

Reading Recovery: investigating differential effects on the literacy development of young children for whom English is an additional language in comparison with their native speaking peers.

Charlotte M. Clancy
St. Edmund Hall



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For Vonníe

Le grá i gcónaí

Abstract

This thesis studied young, struggling readers, all of whom had participated in the Reading Recovery literacy intervention, and investigated whether differential progress was made by children learning English as an additional language when compared with their native, English-speaking peers. The children were assessed on a pre- and post-test basis on literacy measures associated with reading comprehension in a UK context.

Following a Pilot Phase, 52 children who were learning English as an additional language, and 48 native, English-speaking children were recruited from twenty-three primary schools in 8 local authorities across the UK. The children were administered standardised literacy measures, including the British Abilities Scale (BAS) single word reading test, the British Picture Vocabulary Scales (BPVS) vocabulary knowledge test, the Phonological Assessment Battery (PHAB) pseudo-word reading test, and two reading comprehension measures: the Wechsler Individual Achievement Test (WIAT) and the York Assessment of Reading for Comprehension (YARC). Statistical analyses were conducted on the data and the results indicated that differential progress was made by the groups, after initial levels of decoding or vocabulary were covaried.

The first research question investigated the differential progress made by the two groups, and over the course of the intervention, the EAL children made more progress after controlling for initial skills at entry. After controlling for initial vocabulary levels, the EAL group made more gains than their NS peers, as measured by the BAS single word reading assessment. The second research question examined differential predictors of reading comprehension, and multiple regression analyses showed that vocabulary was a stronger predictor for EAL learners, whereas decoding was found to be a stronger predictor for NS learners. The findings suggest that it is important to develop the vocabulary abilities of EAL learners, as the relationship between vocabulary knowledge and reading comprehension acquisition was found to be stronger for this group than for the NS group. The findings also suggest that NS children's decoding abilities must be supported, as the relationship between single word reading and the acquisition of reading comprehension was found to be stronger for this group than for the EAL group.

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List of Abbreviations

- BAS..... British Ability Scales (Elliott et al., 1997)
- BAS-R..... British Ability Scale Revised (Elliott et al., 1979)
- BPVS..... British Picture Vocabulary Scale (Dunn et al., 1997)
- CELF-4.....Clinical Evaluation of Language Fundamentals (Semel et al., 2003)
- CPST.....Combined Phoneme Segmentation Task
- CRB..... Enhanced Disclosure Criminal Record Bureau check
- CTOPP.....Comprehensive Test of Phonological Processing (Wagner et al., 1999)
- CUREC..... Central University Research Ethics Committee
- DfE..... Department for Children, Schools and Families
- DIBELS....Dynamic Indicators of Basic Early Literacy Skills
- EAL..... .English as an additional language
- EOWPVT...Expressive One-Word Picture Vocabulary Test (Brownell, 2000b)
- EWR.....Early Word Recognition (Hatcher et al., 1994)
- FSM..... Free school meal
- ISF.....Initial Sounds Fluency
- LCTS.....Listening Comprehension Test Series (Hagues et al., 1999)
- NARA-R....Neale Analysis of Reading Ability - Revised (Neale, 1997)
- OS.....Observation Survey
- NS..... Native speaking
- NWF.....Non-word Fluency
- PHAB..... Phonological Assessment Battery (Frederickson et al., 1997)
- PPVT-4.....Peabody Picture Vocabulary Test (Dunn and Dunn, 2006)

- PSF.....Phoneme Segmentation Fluency
- RAK..... Roaming Around the Known
- RDT.....Reading Decision Test (Baddeley et al., 2003)
- ROWPVT...Receptive One-Word Picture Vocabulary Test (Brownell, 2000a)
- RR..... Reading Recovery
- RRT.....Reading Recovery Teacher
- RRTL..... Reading Recovery Teacher Leader
- SENCO.....Special Educational Needs Coordinator
- SORT-R.....Slosson Oral Reading Test – Revised (Slosson and Nicholson, 1990)
- WAIS..... Wechsler Adult Intelligence Scale (Wechsler, 1997)
- WASI..... Wechsler Abbreviated Scale of Intelligence (Wechsler, 1999)
- WIAT..... Wechsler Individual Achievement Test (Wechsler, 2006)
- WISC-III... Wechsler Intelligence Scale for Children (Wechsler, 1991)
- WPPSI-R.....Wechsler Preschool and Primary Scale of Intelligence (Wechsler, 1989)
- WRAPS.....Word Recognition Phonic Skills Test (Moseley, 2003)
- WRAT3.....Wide Range Achievement Test (Wilkinson, 1993)
- WRMT-R...Woodcock Reading Mastery Tests - Revisited (Woodcock, 1998)
- YARC..... York Assessment of Reading

Chapter 1 – Introduction

1.1 Background and rationale to the study

Literacy skills, including the ability to comprehend text, pose difficulties for some children.

Indeed, in the National Statistics report (DfE, December 2013) issued by the Department for Education, 11 % of pupils did not reach the expected reading standard at the end of Key Stage 1.

It is widely thought that poor literacy skills in the early stages of children's education have a detrimental effect on later academic achievement (Cunningham and Stanovich 1997, 2001).

Achieving good literacy skills is especially challenging for children for whom English is an additional language (EAL), who are being instructed in English-speaking primary schools where the medium of instruction is English.

