Consequently, the research presents data related to *what* PR can improve, rather than *how*. Despite this acknowledgement, this was not the purpose of the study and the author has attempted to draw on the existing literature and psychological theory to suggest a number of potential explanations for the data obtained.

5.6. Implications of the Research

There are a number of findings from this research which require further discussion. They have potential implications on a number of levels, which may impact on the education of LAC, both directly and indirectly.

5.6.1. The Use of Paired Reading with a Peer as a Reading Intervention

In Chapter 2 the large evidence base for PR was discussed, however the majority of these studies focused on using a parent or adult to deliver the intervention (Fiala & Sheridan, 2003; Morgan & Gavin, 1988; Morgan & Lyon, 1979; Overett & Donald, 1998). A smaller number of studies explored using PR with a peer (Limbrick et al, 1985; Winter, 1986; Miller et al, 2010; Topping et al, 2011). The reading accuracy results from this study enable it to add to the existing research that suggests positive reading gains can be achieved using a peer approach. Strengthening an evidence base has obvious implications for the recommendation and use of an intervention with children and young people. This study implies that PR can be successful in improving reading accuracy and that peers can be trained to successfully deliver the intervention. This may have implications for schools in the way they organise their interventions; if peers can successfully deliver PR then this could potentially reduce demands on teachers and TAs and may enable greater numbers of children to receive intervention at the same time. The suggestion in the existing literature that peers can also benefit academically and socially from delivering PR may strengthen the appeal of this approach to schools (Limbrick et al, 1985; Winter, 1986).

5.6.2. The Impact on the Research Schools

Two of the schools involved in the project decided to continue using PR with different children. They felt confident to train a greater number of older pupils so that more of their weaker readers could receive this intervention. Claire's school were pleased with the way the intervention had fostered a friendship for her with her peer. Consequently, they began timetabling short, weekly sessions where Claire could complete some of her work or take part in an activity with her peer. The school were keen to continue to support Claire's social relationships and it is the author's view that the present research highlighted this as an area of need. Schools were

provided with very general feedback concerning whether the intervention was successful and in which areas. Many of the schools' decisions to continue the intervention were based on the feedback provided by the TAs.

5.6.3 Feedback to the Educational Psychology Service

Upon completion of this research, a summary was presented to the educational psychology service in which the author was placed. The findings were well received, particularly in relation to the impact on reading accuracy and the rationale behind using a peer-based academic intervention with LAC. A number of the EPs commented that the research had enabled them to 'revisit' PR. It is the author's hope that this renewed interest may encourage some of the EPs to recommend and initiate PR interventions more frequently, as part of their everyday work.

5.6.4. The Concept of School Connectedness

School connectedness has been discussed using a variety of terminology; however core themes, including peer relations, commitment to school and a desire to do well remain constant (Catalano et al, 2004; Jimerson et al, 2003). Through researching school connectedness and assessing it using a novel measure, the author has gained an additional perspective on the concept. Theoretically, school connectedness has a high level of applicability to all children and, particularly, to those in care. The author remains of the viewpoint that school connectedness has strong implications for LAC and is an area that requires greater levels of attention in education. The present research has highlighted the difficulty of defining and measuring this highly subjective area and has revealed its potential to be a fluid concept that can be influenced by a great number of factors, both within child, school and the wider social world, as previously noted by Bond et al (2007). Although it may be a difficult concept to measure and analyse, the author feels that persistence in this area, through additional research adopting a range of approaches, will help to further define school connectedness and reveal the most valid and reliable ways of assessing it, in order to inform intervention.

5.6.5. Educational Approaches for Looked after Children

Although this study did not provide definitive evidence that PR with a peer can

improve school connectedness, there were indications that close working with a peer could improve connectedness ratings, as shown in the C phase data. This data may, therefore, suggest that potential gains can be achieved from interventions that involve close peer working and opportunities for social discourse, such as mentoring interventions. The study has also sought to emphasise the existing research that indicates the significant impact school connectedness can have on a range of aspects (Bond et el, 2007; King et al, 2002; Shochet et al, 2006), coupled with the research which reveals that LAC school leavers felt unsupported in the social aspects of school (Edmonds, 2012). The author feels that this should have implications for the way education is approached with LAC, particularly in terms of the emphasis put on supporting them to create a connection with their school and the people in it. This is particularly true for the LAC who experience multiple school moves, as three of the participants in this research had.

5.6.6. Implications for the Educational Psychologist

The use of real world research has illustrated how PR is used in complex real life settings and has identified some of the areas that educational psychologists (EPs) need to be aware of when recommending and supporting the intervention. Firstly, the research has shown that peers can be effective in delivering PR but that they require appropriate training, intervention materials and support from adults in school to do so. This includes fidelity checks by adults to make sure that all aspects of PR, including praise are being used appropriately. The author feels that EPs would also need to ensure that other significant adults, such as class teachers are aware of the aims and content of the intervention so that they can support the recommended number of sessions being completed.

The research also has implications for the focus of EPs during casework. School connectedness has been highlighted as an important aspect of development and so EPs should seek to consider the presence of this, especially with LAC. This may be particularly important when their involvement has been requested on academic or behavioural grounds to ascertain whether school connectedness could be an additional area requiring support. EPs may also have a role in helping the schools to support school connectedness for LAC, particularly those new to school. This could be by exploring wider school approaches or by helping to implement peer

interventions such as the one described here. Similarly, the topics discussed in this research could lead to the development of training for schools, especially those with higher numbers of LAC, to highlight and further the understanding of the concept and develop whole school initiatives that would be supportive, not just for LAC, but the whole school population.

Finally, the author feels that this research reflects Frederickson's (2002) suggestion that EPs need to both act on and be involved in research to continue furthering the profession and ensure best practice. The SCED has shown how research can be implemented in a school context to provide rich, meaningful data at the level of the individual, which has the potential to provide further evidence for both existing and novel intervention approaches.

5.7. Implications for Future Research

5.7.1. Replication of the Present Research

As discussed, the SCED limits the generalizability of the results found. Kratochwill et al (2010), amongst other authors, recommend the replication of SCEDs with additional participants in order to gain enhanced validity and reliability of results. This study could, therefore, be replicated with a greater number of LAC to enable more validation of the themes discussed here, or to reveal further effects of the PR intervention.

Similarly, the design of the research could also be strengthened by introducing a multiple baseline or by incorporating additional phases to create a more robust design, such as an ABCABC design. This would provide the author with more confidence about the causal link between the interventions and the participants' data. The introduction of longer periods of intervention, which would provide greater numbers of data points for each phase, would also be advantageous.

Moreover, the present study could also be replicated to address some of the methodological limitations noted here. For example: the use of a novel school connectedness measure, ensuring that adequate levels of praise were used and encouraging schools to deliver the recommended number of sessions. The author

does note, however, that attempts were made in the present research to address these concerns and acknowledges that real world research will always be ultimately influenced by its context and the people who are contributing to its delivery.

5.7.2. Extensions of the Present Research

The present research could also be extended to provide additional data using similar research questions. Further exploration of school connectedness could be explored by comparing the impact of different types of peer interventions on the school connectedness ratings of pupils. This could be done using a more experimental design, if a mainstream sample of pupils were included.

It may also be interesting to broaden the role of the peers in future research projects, by collecting school connectedness data from them. This would provide information about whether the role of 'peer' can enhance connectedness to school, which could have potential implications for the recommendation of LAC adopting the role of the more experienced peer. Similarly, it may be interesting to extend the present research to include secondary-aged LAC, whose sense of school connectedness may be at a different stage to the primary children. The ratings of older pupils may also be less vulnerable to extraneous variables, offering greater evaluation of the novel school connectedness measure used in this study.

Upon completion of the research, the author began to consider the potential links between school connectedness and resilience in LAC. Bond et al (2007) suggests that school connectedness can act as a 'protective' factor for all school pupils and existing resilience literature has noted the role of educational experiences and supportive peer relationships for LAC (Dent & Cameron, 2003; Dearden, 2004). An extension of the current research could, therefore, be to further explore the role of school connectedness in the context of resilience, which may serve to further identify its contribution to the social and academic development of LAC and foster links with evidence-based interventions currently used to strengthen resilience.

Additional research projects in the area of school connectedness may also lead to further development of measures for this concept. The measure used in the present study was created by the author and so would require further replication to ensure its validity. Additional research may lead to the modification of this measure or the

creation of a new measure, which may have the capacity to address the present limitations, including the reliance on self-report data and the potential for boredom through weekly repetition.

In a broader sense, it is the author's view that additional research is required to address the under-representation of LAC in education studies (Heptinstall, 2000) and, specifically, to further examine the social aspects of school life for LAC. Not only would this identify potentially novel approaches to intervention, it may also work to highlight the need for greater adult involvement and planning in the social development of LAC, so that this can become as much a priority as academic development. This may be particularly pertinent for LAC who experience a number of school transitions and/or care placements.

5.8. Author's Reflections

Undertaking this research project was a highly informative and rewarding process for the author. Reviewing the existing literature afforded the opportunity to learn more about a group of children who have the potential to be highly vulnerable in our education system and who are prevalent in the work of EPs. In addition to informing the subsequent research, this process has provided an insight which will continue to impact on the author's views and practice in the long term. The process has also alerted the author to the significantly small evidence base that exists for interventions with LAC, particularly in terms of their social development. This is an area that the author would like to return to, if the opportunity presented itself in future endeavours.

In completing this research the author has also gained a further appreciation of the potential difficulties involved in real world research. Despite careful planning and on-going monitoring, it was difficult for the author to ensure that participants received the recommended amount of intervention time and that all aspects of the intervention were sufficiently included, in this case, the use of praise. This led the author to reflect on the level of monitoring that it is possible for EPs to undertake. If schools have difficulty implementing the recommended intervention sessions, despite intensive involvement from the author, it poses questions regarding the level

of intervention provided to pupils when it is both recommended by EPs and evaluated by them.

Throughout the research, the author was keen to discuss the progress of the intervention with the TAs who oversaw it. This was considered important for finding out about the practicalities of the intervention and the impact on the participants away from the weekly measures. A log was kept of some of the TAs' comments and a number of themes emerged. A copy of all of the comments noted can be found in Appendix 38.

5.8.1. Increase in Perceived Confidence and Enjoyment for Reading

All of the TAs commented that they had seen an increase in confidence and enjoyment for reading in the participants as a result of PR. One commented:

"It has given him such a boost to his confidence. He didn't used to tap so much at the start but now he taps a lot more because he wants to read independently. He will read anything now, even if he struggles with it"

5.8.2. Benefits of Peer Working

Three of the TAs also commented on the benefits of the intervention being delivered by a peer, with references to the way this relaxed the focus participants, encouraged greater levels of confidence and appeared to encourage enjoyment and a willingness to engage. One TA noted:

"*The children enjoyed reading together. It was not a mechanical process like you sometimes see when they read with adults. I think children will want to read more using this approach. It is more of a social activity and they learn better when they are enjoying it"*

This reflection linked to one of the author's aims, as discussed in Chapter 1. The TA comments suggest that positives can result from intervention working with peers and suggest that adult-led guidance does not need to be the staple when planning interventions.

5.8.3. Positive Peer Relationships

Three of the TAs also commented on the positive relationships that had been forged between the participants and the peers, with three pairings observed socialising at break and lunch times. This suggests that, for some, the relationship went beyond that of reader and tutor. This provided the author with reassurance that a peer intervention could lead to social gains and furthered her belief that this is an area worthy of further exploration, especially with LAC.

Chapter 6: Conclusion

This chapter will summarise the main findings of the present research and will discuss the unique contribution that it makes to the existing evidence base.

6.1. The Main Findings

The primary aim of the research was to explore whether PR with a peer could improve the reading accuracy, fluency and school connectedness of participants who had looked-after status. The reading accuracy measure revealed a positive impact of PR on the percentage accuracy of four out of five participants. There was not an observable change in the reading fluency scores during the intervention phase. The school connectedness measure had mixed results, with no overall impact of PR on school connectedness observed. Despite this, there were increased connectedness ratings for the majority of participants when PR was replaced with non-reading peer intervention sessions. Additional data gathered from class teachers revealed that there was not a significant effect of PR on the perceived social presentation of the participants in school.

6.2. Unique Contribution of the Research

This research attempted to contribute additional evidence for the efficacy of PR with a peer to a relatively small evidence base within the wider PR sphere. The research sought to do this in a way that addressed the criticisms of some of the existing research (Law & Kratochwill, 1993). Namely, it provided information about the practicalities of the process, included details about the PR training provided and ensured that session content was monitored. The research also fulfilled the suggestions made by Wingspread (2004) by researching a purposeful peer support intervention with a potentially disenfranchised group, using an existing curricular approach.

The research explored the impact of PR on a social aspect of development, specifically, school connectedness. To the author's knowledge, this was the first time that a link between a peer-led version of PR and an impact on school connectedness had been hypothesised and explored, giving it a highly unique contribution to the

existing literature. Similarly, the research made this link within the context of a looked-after sample, which had the potential to be vulnerable to both poor reading ability and low school connectedness. The author feels that this research both highlights, and provides a starting point for, the need for future research into wider social aspects of school development for LAC and new ways that this can be achieved using interventions that already have a strong evidence base.

6.3. Conclusion

PR with a peer has been shown to have a positive impact on the reading accuracy of looked-after children. Mixed results in the exploration of PR with a peer and school connectedness ratings suggest that further research in this area would be beneficial. The anecdotal evidence from TAs, combined with the results of the study, suggest that PR does have the potential to be an intervention that produces gains in multiple areas for LAC.

References

Axford, N. (2008). Are looked after children socially excluded? *Adoption and Fostering*, 32 (4), 5-18.

Barlow, D.H., Nock, M.K & Hersen, M. (2009). *Single Case Experimental Designs: Strategies for Studying Behaviour Change.* 3rd ed. Boston: Pearson

Berridge, D. (2006). Theory and explanation in child welfare: education and looked-after children. *Child and Family Social Work*, 12, 1-10

Blatchford, P & Baines, E. (2010). Peer relations in school. In: Littleton, K., Wood, C & Staarman, J.K. (Eds.) *International Handbook of Psychology in Education*. Bingley: Emerald Group Publishing Ltd, pp. 227-276

Bond, L., Butler, H., Thomas, L., Carlin, J., Glover, S., Bowes, G & Patton, G. (2007). Social and school connectedness in early secondary school as predictors of late teenage substance use, mental health and academic outcomes. *Journal of Adolescent Health*, 40, 357.e9 – 357.e18

Bradley, L & Bryant, P.E. (1983). Categorising sounds and learning to read: a causal connection. *Nature*, 301, 419-421

British Psychological Society. (1999). *Dyslexia, Literacy and Psychological Assessment.* Leicester: BPS

British Psychological Society. (2004). *Guidelines for Minimum Standards of Ethical Approval in Psychological Research.* London: BPS

Brossart, D.F., Parker, R.I., Olson, E.A & Mahadevan, L. (2006). The relationship between visual analysis and five statistical analyses in a simple AB single-case research design. *Behavior Modification*, 30 (5), 531-563

Burdett, L. (1986). Two effective approaches for helping poor readers. *British Journal of Special Education*, 13 (4), 151-154

Busk, P.L & Marascuilo, L.A. (1992). Statistical analysis in single-case research: issues, procedures and recommendations, with applications to multiple behaviors. In: Kratochwill, T.R & Levin, J.R. (Eds). *Single Case Research Design and Analysis: New Directions for Psychology and Education*. Hillsdale, NJ: Lawrence Erlbaum, pp. 159-186

Carr, J.E & Burkholder, E.O. (1998). Creating single-subject design graphs with Microsoft Excel. *Journal of Applied Behavior Analysis*, 31 (2), 245-251

Carver, R.P. (1993). Merging the simple view of reading with rauding theory. *Journal of Reading Behavior*, 25 (4), 439-455

Catalano, R.F., Haggerty, K.P., Oesterle, S., Fleming, C.B & Hawkins, J.D. (2004). The importance of bonding to school for healthy development: findings from the social development research group. *Journal of School Health*, 74 (7), 252-261

Children Act. (1989) London: Her Majesty's Stationary Office. (HMSO)

Clay, M.M. (1991). *Becoming Literate: The Construction of Inner Control*. Birkenhead, Auckland: Heinemann

Cohen, J. (1968). Weighted Kappa: Nominal scale agreement with provision for scaled disagreement or partial credit. *Psychological Bulletin*, 70 (4), 213-220

Cohen, L., Manion, L & Morrison, K. (2011). *Research Methods in Education*. 7th ed. Oxon: Routledge.

Craven, P.A & Lee, R.E. (2006). Therapeutic interventions for foster children: a systematic research synthesis. *Research on Social Work Practice*, 16, 287-304

Cunningham, A.E & Stanovich, K.E. (1997). Early reading acquisition and its relation to reading experience and ability ten years later. *Developmental Psychology*, 33 (6), 934-945

Dearden, J. (2004). Resilience: a study of risk and protective factors from the perspective of young people with experience of local authority care. *Support for Learning*, 19 (4), 187-193

Deno, S.L., Mirkin, P.K & Chiang, B. (1982). Identifying valid measures of reading. *Exceptional Children*, 49, 36-47

Dent, R & Cameron, S. (2003). Developing resilience in children who are in public care: the educational psychology perspective. *Educational Psychology in Practice*, 19, 3-19

Department for Children, Schools and Families (DfCSF). (2010). *Promoting the Educational Achievement of Looked After Children: Statutory Guidance for Local Authorities.* Nottingham: DCSF Publications.

Department for Education (DfE). (2013). *Statistics: Looked After Children* [online] Available at: https://www.gov.uk/government/collections/statistics-looked-after-children [Accessed 20 December 2013]

Dickinson, D.K., McCabe, A., Anastasopoulos, L., Peisner-Feinberg, E.S & Poe, M.D. (2003). The comprehensive language approach to early literacy: the interrelationships among vocabulary, phonological sensitivity and print knowledge among preschool-aged children. *Journal of Educational Psychology*, 95 (3), 465-481

Dixon, M.R., Jackson, J.W., Small, S.L., Horner-King, M.J., Lik, N.M.K., Garcia, Y & Rosales, R. (2009). Creating single-subject design graphs in Microsoft Excel 2007. *Journal of Applied Behavior Analysis*, 42 (2), 277-293

Dozier, M & Rutter, M. (2008). Challenges to the development of attachment relationships faced by young children in foster and adoptive care. In: Cassidy, J &

Shaver, P.R (Eds.) *Handbook of Attachment: Theory, Research and Clinical Applications.* 2nd ed. New York: Guilford Publications

Dugard, P., File, P & Todman, J. (2012). *Single-Case and Small-N Experimental Designs: A Practical Guide to Randomization Tests*. 2nd ed. Hove: Taylor and Francis Group

Eckert, T.L., Ardoin, S,P., Daisey, D.M & Scarola, M.D. (2000). Empirically evaluating the effectiveness of reading interventions: the use of brief experimental analysis and single case designs. *Psychology in the Schools*, 37 (5), 463-473

Edmond, R. (2012). Longing to belong: children in residential care and their experiences of peer relationships at school and in the children's home. *Child and Family Social Work*. Article first published online 13 August 2012

Ehri, L.C., Nunes, S.R., Willows, D.M., Schuster, B.V., Yaghoub-Zadeh, Z & Shanahan, T. (2001). Phonemic awareness instruction helps children learn to read: evidence from the national reading panel's meta-analysis. *Reading Research Quarterly*, 36 (3), 250-287

Fiala, C.L & Sheridan, S.M. (2003). Parent involvement and reading: using curriculum-based measurement to assess the effect of paired reading. *Psychology in the Schools*, 40 (6), 613-626

Fleiss, J.L. (1981). *Statistical Methods for Rates and Proportions*. 2nd ed. New York: John Wiley

Fletcher-Campbell, F. (1998). Progress or procrastination? The education of young people who are looked after. *Children and Society*, 12, 3-11.

Frederickson, N. (2002). Evidence-based practice and educational psychology. *Educational and Child Psychology*, 19 (3), 96-111

Frederickson, N & Frith, U. (1998). Identifying dyslexia in bilingual children: a phonological approach with inner London Sylheti speakers. *Dyslexia*, 4 (3), 119-131

Fuchs, L.S., Fuchs, D & Hosp, M.K. (2001). Oral reading fluency as an indicator of reading competence: a theoretical, empirical and historical analysis. *Scientific Studies of Reading*, 5 (3), 239-256

Gagne, R.M (1962). The acquisition of knowledge. *Psychological Review*, 69, 355-365

Gersten, R., Fuchs, L.S., Compton, D., Coyne, M., Greenwood, C & Innocenti, M.S. (2005). Quality indicators for group experimental and quasi-experimental research in special education. *Exceptional Children*, 71 (2), 149-164

Goodman, K.S. (1967). Reading: A psycholinguistic guessing game. *Journal of the Reading Specialist*, 6, 126-135

Goodman, R. (1997). The strengths and difficulties questionnaire: a research note. Journal of *Child Psychology and Psychiatry*, 28, 5, 581-586

Goodman, R., Ford, T., Corbin, T & Meltzer, H. (2004). Using the strengths and difficulties questionnaire (SDQ) multi-informant algorithm to screen looked-after children for psychiatric disorders. *European Child and Adolescent Psychiatry*, 13, 25-31

Gough, D. (2007). Weight of evidence: a framework for the appraisal of the quality and relevance of evidence. *Research Papers in Education*, 22 (2), 213-228

Gough, P.B & Tunmer, W.E. (1986). Decoding, reading and reading disability. *Remedial and Special Education*, 7, 6-10

Gov.uk. (2013). The National Curriculum [online]. Available at: https://www.gov.uk/national-curriculum/overview [Accessed 18 October 2013]

Grix, J. (2002). Introducing students to the generic terminology of social research. *Politics*, 22 (3), 175-186

Hamm, J.V & Faircloth, B.S. (2005). The role of friendship in adolescents' sense of school belonging. *New Directions for Child and Adolescent Development*, 107, 61-78

Harrison, C. (2004). *Understanding Reading Development*. London: SAGE Publications Ltd

Hawkins, R.O., Hale, A., Sheeley, W & Ling, S. (2011). Repeated reading and vocabulary-previewing interventions to improve fluency and comprehension for struggling high-school readers. *Psychology in the Schools*, 48, 59-77

Health Professions Council. (2008). *Standards of Conduct, Performance and Ethics*. London: HPC

Heptinstall, E. (2000). Gaining access to looked after children for research purposes: lessons learned. *British Journal of Social Work*, 30, 867-872

Higgins, J.P.T & Green, S. (2011). *Cochrane Handbook for Systematic Reviews of Interventions.* The Cochrane Collaboration. [Online] Available from www.cochrane.org. [Accessed 18 July 2013]

Hodges, J & Tizard, B. (1989). Social and family relationships of ex-institutional adolescents. *Journal of Child Psychology and Psychiatry*, 30, 77-97

Israelashvili, M. (1997). School adjustment, school membership and adolescents' future expectations. *Journal of Adolescence*, 20, 525-535

Ivens, J. (2007). The development of a happiness measure for schoolchildren. Educational *Psychology in Practice*, 23 (3), 221-239

Jackson, S. (2000). Promoting the educational achievement of looked after children. In: Cox, T. (Ed.) *Combating Educational Disadvantage: Meeting the Needs of Vulnerable Children*. London: Falmer Press, pp. 65-80

Jimerson, S.R., Campos, E & Greif, J.L. (2003). Toward an understanding of definitions and measures of school engagement and related terms. *The California School Psychologist*, 8, 7-27

Johnston, R.S & Watson, J.E. (2004). Accelerating the development of reading, spelling and phonemic awareness skills in initial readers. *Reading and Writing*, 17, 327-357

Juel, C. (1988). Learning to read and write: a longitudinal study of 54 children from first through fourth grades. *Journal of Educational Psychology*, 80 (4), 437-447

Karcher, M.J. (2005). The effects of developmental mentoring and high school mentors' attendance on their younger mentees' self-esteem, social skills and connectedness. *Psychology in the Schools*, 42, 65-77

Kazdin, A.E. (2003). *Research Design in Clinical Psychology*. 4th ed. Boston, MA: Allyn & Bacon

Kendeou, P., Savage, R & van den Broek, P. (2009). Revisiting the simple view of reading. *British Journal of Educational Psychology*, 79 (2), 353-370

King, K.A., Vidourek, R.A., Davis, B & McClellan, W, (2002). Increasing self-esteem and school connectedness through a multidimensional mentoring programme. *Journal of School Health*, 72 (7), 294-299

Kirby, J.R & Savage, R.S. (2008). Can the simple view deal with the complexities of reading? *Literacy*, 42 (2), 75-82

Kratochwill, T.R. (1992). Single-case research design and analysis: an overview. In: Kratochwill, T.R & Levin, J.R (Eds.) *Single Case Research Design and Analysis*. Hillsdale, NJ: Lawrence Erlbaum, pp. 1-14

Kratochwill, T. R., Hitchcock, J., Horner, R. H., Levin, J. R., Odom, S. L., Rindskopf, D. M. & Shadish, W. R. (2010). *Single-case designs technical documentation*. Retrieved from What Works Clearinghouse website: http://ies.ed.gov/ncee/wwc/pdf/wwc_scd.pdf.

LaBerge, D & Samuels, S.J. (1974). Toward a theory of automatic information processing in reading. *Cognitive Psychology*, 6 (2), 293-323

Law, M & Kratochwill, T.R. (1993). Paired reading: an evaluation of a parent tutorial program. *School Psychology International*, 14, 119-147

Libbey, H.P. (2004). Measuring student relationships to school: attachment, bonding, connectedness and engagement. *Journal of School Health*, 74 (7), 274-283.

Limbrick, E., McNaughton, S & Glynn, T. (1985). Reading gains for underachieving tutors and tutees in cross-age tutoring programme. *Journal of Child Psychology and Psychiatry*, 26 (6), 939-953

Lundberg, I., Olofsson, A & Wall, S. (1980). Reading and spelling skills in the first school years predicted from phonemic awareness skills in kindergarten. *Scandinavian Journal of Psychology*, 21, 159-173

MacDonald, P. (2010). Paired reading: a structured approach to raising attainment in literacy. *Support for Learning*, 25, 15-23

Manolov, R & Solanas, A. (2008). Comparing N = 1 effect size indices in presence of autocorrelation. *Behaviour Modification*, 32 (6), 860-875

Matyas, T.A & Greenwood, K.M. (1990). Visual analysis of single-case time series: effects of variability, serial dependence and magnitude of intervention effects. *Journal of Applied Behavior Analysis*, 23 (3), 341-351

McCardle, P., Scarborough, H.S & Catts, H.W. (2001). Predicting, explaining and preventing children's reading difficulties. *Learning Disabilities Research and Practice*, 16 (4), 230-239

McNeely, C.A., Nonnemaker, J.M & Blum, R.W. (2002). Promoting school connectedness: evidence from the national longitudinal study of adolescent health. *Journal of School Health*, 72 (4), 138-146

Mertens, D.M. (2010). *Research and Evaluation in Education and Psychology: Integrating Diversity with Quantitative, Qualitative and Mixed Methods*. 3rd ed. London: Sage Publications Ltd

Miller, A & Kratochwill, T.R. (1996). An evaluation of the paired reading program using competency-based training. *School Psychology International*, 17 (3), 269-291

Miller, A., Robson, D & Bushell, R. (1986). *Parental participation in paired reading: a controlled study*. *Educational Psychology*, 6, 277-284

Miller, D., Topping, K & Thurston, A. (2010). Peer tutoring in reading: the effects of role organisation on two dimensions of self-esteem. *British Journal of Educational Psychology*, 80, 417-433

Morgan, R.T.T. (1976). Paired reading tuition: a preliminary report on a technique for cases of reading deficit. *Child: Care, Health and Development*, 2, 13-28

Morgan, R.T.T. (1986). *Helping Children Read: The Paired Reading Handbook*. London: Methuen Children's Books

Morgan, R.T.T & Gavin, P. (1988). Paired reading: evaluation and progress. *Support for Learning*, 3 (4), 201-206.

Morgan, R.T.T & Lyon, E. (1979). Paired reading – a preliminary report on a technique for parental tuition of reading-retarded children. *Journal of Child Psychology and Psychiatry*, 20, 151-160

Nes, S. (2003). Using paired reading to enhance the fluency skills of less-skilled readers. *Reading Improvement*, 40 (4), 179-192

Oakhill, J. (1993). Developing skilled reading. In: Beard, R. (Ed.) *Teaching Literacy Balancing Perspectives*. London: Hodder & Stoughton, pp. 63-73

Ofsted. (2008). *Looked After Children: Good Practice in Schools*. London: Ofsted.

Ouellette, G.P. (2006). What's meaning got to do with it: the role of vocabulary in word reading and reading comprehension. *Journal of Educational Psychology*, 98 (3), 554-566

Overett, J & Donald, D. (1998). Paired reading: effects of a parental involvement programme in a disadvantaged community in South Africa. *British Journal of Educational Psychology*, 68, 347-356

Paris, S.G. (2005). Reinterpreting the development of reading skills. *Reading Research Quarterly*, 40 (2), 184-202

Parker, R.I. & Brossart, D.F. (2003). Evaluating single-case research data: a comparison of seven statistical methods. *Behavior Therapy*, 34, 189-211

Parker, R.I., Hagan-Burke, S & Vannest, K. (2007). Percentage of all non-overlapping data: an alternative to PND. *The Journal of Special Education*, 40 (4), 194-204

Pears, K.C., Fisher, P.A & Bronz, K.D. (2007). An intervention to promote social emotional school readiness in foster children: preliminary outcomes from a pilot study. *School Psychology Review*, 36 (4), 665-673

Perdices, M & Tate, R.L. (2009). Single-subject designs as a tool for evidence-based clinical practice: are they unrecognised and undervalued? *Neuropsychological Rehabilitation: An International Journal*, 19 (6), 904-927

Petticrew, M & Roberts, H. (2006). *Systematic Reviews in the Social Sciences: A Practical Guide.* Oxford: Blackwell.

Purcell-Gates, V. (2009). The irrelevancy – and danger – of the 'simple view' of reading to meaningful standards. In: Soler, J., Fletcher-Campbell, F & Reid, G (Eds.) *Understanding Difficulties in Literacy Development: Issues and Concepts*. London: SAGE Publications Ltd, pp. 67-76

Reed, D.K. (2008). A synthesis of morphology interventions and their effects on reading outcomes for students in grades K-12. *Learning Disabilities Research and Practice*, 23, 36-49

Ridge, T & Millar, J. (2000). Excluding children: autonomy, friendship and the experience of the care system. *Social Policy and Administration*, 34 (2), 160-175

Ritchie, S.J & Bates, T.C. (2013). Enduring links from childhood mathematics and reading achievement to adult socioeconomic status. *Psychological Science*, 24, 1301-1308

Robson, C. (2011). *Real World Research*. 3rd ed. Chichester: Wiley

Rose, J. (2006). *Independent Review of the Teaching of Early Reading*, final report. London: Department for Education and Skills (DFES)

Savage, R. (2001). The 'simple view' of reading: some evidence and possible implications. *Educational Psychology in Practice*, 17, 17-33

Schwandt, T.A. (2000). Three epistemological stances for qualitative inquiry: interpretivism, hermeneutics and social constructionism. In: Denzin, N.K & Lincoln, Y.S (Eds) *Handbook of Qualitative Research*. 2nd ed. London: Sage Publications Ltd, pp. 189-214

Scott, A., Shaw, M & Joughlin, C. (2001). *Finding the Evidence: Gateway to the Literature in Child and Adolescent Mental Health*. London: Gaskell

Shochet, I.M., Dadds, M.R., Ham, D., Montague, R. (2006). School connectedness is an underemphasized parameter in adolescent mental health: results of a community prediction study. *Journal of Clinical Child and Adolescent Psychology*, 35 (2), 170-179

Scruggs, T.E., Mastropieri, M.A & Regan, K.S. (2006). Statistical analysis for single subject research designs. *Advances in Learning and Behavioral Disabilities*, 19, 33-53

Smith, F. (1973). *Psycholinguistics and Reading*. New York: Holt, Rinehart and Winston

Social Exclusion Unit. (2003). *A Better Education for Children in Care*. London: Social Exclusion Unit

Software, MedCalc. (2014). *MedCalc for Windows*. Ostend, Belgium.

Soler, J & Openshaw, R. (2009). To be or not to be? The politics of teaching phonics in England and New Zealand. In: Soler, J., Fletcher-Campbell, F & Reid, G (Eds.) *Understanding Difficulties in Literacy Development: Issues and Concepts*. London: Sage Publications, pp. 161-175

Solity, J. (2000). The early reading research: applying psychology to classroom practice. *Educational and Child Psychology*, 17 (2), 46-65

Stanovich, K.E. (1986). Matthew effects in reading: some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly*, 21, 360-407

Stone, S. (2007). Child maltreatment, out of home placement and academic vulnerability: a fifteen year review of evidence and future directions. *Children and Youth Services Review*, 29, 139-161.

Strozier, A., McGrew, L., Krisman, K & Smith, A. (2005). Kinship care connection: a school-based intervention for kinship caregivers and the children in their care. *Children and Youth Services Review*, 27, 1011-1029

Stuart, M. (1995). Recognising printed words unlocks the door to reading: how do children find the key? In: Funnell, E & Stuart, M (Eds.) *Learning to Read: Psychology in the Classroom*. Oxford: Blackwell Publishers Ltd, pp. 30-60

Stanovich, K.E & Stanovich, P.J. (1999). How research might inform the debate about early reading acquisition. In: Oakhill, J & Beard, R. (Eds.) *Reading Development and the Teaching of Reading*. Oxford: Blackwell Publishers Ltd, pp. 12-41

Tirapani, E-L. (2011). *The Impact of an Evidence-Based Literacy Intervention upon the Wellbeing, Resilience and Academic Self-Concept of Children in Care*. DAppEdPsy Doctoral Thesis. University of Nottingham.

Topping, K.J. (1995). *Paired Reading, Writing and Spelling: The Handbook for Teachers and Parents*. London: Continuum International Publishing.

Topping, K.J. & Lindsay, G.A. (1992). The structure and development of the paired reading technique. *Journal of Research in Reading*, 15 (2), 120-136

Topping, K., Miller, D., Thurston, A., McGavick, K & Conlin, N. (2011). Peer tutoring in reading in Scotland: thinking big. *Literacy*, 45, 3-9

University of Nottingham. (2009). *University of Nottingham Code of Research Conduct and Research Ethics.* Nottingham: University of Nottingham

Unrau, Y.A., Seita, J.R & Putney, K.S. (2008). Former foster youth remember multiple placement moves: a journey of loss and hope. *Children and Youth Services Review*, 30, 1256-1266

Voelkl, K.E. (1996). Measuring Students' Identification with School. *Educational and Psychological Measurement*, 56 (5), 760-770

Walton, G.M & Cohen, G.L. (2007). A question of belonging: race, social fit and achievement. *Journal of Personality and Social Psychology*, 92, 82-96

Whitemore, E., Ford, M & Sack, W.H. (2003). Effectiveness of a day treatment with proctor care for young children: a four year follow up. *Journal of Community Psychology*, 31 (5), 459-468

Whyte, S & Campbell, A. (2008). The strengths and difficulties questionnaire: a useful screening tool to identify mental health strengths and needs in looked after children and inform care plans at looked after children reviews? *Child Care in Practice*, 14 (2), 193-206

Wigfield, A & Guthrie, J.T. (1997). Relations of children's motivation for reading to the amount and breadth of their reading. *Journal of Educational Psychology*, 89 (3), 420-432

Wilson, D. (2004). The interface of school climate and school connectedness and relationships with aggression and victimisation. *Journal of School Health*, 74 (7), 293-299

Wingspread. (2004). Wingspread declaration on school connections. *Journal of School Health*, 74 (7), 233-234

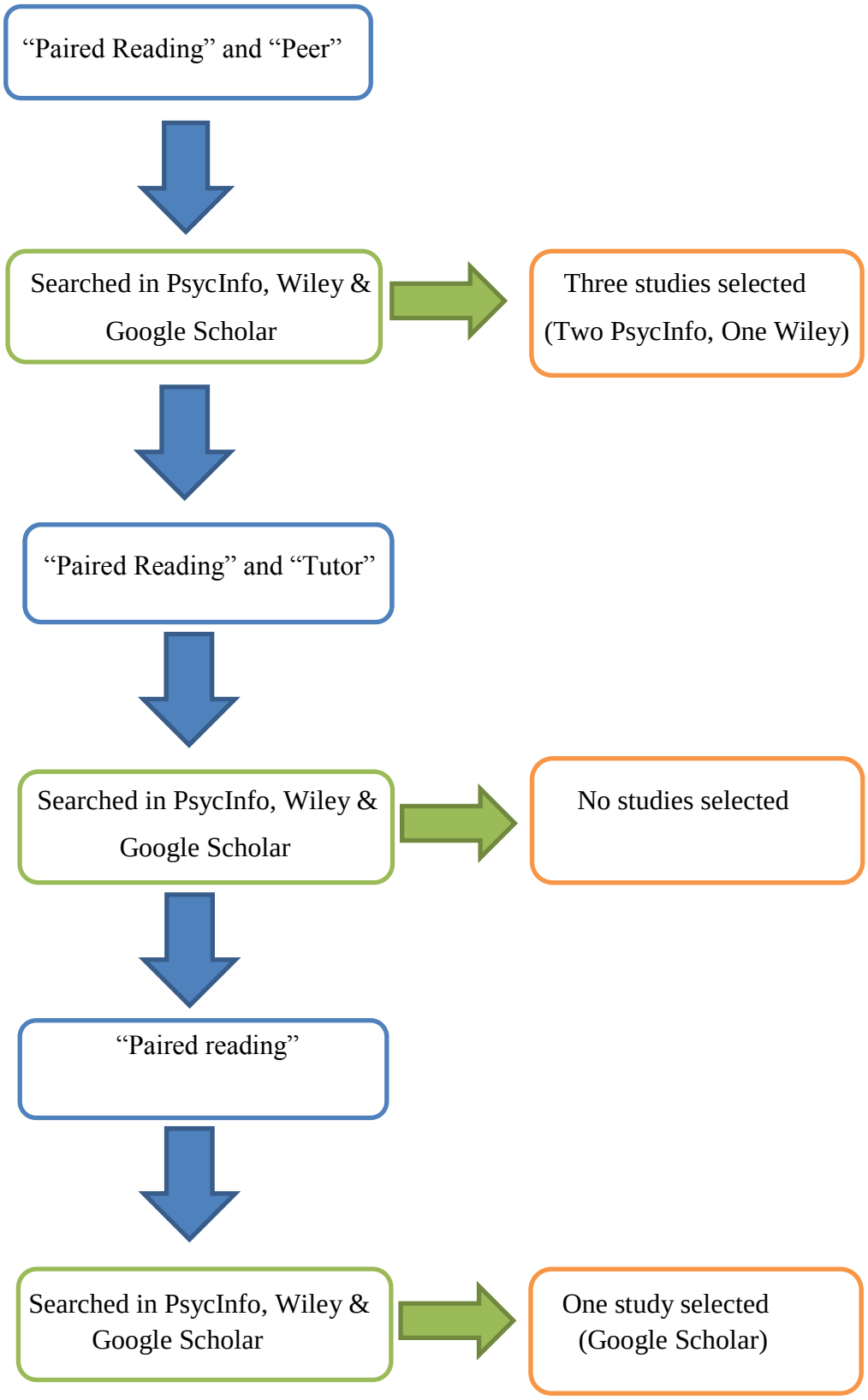
Winter, K. (2010). The perspectives of young children in care about their circumstances and implications for social work practice. *Child and Family Social Work*, 15, 186-195

Winter, S. (1986). Peers as paired reading tutors. *British Journal of Special Education*, 13 (3), 103-106

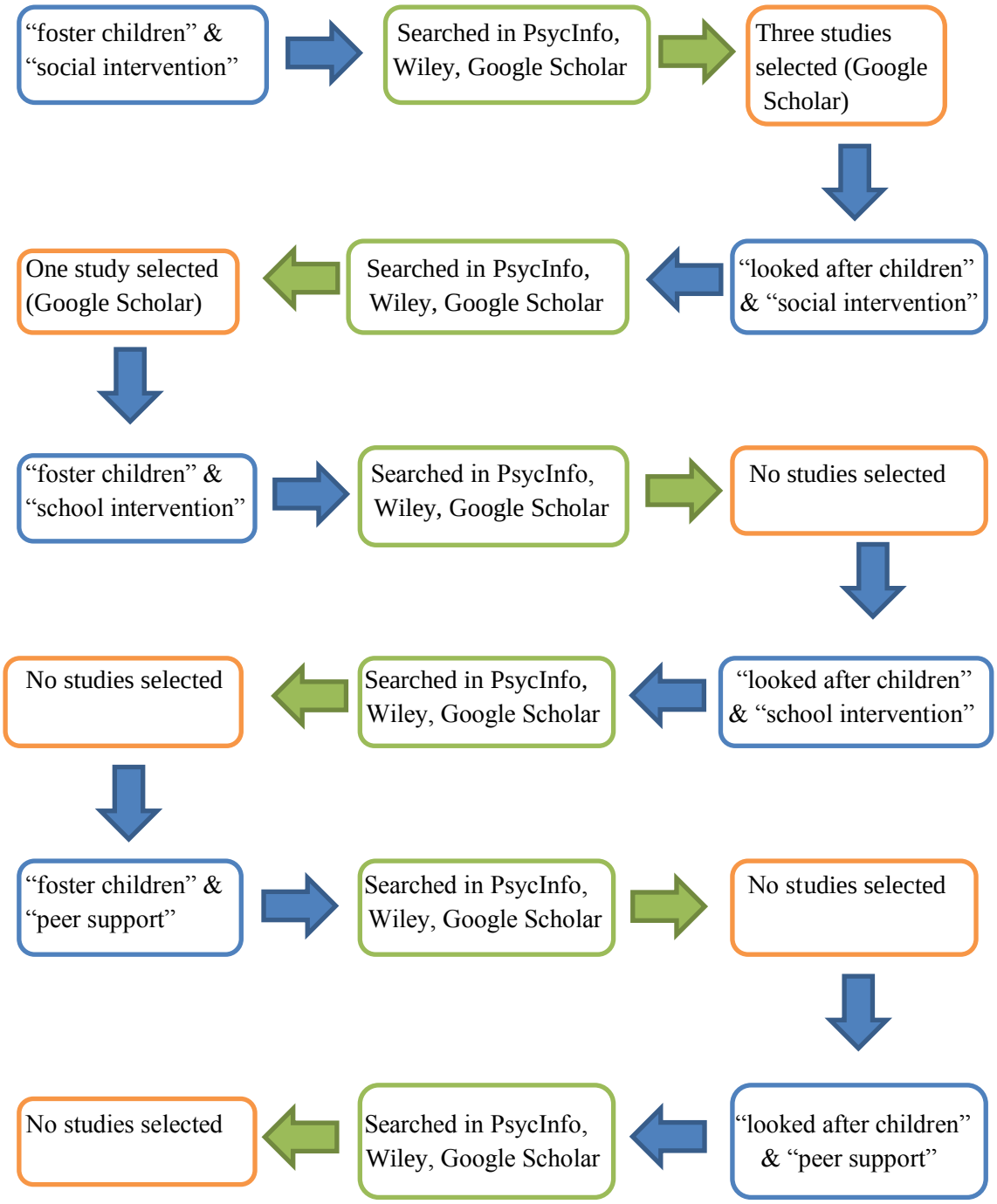
Winter, S. (1990). Paired Reading: two questions. *Educational Psychology in Practice*, 6 (2), 96-99

Appendices

Appendix 1: Flow diagram showing the systematic review process of paired reading with a peer



Appendix 2: Flow diagram showing systematic review of social interventions with LAC



Appendix 3: Summary of studies for paired reading with a peer

Reference	Sample Size	Age of Sample	Design	Control/ Comparison?	Outcome	Overall Quality Rating (D)
Limbrick, McNaughton & Glynn (1985)	12	6-11 years	Multiple baseline single case experiment	Control	PR led to increase in reading age and reading comprehension score in all three experimental tutees.	Medium – small experimental sample size, appropriate age group, presence of control, literature review, explicit reporting of results
Winter (1986)	30 22 8	Primary Not specified Primary Not specified 7-9 years	Three case studies	No	Case studies one and two showed positive gains on reading age after PR Case study three showed only modest gains on accuracy and comprehension	Low – case study design, literature review, no control or comparison, lack of detail in result reporting, relatively small sample sizes.
Miller, Topping & Thurston (2010)	260	10-11 years	Randomised control trial	Control	PR led to significant increase in self-esteem for same-age tutors and tutees and cross-age tutors. No significant difference between type of role adopted and impact on self-esteem	High – presence of control, appropriate age group, large sample size, randomised design, literature review, explicit reporting of results
Topping et al (2011)	8,847	9-11 years	Randomised control trial	Control	Significant effect of PR on reading ability in the short term for tutors and tutees. Significant effect of PR on cross-aged tutors and tutees only.	High – presence of control, appropriate age group, large sample size, randomised design, literature review, explicit reporting of results.

Appendix 4: Summary of studies for social interventions with LAC

Reference	Sample Size	Age of Sample	Design	Control/ Comparison?	Outcome	Overall Quality Rating (D)
Pears, Fisher & Bronz (2007)	24	Mean age 6 years	Randomised control trial	Comparison	Intervention had significant difference on emotional regulation as reported by foster carers. No significant effect on teacher reports	High – presence of comparison, medium sized sample, LAC, appropriate age group, randomised design, literature review, explicit reporting of results.
Strozier et al (2005)	235	Mean age 8.96 years	Mixed-methods design	No	Significant effect of intervention on carers' self-efficacy and on participants' level of self-esteem	Medium – large sample size, appropriate age group, LAC, no comparison or control, less rigorous design, literature review, explicit reporting of results
Whitemore, Ford & Sack, (2003)	139	2-6 years	Quasi-experiment	No	Statistically significant effect of intervention on behaviour outcome and developmental gains, including personal-social subscale at post-test. Unable to statistically analyse follow-up date	Medium – large sample size, appropriate age group, LAC, no comparison or control, less rigorous design, literature review, explicit reporting of results.
Craven & Lee (2006)	18 studies	Young infant - adolescent	Systematic literature review	-	Sixteen studies reported significant effects of social interventions. Only six studies looked exclusively at foster children. Not enough evidence-based interventions for LAC	High – medium study size, appropriate age group, not exclusively LAC, evaluation of studies explicitly reported.

Appendix 5: Training materials provided for paired reading (summary)

How to Use Paired Reading

Child chooses reading material within tutor's readability level.

Child and tutor discuss book

Child and tutor read together aloud at the child's pace

Correct reading

Any error child makes

Praise

Correct procedure
- Tutor says word correctly (may point to error)
- Child says word correctly
- Pair continues reading together

Child signals non-verbally to read alone

Tutor praises the child for signalling, then is silent.

Child reads alone aloud.

Correct reading of difficult words

Self - correction

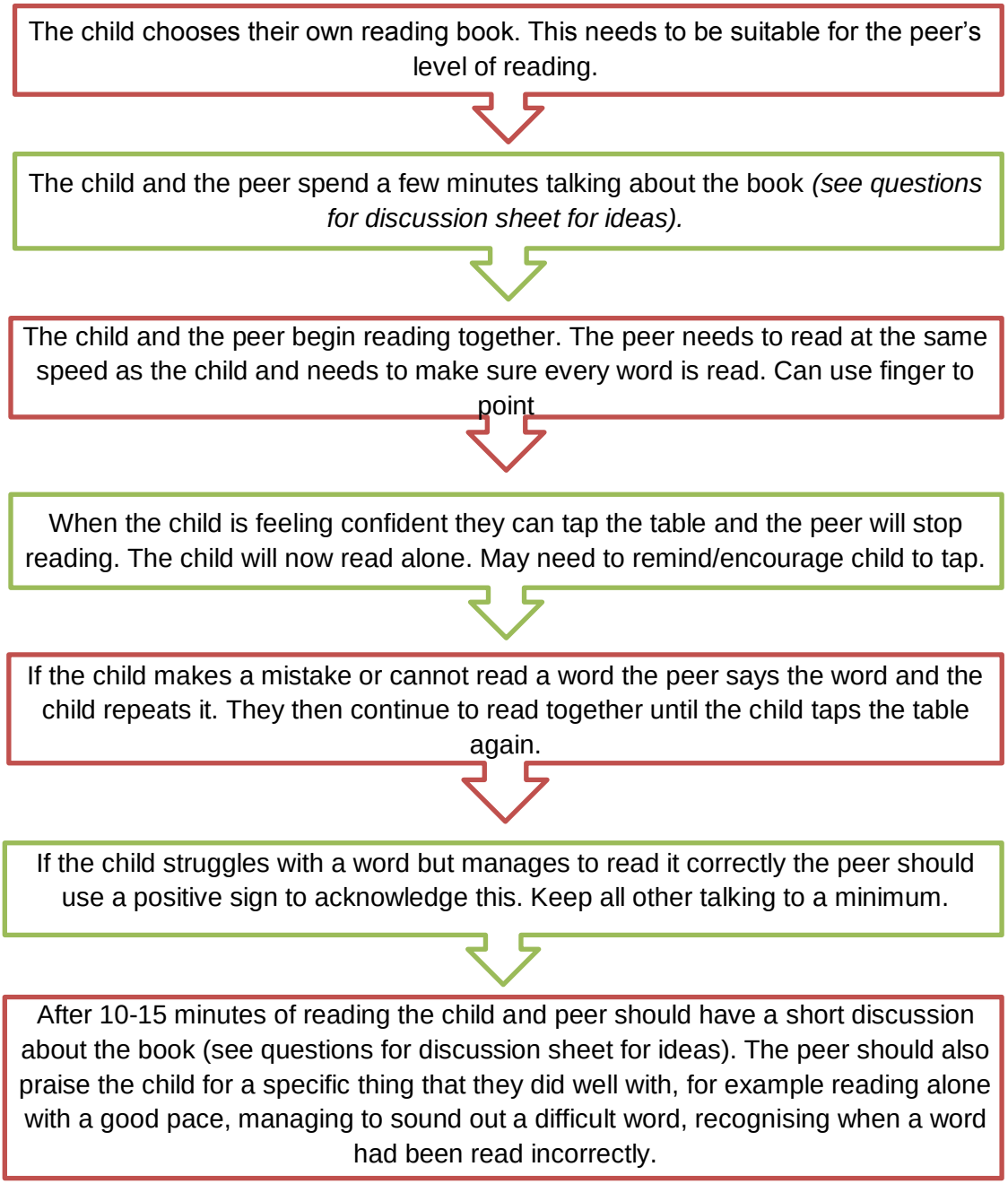
Any error or delay not corrected in 4 seconds

Praise

Correction procedure as above and pair return to reading together

Simplified from Topping & Lindsay (1992)

Appendix 6: Training materials provided for paired reading (detailed)



Make sure you sit in a comfortable and quiet area with no distractions! You need to sit together so that you can both see the book.

Each session should last approximately 15 minutes, including a couple of minutes for discussion at the beginning and the end.

The child can choose the same book again if they enjoy it but once it has been read all the way through a couple of times encourage them to try something different.

Appendix 7: Paired reading training: guidance on errors

Guidance on Errors

When reading together:

- The child should make a guess at the word, even if they only know the first sound.
- The peer should read the word correctly and continue with the next word
- There should be no other talking about the word
- If the child does not say anything wait for four seconds, say the word then continue reading together. Do not intervene or help them to sound out the word.

When reading alone:

- The child should attempt to read or sound out the word. Wait for four seconds while they try to do this. If they do not say anything also wait for four seconds.
- After four seconds read the word for them then continue to read together.
- They will then need to tap the table when they feel ready to read on their own. After every mistake when the child is reading alone the sentence is continued together.
- Keep talking during the shared and individual reading to an absolute minimum

Appendix 8: Prompt questions for paired reading

Before Reading

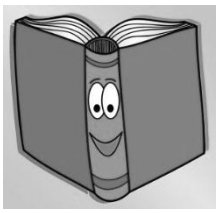
- What do you think this book will be about?
- Why did you choose this book?
- What sort of characters do you think will be in the story? (fiction)
- What sort of information do you think we will find out? (non-fiction)
- Do you think this book will be like any others you have read?
- What do you hope will happen in the book?
- What sort of words do you think will be in the book?

After Reading

- Did you enjoy the book?
- What did you like/dislike about it?
- What was your favourite part?
- Was the book what you thought it would be?
- Who was your favourite character (fiction)
- What was your favourite fact (non-fiction)
- If you could make any changes to the story what would you do? (fiction)
- Was there anything you wanted to find out about that was not in the book? (non-fiction)

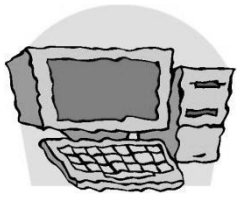
These questions can be used to give ideas for the discussion. You can use different questions to talk about the book before and after reading.

Appendix 9: Paired reading intervention record



Date	Name of book	Length of session	Comments

Appendix 10: C Phase intervention record



Date	Type of Activity	Length of Session	Comments

Appendix 11: Checklist for monitoring paired reading intervention

Paired Reading Observational Checklist

Observer_____ Date _____

Participant Number: _____ Session Number:_____

	Yes	No	Comments
The child has chosen the book.			
Peer and child discuss the book beforehand.			
Peer reads at a pace set by the child.			
Peer says words correctly if child makes an error and child repeats.			
Peer waits 4 seconds before saying the word the child is finding difficult			
Peer praises child's correct reading of a difficult word.			
Peer praises child for self- correction.			
Peer praises child for choosing to read independently.			
The pair return to reading together if child makes a mistake reading independently.			
Peer and child discuss the book when they have finished reading.			

Appendix 12: Final school connectedness rating scale

This week I have felt that I am part of my school

Not at all	A little	Not sure?	Quite a bit	A lot

This week I wanted to come to school

Not at all	A little	Not sure?	Quite a bit	A lot

This week I liked being with other people in school

Not at all	A little	Not sure?	Quite a bit	A lot

This week I felt like an important member of my school

Not at all	A little	Not sure?	Quite a bit	A lot

This week I felt close to other children at my school

Not at all	A little	Not sure?	Quite a bit	A lot

This week I felt happy to be at my school

Not at all	A little	Not sure?	Quite a bit	A lot

This week I felt that I fitted in with other children at my school

Not at all	A little	Not sure?	Quite a bit	A lot

This week I felt that I worked hard in school

Not at all	A little	Not sure?	Quite a bit	A lot

This week I felt that I belonged at my school

Not at all	A little	Not sure?	Quite a bit	A lot

This week I got on well with other people in my school

Not at all	A little	Not sure?	Quite a bit	A lot

Appendix 13: A copy of the Strengths and Difficulties Questionnaire

Strengths and Difficulties Questionnaire

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain or the item seems daft! Please give your answers on the basis of the child's behaviour over the last six months or this school year.

Child's Name ..... Male/Female

Date of Birth.....

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	☐	☐	☐
Restless, overactive, cannot stay still for long	☐	☐	☐
Often complains of headaches, stomach-aches or sickness	☐	☐	☐
Shares readily with other children (treats, toys, pencils etc.)	☐	☐	☐
Often has temper tantrums or hot tempers	☐	☐	☐
Rather solitary, tends to play alone	☐	☐	☐
Generally obedient, usually does what adults request	☐	☐	☐
Many worries, often seems worried	☐	☐	☐
Helpful if someone is hurt, upset or feeling ill	☐	☐	☐
Constantly fidgeting or squirming	☐	☐	☐
Has at least one good friend	☐	☐	☐
Often fights with other children or bullies them	☐	☐	☐
Often unhappy, down-hearted or tearful	☐	☐	☐
Generally liked by other children	☐	☐	☐
Easily distracted, concentration wanders	☐	☐	☐
Nervous or clingy in new situations, easily loses confidence	☐	☐	☐
Kind to younger children	☐	☐	☐
Often lies or cheats	☐	☐	☐
Picked on or bullied by other children	☐	☐	☐
Often volunteers to help others (parents, teachers, other children)	☐	☐	☐
Thinks things out before acting	☐	☐	☐
Steals from home, school or elsewhere	☐	☐	☐
Gets on better with adults than with other children	☐	☐	☐
Many fears, easily scared	☐	☐	☐
Sees tasks through to the end, good attention span	☐	☐	☐

Signature ..... Date .....

Parent/Teacher/Other (please specify:)

Thank you very much for your help

Appendix 14: Copy of ethics approval from the University of Nottingham

The University of Nottingham
UNITED KINGDOM · CHINA · MALAYSIA
School of Psychology
The University of Nottingham
University Park
Nottingham
NG7 2RD
T: +44 (0)115 8467403 or (0)115 9514344

AS.hfc

Ref: 280

Monday 4th March 2013

Dear Stephanie Fry,

Ethics Committee Review

Thank you for submitting an account of your proposed research 'Does Paired Reading, when used with a Peer, impact upon the Reading Ability and School Identity of Looked after Children?

That research has now been reviewed by the Ethics Committee and I am pleased to tell you that your submission has met with the committee's approval.

Final responsibility for ethical conduct of your research rests with you or your supervisor. The Codes of Practice setting out these responsibilities have been published by the British Psychological Society and the University Research Ethics Committee. If you have any concerns whatever during the conduct of your research then you should consult those Codes of Practice.

Independently of the Ethics Committee procedures, supervisors also have responsibilities for the risk assessment of projects as detailed in the safety pages of the University web site. Ethics Committee approval does not alter, replace, or remove those responsibilities, nor does it certify that they have been met.

Yours sincerely

Dr Alan Sunderland
Chair, Ethics Committee

Appendix 15: Information sheet for social workers

University of Nottingham - School of Psychology

Information Sheet for Social Workers

Research Project: The effects of Paired Reading, when used with a peer, on reading ability and school connectedness in looked after children

Researcher: Stephanie Fry *University Supervisor*: Neil Ryrie

Placement Supervisor: Christine Williams

Contact Details:lpxsf1@XXXXXXX XXXXX XXXXX (XXX Educational Psychology Service)

I am a trainee educational psychologist at the University of Nottingham and I am currently on placement with XXX's educational psychology service. This is an invitation to take part in a research study on the impact of a peer-led paired reading intervention on reading ability and school connectedness in looked after children. The reason you have been approached is because there are looked after children in your care who may benefit from the paired reading intervention. A description of the intervention is attached for your information. Before you decide if you wish to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully.

If you participate, a questionnaire will be completed by the child's class teacher which looks at their strengths and difficulties. A peer of the child will be identified as being suitable as a peer tutor. This will be a child who is an able reader and confident in social interaction. Training on the paired reading intervention will be provided to the peer and a member of staff who will oversee the intervention in school. A weekly measure will be taken by the researcher which assesses reading ability and sense of social connectedness. The reading measure will involve the child reading from a text for three minutes. At the end of this the number of words read and the number of errors made will be calculated. This will provide a fluency and accuracy measure. The school connectedness measure will involve the child rating a series of statements such as 'This week I have got on well with people at my school". For three weeks this will be taken in the absence of any intervention to provide

baseline data. Following this period the intervention will be introduced and will be delivered by the peer for twenty minutes three times each week. The measures will continue to be taken weekly. After approximately five weeks the intervention will be changed so that the peer spends time with the child without delivering the intervention. This will also last approximately five weeks and the measures will continue to be taken on a weekly basis by the researcher. At the end of this period the strengths and difficulties questionnaire will again be completed by the child's class teacher.

Participation in this study is totally voluntary and you are under no obligation to take part. You are free to withdraw at any point before or during the study. All data collected will be kept confidential and used for research purposes only. If you have any questions or concerns please don't hesitate to ask. I can also be contacted after your participation at the telephone number printed at the top of this information sheet.

Appendix 16: Consent form for social workers

Consent Form for Social Workers

Does Paired Reading, when used with a Peer, impact upon the Reading Ability and School Connectedness of Looked After Children?

Researcher: Stephanie Fry University Supervisor: Neil Ryrie Placement Supervisor: Christine Williams

School of Psychology, University of Nottingham

The social worker should complete the whole of this sheet himself/herself. Please cross out as necessary.

Have you read and understood the participant information sheet? YES/NO

Have you had the opportunity to ask questions and discuss the study? YES/NO

Have all the questions been answered satisfactorily? YES/NO

Have you received enough information about the study? YES/NO

Do you understand that participants are free to withdraw from the study?

- at any time YES/NO
- without having to give a reason YES/NO

Do you agree for the child in your care to take part? YES/NO

"This study has been explained to me to my satisfaction, and I agree to the child in my care taking part. I understand that they are free to withdraw at any time."

Signature of the social worker: Date:

Name (in block capitals):
Name of child (in block capitals):

I have explained the study to the above social worker and they have agreed for the child in their care to take part.

Signature of researcher: Date:

Appendix 17: Information sheet for parents of peer participants

University of Nottingham - School of Psychology

Information Sheet for Parents

Research Project: The effects of Paired Reading, when used with a peer, on reading ability and school connectedness in looked after children

Researcher: Stephanie Fry *University Supervisor*: Neil Ryrie *Placement Supervisor*: Christine Williams

Contact Details: lpxsf1@XXXXXX XXXXX XXXXX (XXX Educational Psychology Service)

I am a trainee educational psychologist at the University of Nottingham and I am currently on placement with XXX's educational psychology service. This is an invitation to take part in a research study on the impact of a peer-led paired reading intervention on reading ability and school connectedness in looked after children. The reason you have been approached is because school have identified your child as being a suitable peer to deliver the reading intervention. This means that school staff view your child to be a confident and experienced reader.

Before you decide if you wish to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully.

Training on the paired reading intervention will be provided to the peer and a member of staff who will oversee the intervention in school. The peer will run the intervention three times a week for approximately twenty minutes. The peer will run the intervention with a child who has been identified as requiring additional support with reading and this will be overseen by a member of school staff. A description of the paired reading intervention has been attached to this information sheet.

The peer will deliver the intervention for approximately five weeks. They will then spend twenty minutes three times a week engaging in other activities with the child, such as educational games. This will also last for approximately five weeks. The timing of the

intervention will be carefully negotiated with school to ensure a minimal level of disruption to your own child's class learning. Research has indicated that the paired reading intervention can have a positive impact on the reading ability and confidence of the peer as well as the child who is taking part in the programme.

Participation in this study is totally voluntary and you are under no obligation to take part. You are free to withdraw at any point before or during the study. There will be no data collected about your child; their participation is purely to facilitate the reading programme. If you have any questions or concerns please don't hesitate to ask. I can also be contacted after your participation at the telephone number printed at the top of this information sheet.

Appendix 18: Consent form for parents of peer participants

Consent Form for Parents of the Peer

Does Paired Reading, when used with a Peer, impact upon the Reading Ability and School Connectedness of Looked After Children?

Researcher: Stephanie Fry University Supervisor: Neil Ryrie Placement Supervisor: Christine Williams

School of Psychology, University of Nottingham

The parent should complete the whole of this sheet himself/herself. Please cross out as necessary.

Have you read and understood the participant information sheet? YES/NO

Have you had the opportunity to ask questions and discuss the study? YES/NO

Have all the questions been answered satisfactorily? YES/NO

Have you received enough information about the study? YES/NO

Do you understand that participants are free to withdraw from the study?

- at any time YES/NO
- without having to give a reason YES/NO

Do you agree for your child to take part? YES/NO

"This study has been explained to me to my satisfaction, and I agree to my child taking part. I understand that they are free to withdraw at any time."

Signature of parent: Date:

Name (in block capitals)

Name of child (in block capitals)

I have explained the study to the above parent and they have agreed for their child to take part.

Signature of researcher: Date:

Appendix 19: Information sheet for parents of pilot participants

University of Nottingham - School of Psychology

Pilot Study: Information Sheet for Parents

Research Project: The effects of Paired Reading, when used with a peer, on reading ability and school connectedness in looked after children

Researcher: Stephanie Fry *University Supervisor*: Neil Ryrie *Placement Supervisor*: Christine Williams

Contact Details: lpxsf1XXXXXX XXXXX XXXXX (XXXX Educational Psychology Service)

I am a trainee educational psychologist at the University of Nottingham and I am currently on placement with XXXX's educational psychology service. This is an invitation to take part in a research study on the impact of a peer-led paired reading intervention on reading ability and school connectedness in looked after children. The reason you have been approached is because school have identified your child as being suitable to take part in the pilot study phase of the research.

Before you decide if you wish to take part please take time to read the following information carefully.

This study is looking at the impact of a paired reading programme on reading ability and sense of school connectedness. To measure the impact of the intervention a reading fluency and accuracy measure will be used along with a self-report rating scale about sense of school connectedness. The reading measure will involve the child reading from a text for three minutes. At the end of this the number of words read and the number of errors made will be calculated. This will provide a fluency and accuracy measure. The school connectedness measure will involve the child rating a series of statements such as 'This week I have got on well with people at my school". Your child has not been identified as having difficulties with reading or school connectedness; they have just been identified as a pupil who would be able to complete the measure to inform the next stage of my research. This measure will be a one off and will last approximately thirty minutes. The results will be kept confidentially and will purely be used to inform the rest of the project by showing

whether the measurements I have chosen are a reliable way of measuring reading ability and school connectedness. They will not be analysed. Should the results unexpectedly indicate that your child does require support in either of these areas this will be discussed with you immediately and support from the educational psychology service will be offered to school.

Participation in this study is totally voluntary and you are under no obligation to take part. You are free to withdraw at any point before or during the study. There will be no data collected about your child; their participation is purely to facilitate the reading programme. If you have any questions or concerns please don't hesitate to ask. I can also be contacted after your participation at the telephone number printed at the top of this information sheet.

Appendix 20: Consent form for parents of pilot participants

Pilot Study: Consent Form for Parents

Does Paired Reading, when used with a Peer, impact upon the Reading Ability and School Connectedness of Looked After Children?

Researcher: Stephanie Fry University Supervisor: Neil Ryrie Placement Supervisor: Christine Williams

School of Psychology, University of Nottingham

The parent should complete the whole of this sheet himself/herself. Please cross out as necessary.

Have you read and understood the participant information sheet? YES/NO

Have you had the opportunity to ask questions and discuss the study? YES/NO

Have all the questions been answered satisfactorily? YES/NO

Have you received enough information about the study? YES/NO

Do you understand that participants are free to withdraw from the study?

- at any time YES/NO
- without having to give a reason YES/NO

Do you agree for your child to take part? YES/NO

"This study has been explained to me to my satisfaction, and I agree to my child taking part. I understand that they are free to withdraw at any time."

Signature of parent: Date:

Name (in block capitals)

Name of child (in block capitals)

I have explained the study to the above parent and they have agreed for their child to take part.

Signature of researcher: Date:

Appendix 21: Information sheet and consent for the head teachers

University of Nottingham – School of Psychology

Researcher: Stephanie Fry University Supervisor: Neil Ryrie Placement Supervisor: Christine Williams

The University of Nottingham

Information Sheet for School

I am a trainee educational psychologist with the University of Nottingham and I am currently on placement with XXX's Educational Psychology Service. As part of my training I am hoping to complete my doctoral thesis researching the impact of a reading intervention called 'paired reading'. Specifically I want to look at the impact 'paired reading' has when it is facilitated by a peer on the reading ability and the level of school connectedness of looked after children. To do this, I am interested in working with schools who have a looked after child, preferably in Years 2, 3 or 4 who they think has difficulties with reading and who appears to have a low level of school connectedness i.e. they may feel as though they are different to other children in the school and may not act as though part of the school community. An overview of the paired reading intervention has been attached for your information.

Overview of the Research

The research will be conducted using a design called a single case experiment. This means that the children's performance is measured on an individual basis and is not compared to the other participants. There will be approximately six looked after children involved in the study who will be from a number of different schools. If you felt that you had a looked after child in your school that would be suitable for this study and decided to take part an older child who is an experienced reader and a teaching assistant would also be needed for the research. They would both be taught the paired reading intervention so that the peer could deliver it to the looked after child and the teaching assistant could oversee the process and be able to answer any of the peer's questions.

To measure the impact of paired reading, weekly measures would be collected by myself. These measures would assess the reading accuracy and fluency of the looked after child and the level of social connectedness of the child. The reading measure will involve the child reading from a text for three minutes. At the end of this the number of words read and the number of errors made will be calculated. This will provide a fluency and accuracy measure. The school connectedness measure will involve the child rating a series of statements such as 'This week I have got on well with people at my school".

The process of the study would involve the peer and the teaching assistant being taught the intervention. Some baseline data would then be collected for a period of approximately three weeks. Here the weekly measures would be taken **without** the intervention being introduced to determine the child's reading ability and school connectedness level prior to the introduction of paired reading. The intervention would then begin and would be delivered by the experienced peer three times a week for approximately twenty minutes. The weekly measures would continue to be taken. This would last for approximately five weeks. After this time the intervention would change so that the looked after child would meet with their peer three times a week but this would be spent talking and playing educational games instead of using paired reading. The weekly measures would continue to be taken by the researcher. This would last approximately three weeks and would allow for comparison data to be collected. In addition to the weekly measures the looked after child's class teacher would also be asked to fill in a questionnaire at the start and end of the study. This would look at the child's strengths and difficulties in class.

Commitments Required from the School

To enable the study to run effectively I would require:

- Information sheets and consent forms to be sent out to the parents of the children acting as the experienced peers and collected
- A suitable quiet space available three times each week for the paired reading intervention and once each week for the measurements to be collected
- Time allocated in the school day for paired reading to take place three times each week and the measurement to be collected once each week
- A teaching assistant who is available to be trained in paired reading and able to oversee the intervention for the duration of the study. This person must be available to answer questions from either the looked after child or the experienced peer
- Time for the class teacher to complete a short questionnaire at the beginning of the study and at the end
- Access to a reading scheme so that books from this can be used to assess the reading ability of the looked after child
- Discussion around the most appropriate time for the paired reading intervention to take place to ensure minimal disruption to the classroom learning of the peer.

"This study has been explained to my satisfaction and I agree that our school will take part. I understand that our involvement is dependent upon the consent from social workers, parents and pupils"

Signature of the Head Teacher: Date:

Name in block capitals:

"I have explained the study to the above Head Teacher and he/she has agreed for his/her school to take part"

Signature of researcher: Date:

Summary of the Research Project Timetable

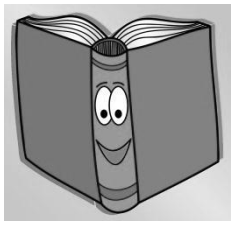
Pre-Study	Baseline Phase	Main Intervention Phase	Second Intervention Phase	Post-Study
One-off	Approx. 3 weeks	Approx. 5 weeks	Approx. 3 weeks	One-off
Strengths and Difficulties Questionnaire completed by class teacher.	No Intervention Weekly reading and identity measures	Paired Reading Intervention Weekly reading and identity measures	Comparison Intervention Weekly reading and identity measures	Strengths and Difficulties Questionnaire completed by class teacher.

Appendix 22: Information about paired reading provided to all adult consent-givers

The Paired Reading Procedure

Paired reading is an intervention built upon the principles of whole text reading. The two main aims of the approach are simultaneous reading and reinforced individual reading. A weak reader is paired with a more advanced reader to share and guide the reading experience by discussing the text and having opportunities to read aloud either independently or simultaneously. A frequently used approach has been for children to read with parents; however it is also used within schools and with a variety of experienced readers. Paired reading begins with the child choosing a real book, appropriate for their interest and chronological age. The child and the experienced reader discuss the book, including predictions about the plot and potential characters and themes involved. The child then reads simultaneously with the experienced reader. This provides a model to the child and maintains appropriate pace. When confident, the child signals to the experienced reader and they continue the text independently. If an error occurs and the child is unable to correctly read the word within four seconds the word is provided, allowing the child to learn new words in context. The child and experienced reader continue to read simultaneously until the child once again signals their confidence to read independently. The approach encourages fluent reading and minimal input from the experienced reader.

Appendix 23: Information sheet for focus participants



University of Nottingham
School of Psychology

Information Sheet for Participants

Researcher: Stephanie Fry

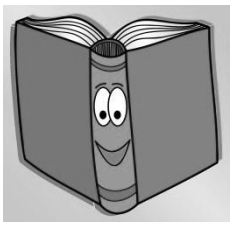
Contact details: lpxsf1@XXXXXX XXXXX XXXXX (XXX Educational Psychology Service)

This is an invitation to take part in a study that is looking at a reading programme called paired reading. In this programme you would read with another child in your school that is older than you. You would read together three times each week and you would choose the books that you wanted to read. This would last for about five weeks. Then you would meet up with your reading partner three times each week and you would talk and do different activities. This would last for about three weeks.

One day every week I would come into school and ask you to do some reading for me to see whether paired reading is helping you. I would also ask you some questions about how you have been getting on in school that week. The questions would be about how happy you had been in school and how much you had enjoyed being with other people. The reading and the questions would last about half an hour. Your teacher will also be asked to answer some questions about how you have been getting on in school.

You do not have to take part in this study. If you do take part you can ask to stop at any time. All of the information about your reading and how you have been finding school will be kept by me and it will not have your name on it. If you have any questions about the study please ask me.

Appendix 24: Information sheet for the peer participants



University of Nottingham
School of Psychology

Information Sheet for Peers

Researcher: Stephanie Fry

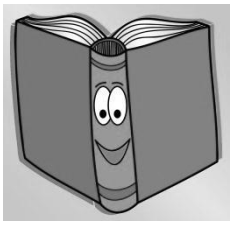
Contact details: lpxsf1@XXXXX XXXXX XXXXX (XXX Educational Psychology Service)

This is an invitation to take part in a study that is looking at a reading programme called paired reading. In this programme you would read with another child in your school that is younger than you and needs some help. You would read together three times each week and they would choose the books that they wanted to read with you. This would last for about five weeks. Then you would meet up with your reading partner three times each week and you would talk and do different activities. This would last for about three weeks.

A member of staff from your school will be able to help you with the paired reading programme and will be able to answer any questions that you have when I am not there.

You do not have to take part in this study. If you do take part you can ask to stop at any time. If you have any questions about the study please ask me.

Appendix 25: Information sheet for the pilot participants



University of Nottingham
School of Psychology

Pilot Study Information Sheet for Participants

Researcher: Stephanie Fry

Contact details: lpxsf1@XXXXXX XXXXX XXXXX (XXX Educational Psychology Service)

This is an invitation to take part in a study that is looking at a reading programme called paired reading. I am going to be looking at how good this programme is at help children to read. To help me to decide how I am going to measure this you will be asked to do two tasks for me. One of them will be to read from a book for three minutes. I will count how many words you read and how many words you get right. I will then asked you to rate some statements such as "This week I think I have got on well with people at my school". In total this will last about thirty minutes and you will only do it once.

Your answers to the questions and your reading information will be kept by me and used to decide whether these measures will be good for my study. Your name will not be on any of your results.

You do not have to take part in this study. If you do take part you can ask to stop at any time. If you have any questions about the study please ask me.

Appendix 26: Consent form for all participants

Consent Form

Researcher: Stephanie Fry

University of Nottingham – School of Psychology

The participant should complete the whole of this sheet himself/herself. Please cross out as necessary.

Have you had the information sheet read to you and do you understand it? YES/NO

Have you had chance to ask questions and talk about the project? YES/NO

Have all of your questions been answered? YES/NO

Have you had enough information about the project? YES/NO

Do you understand that you can leave the project

- at any time YES/NO
- without having to give a reason YES/NO

Do you want to take part? YES/NO

"This study has been explained to me and I agree to take part. I understand that I am free to leave the study at any time."

Signature of the participant: Date:

Name (in block capitals)

I have explained the study to the above participant and they have agreed to take part.

Signature of researcher: Date:

Appendix 27: Debriefing information for focus participants

The University of Nottingham

Debrief

Researcher: Stephanie Fry

University of Nottingham – School of Psychology

This study was done to look at whether paired reading with another child helped you to become a quicker reader and make less mistakes. The reading that you did every week with me will be used to measure if your reading got quicker and if you read more words right.

The study also looked at whether paired reading with another child helped you to feel happy in school and a part of your school. The answers to the questions that I asked you each week will be used to measure if you did feel more part of your school when you did paired reading.

The reading information and answers you gave me will now be used to write up my study. Please remember that this information will be kept by me and it will not have your name on it. If you decide you do not want your information to be part of the study anymore you can contact me and I will take it out.

Thank you for being a part of my study. If you have any questions about the study or if you want to talk about your reading please ask me.

Contact Stephanie by telephone: XXXXX XXX XXX

Contact Stephanie by email: lpxsf1@XXXXXXXX

Appendix 28: Debrief information for peer participants

The University of Nottingham

Debrief

Researcher: Stephanie Fry

University of Nottingham – School of Psychology

This study was done to look at whether the paired reading you did with another child helped them to become a quicker reader and make less mistakes. The study also looked at whether paired reading helped them to feel happy in school and a part of your school.

I have not collected any information about you. Your role in the research was to help me by doing paired reading with another child.

Thank you for helping me with my study. If you have any questions about the study or if you want to talk about your reading please ask me.

Contact Stephanie by telephone: XXXXX XXX XXX

Contact Stephanie by email: lpxsf1@XXXXX

Appendix 29: Raw data table for Matthew

Baseline Phase					
Measure	**Fluency** (Words Read in Three Minutes)	No. of Errors (Three Minutes)	No. of Words Correct (Three Minutes)	**Percentage Accuracy** (Three Minutes) *rounded to nearest %	**School Connectedness Ratings**
1	**97**	13	84	**87%**	35
2	**100**	11	89	**89%**	38
3	**108**	13	95	**88%**	39
4	**100**	13	87	**87%**	39
Intervention Phase					
1	**102**	13	89	**87%**	40
2	**94**	9	85	**90%**	33
3	**100**	8	92	**92%**	36
4	**118**	6	112	**95%**	40
5	**110**	5	105	**95%**	35
C Phase					
1	**114**	8	106	**93%**	40
2	**98**	14	84	**86%**	39
3	**97**	15	82	**85%**	40

Appendix 30: Raw data table for Mike

Baseline Phase					
Measure	**Fluency** (Words Read in Three Minutes)	No. of Errors (Three Minutes)	No. of Words Correct (Three Minutes)	**Percentage Accuracy** (Three Minutes) *rounded to nearest %	**School Connectedness Ratings**
1	**49**	20	29	**59%**	29
2	**77**	23	54	**70%**	14
3	**76**	29	47	**62%**	20
4	**127**	39	88	**69%**	37
Intervention Phase					
1	**147**	34	113	**77%**	40
2	**90**	23	67	**74%**	40
3	**117**	31	86	**74%**	19
4	**59**	26	33	**56%**	40
5	**164**	26	138	**84%**	40
C Phase					
1	**110**	37	73	**66%**	40
2	**118**	42	76	**64%**	23
3	**114**	30	84	**74%***	40

*This book was about a familiar topic that Mike knew a lot of the sight vocabulary for

Appendix 31: Raw data table for Sarah

Baseline Phase					
Measure	**Fluency** (Words Read in Three Minutes)	No. of Errors (Three Minutes)	No. of Words Correct (Three Minutes)	**Percentage Accuracy** (Three Minutes) *rounded to nearest %	**School Connectedness Ratings**
1	**62**	13	49	**79%**	33
2	**61**	7	54	**89%**	39
3	**85**	9	76	**89%**	39
4	**87**	8	79	**91%**	39
Intervention Phase					
1	**84**	11	73	**87%**	40
2	**71**	11	60	**85%**	39
3	**76**	9	67	**88%**	39
4	Pupil absent this week				
5	**59**	8	51	**86%**	39
C Phase					
1	**95**	6	89	**94%**	40
2	**90**	12	78	**87%**	40
3	**97**	16	81	**84%**	40

Appendix 32: Raw data table for Claire

Baseline Phase					
Measure	**Fluency** (Words Read in Three Minutes)	No. of Errors (Three Minutes)	No. of Words Correct (Three Minutes)	**Percentage Accuracy** (Three Minutes) *rounded to nearest %	**School Connectedness Ratings**
1	**171**	17	154	**90%**	32
2	**188**	18	170	**90%**	32
3	**190**	19	171	**90%**	30
Intervention Phase					
1	**194**	15	179	**92%**	33
2	**203**	15	188	**93%**	33
3	**193**	5	188	**97%**	33
4	**214**	15	199	**93%**	29
5	**189**	5	184	**97%**	31
6	**179**	6	173	**97%**	34
C Phase					
1	**186**	7	179	**96%**	32
2	**192**	6	186	**97%**	35
3	**150**	10	140	**93%**	37

Appendix 33: Raw data table for Andrew

Baseline Phase					
Measure	**Fluency** (Words Read in Three Minutes)	No. of Errors (Three Minutes)	No. of Words Correct (Three Minutes)	**Percentage Accuracy** (Three Minutes) *rounded to nearest %	**School Connectedness Ratings**
1	**149**	10	139	**93%**	20
2	**156**	12	144	**92%**	40
3	**155**	10	145	**94%**	23
4	**157**	8	149	**95%**	40
Intervention Phase					
1	**137**	9	128	**93%**	40
2	**138**	2	136	**99%**	40
3	**227**	5	222	**98%**	36
4	**180**	2	178	**99%**	30
5	**202**	4	198	**98%**	40
C Phase					
1	Participant withdrawn from study – no data collected				

Appendix 34: A summary of the data from the treatment integrity checks

Paired Reading Element	Number of times observed for each participant (max = 3)					Total number of observations (max = 15)
	Matthew	Mike	Sarah	Claire	Andrew	
The child has chosen the book	3	3	3	3	3	15
Peer and child discuss the book beforehand	3	3	3	3	3	15
Peer reads at a pace set by the child	3	3	3	2	3	14
Peer says words correctly if child makes an error and child repeats	3	3	3	3	3	15
Peer waits 4 seconds before saying the word the child is finding difficult	2	2	3	2	3	12
Peer praises child's correct reading of a difficult word	3	3	3	1	2	12
Peer praises child for self-correction	1	0	3	0	2	6
Peer praises child for choosing to read independently	3	2	3	0	3	11
The pair return to reading together if child makes a mistake reading independently	3	2	3	3	3	14
Peer and child discuss the book when they have finished reading	3	3	3	3	3	15

Appendix 35: Summary of the inter-rater ratings for the SCED graphs

Participant	Research Question	Author's Rating		Second Observer's Rating	
		I.Phase	C.Phase	I.Phase	C.Phase
Matthew	Reading Accuracy	4	4	4	4
	Reading Fluency	2	3	2	2
	School Connectedness	2	4	2	3
Mike	Reading Accuracy	4	4	4	3
	Reading Fluency	2	2	2	2
	School Connectedness	5	1	4	1
Sarah	Reading Accuracy	1	2	1	1
	Reading Fluency	1	3	1	3
	School Connectedness	1	3	2	3
Claire	Reading Accuracy	4	2	3	1
	Reading Fluency	2	3	2	3
	School Connectedness	3	4	3	3
Andrew	Reading Accuracy	4	-	4	-
	Reading Fluency	3	-	3	-
	School Connectedness	2	-	1	-

Appendix 36: Process for Cohen's Kappa

'Confusion Matrix' (to show where ratings agreed and disagreed)

		Rater A (Author)					
Rater B		**1**	**2**	**3**	**4**	**5**	**Row Total**
	1	3 (0.89)	3	0	0	0	**6**
	2	1	5 (2.07)	1	0	0	**7**
	3	0	0	5 (2.00)	4	0	**9**
	4	0	0	0	4 (1.48)	1	**5**
	5	0	0	0	0	0 (0)	**0**
	Column Total	**4**	**8**	**6**	**8**	**1**	**27**

Total agreements = 17 (63%)

Expected frequencies of agreement by chance = 6.44

Kappa with Linear Weighting			
		.95 Confidence Interval	
Observed Kappa	Standard Error	Lower Limit	Upper Limit
0.7	0.0733	0.5563	0.8437

Total Agreement observed 70% of the time

Statistical analysis performed using MedCalc for Windows (Software, 2014).

Appendix 37: Total data from the pre and post Strengths and Difficulties Questionnaires

Participant	Pre-Intervention Scale Scores						Post-Intervention Scale Scores					
	Emotional	Conduct Problems	Hyperactivity	**Peer Problems**	**Pro-social**	Total Difficulties	Emotional	Conduct Problems	Hyperactivity	**Peer Problems**	**Prosocial**	Total Difficulties
Matthew	1	5 (A)	6 (B)	**4 (B)**	**6**	16 (A)	1	6 (A)	8 (A)	**3**	**6**	18 (A)
Mike	6 (A)	0	1	**1**	**8**	8	5	0	0	**1**	**10**	6
Sarah	1	0	5	**1**	**8**	7	1	0	1	**2**	**7**	4
Claire	3	0	4	**2**	**6**	9	1	0	1	**0**	**8**	2
Andrew*	4	8 (A)	10 (A)	**5 (A)**	**6**	27 (A)	7 (A)	7 (A)	7 (A)	**6 (A)**	**2 (A)**	27 (A)

A = abnormal range B = borderline range (as defined in SDQ)

Appendix 38: A copy of the TA comments noted by the author

Matthew and Mike's TA

- It's given both boys a boost of confidence, they've really enjoyed it and they'll read anything now. Both have blossomed.
- Both of them go and talk to [their peers] in the playground. Their relationships have evolved.
- I think they get a lot out of it instead of having to stop and start working out words. They get to read virtually a whole book every time.
- It's exceeded expectations and I definitely want it to continue.
- It has given him [Matthew] such a boost to his confidence. He didn't use to tap so much at the start but now he taps a lot more because he wants to read independently. He will read anything now, even if he struggles with it.
- They see this as an activity. You can see them relax more working with [their peers]. They definitely don't feel as pressured with them.

Sarah's TA

- She said she has learnt hard words now. She doesn't seem as restricted by some books as she was at first.
- The non-verbal feedback has worked very well with her. She's told me she can read any book now; it doesn't matter if she doesn't know the words. It's definitely been good for the confidence and self-esteem side of things
- I think the four second pause is a bit limiting. I think she might've worked more words out phonetically if she had longer.
- It does take a bit of planning, making sure they are both in school and free at the same times to do it.

Claire's TA

- The girls have a really good partnership and they've had fun.
- She definitely seems more confident in what she is doing. She's said she'd enjoyed it.
- It's been a very positive process. I think you can do the phonic side of it at other times. This doesn't come across as a learning process.
- The children enjoyed reading together. It was not a mechanical process like you sometimes see when they read with adults. I think children will want to read more using this approach. It is more of a social activity and they learn better when they are enjoying it

Andrew's TA

- Peer was very calming. He was respectful of her and so she was a good choice
- I think it helps develop social skills with other children, like listening and taking turns. I think this is the kind of thing that would carry on into the classroom.
- I think it takes longer to get confident with adults as it does with other children