Previous research in the UK has focused mostly on the factors which are associated with native speaking (NS) children's reading development and, whilst there are some studies which have investigated these issues in relation to the EAL learner (Burgoyne, Whiteley and Hutchinson, 2010; Burgoyne, Kelly, Whiteley and Spooner, 2009; Hutchinson, Whiteley, Smith and Connors, 2003) much less is known about the factors that influence the reading comprehension and development of EAL children, and the ways they respond to English instruction. There is a burgeoning field of research into the skills underlying successful reading, especially reading comprehension, in EAL children and several studies have established that NS children and EAL children approach reading in different ways (Lesaux, Crosson, Kieffer and Pierce, 2010; Lervåg and Grøver Aukrust, 2010; Murphy, 2014). The work in this thesis has focused on EAL and native speaking children participating in a well known remedial literacy intervention programme, *Reading Recovery* (RR).

The RR intervention is a successful early literacy programme which was developed in the late 1970s in New Zealand by Dame Marie Clay. RR has since been widely implemented in many countries, including New Zealand, Australia, the United States of America, Ireland and the United Kingdom. Indeed, the Reading Recovery annual technical report for the UK and Republic of Ireland showed that, during the period 2012-2013, more than 12,500 children participated in RR, and 84% of these children completed the programme successfully. It aims to assist the lowest-achieving pupils to make accelerated rates of progress, enabling them to perform independently on classroom literacy activities at an average reading level for their class. This is achieved through an intensive programme of daily, one-to-one tuition, lasting for approximately thirty minutes, which is delivered by a specially trained RR teacher. The child engages in a variety of tasks which aim to develop his/her understanding of printed text; make the child aware of the relationship between phonemes, orthography and, ultimately, word meaning; and to teach and improve strategies that the child uses to acquire information and understanding from written text (Clay, 1985, 2002; Pinnell, 1989).

The programme is recognised as being effective for monolingual English children, with many studies reporting its success in improving reading scores (Clay, 1985; Ashdown and Simic, 2000; Hurry, 2012; Burroughs-Lange and Douëtil, 2006, 2007; Schwartz, Hobsbaum, Briggs and Scull, 2009; Slavin, Lake, Madden and Davis, 2009; Schwartz, Schmitt and Lose, 2012; Wright, 1992; Wasik and Slavin, 1993; Burroughs-Lange, 2006, 2008; Hurry and Sylva, 2007; Hobsbaum, 1995; Clay, 1993b; and Paige-Smith and Soler, 2004). The appropriateness of the RR programme for use with EAL children has been questioned, with some claims (cited in Kelly, Gómez-Bellengé, Chen and Schulz, 2008) that these children are unlikely to complete the programme (i.e. to be successfully ‘discontinued’) and be able to carry out literacy tasks independently at an ‘average reading level for their class’ (Clay, 1991). However, research conducted by Kelly et al. (2008) found that RR was a successful means by which EAL children achieved average *‘grade-level*

performance' (Kelly et al., 2008:235) in literacy skills. Kelly's research was carried out in American primary schools, and subsequent studies by Clancy (2009, 2010) reported findings from a UK context, which supported Kelly's conclusions that RR was an appropriate and effective way of helping EAL learners achieve reading success.

There is a conspicuous lack of literature on the above issues, and in spite of the fact that a significant amount of research in first language learning has established that early intervention is an effective means of bringing struggling readers up to the national average for their age group, (Clay, 2002; Wasik and Slavin, 1993; Klenk and Kibby, 2000; Hurry and Sylva, 2007) there is currently neither UK, nor international, research which has focused on the (differential) effects of the Reading Recovery programme on the literacy development of young EAL children, in comparison with their native speaking peers. Reports from the Office for Standards in Education (OFSTED) have claimed that literacy performance in primary schools in the UK is an area which requires improvement, particularly where there are high numbers of children who have free school meals status combined with EAL backgrounds. These are typically inner-city primary schools which often have larger than national average numbers of children from many diverse ethnic backgrounds. The study presented in this thesis investigates the progress made by EAL children in comparison to their NS peers, and it is hoped that the results might pave the way for improvements in the RR programme, and add to the literature on reading in EAL children.

1.2 Definition of terms

In the UK, a pupil who does not speak English as their first or native language, but who is being instructed at school through the medium of English, is normally referred to as an English as an Additional Language learner (EAL). In other parts of the world, for example North America and

Australia, these learners are often referred to as English as a Second Language (ESL), English Language Learner (ELL), and English as an Additional Language or Dialect (EAL/D). This thesis examines a number of North American and Australian studies. For consistency in this thesis, the term EAL is used when referring to these pupils who do not speak English as their first or native language, but who are being educated in English, whether they are reported in UK, North American or Australian studies. The term NS is used in this thesis when referring to children who are native English speakers.

1.3 Background statistics on reading performance in EAL learners

The National Association for Language Development in the Curriculum (NALDIC) has compiled data from the Pupil Level Annual School Census (PLASC) showing that the percentage of primary school aged children in the UK whose first language is not English has risen steadily over recent years. It reports that in 2003, the figure was 10.4% ($N = 362,690$), in 2008, 14.4% ($N = 470,080$) and in 2013, 18.1% ($N = 612,160$, or every 1 in 6) primary school aged children did not speak English as their first language (NALDIC, 2013). The School Census published by the Department for Education (DfE) in January 2012 indicated that there are more than 360 languages which are spoken by one million pupils in UK schools. Furthermore, 18 languages were being spoken by more than 10,000 pupils (NALDIC, 2013). The most highly represented non-English languages were, Punjabi (1.7%), Urdu (1.6%) and Bengali (1.3%) (NALDIC, 2013).

The Census also reports that in 2013 a lower percentage of EAL/bilingual children achieved the expected attainment Level 2 in their reading assessments at the end of Key Stage 1, in comparison with their NS peers (NALDIC, 2013). However, this attainment gap has narrowed over recent years, with the percentage difference in 2013 being reported as 3%, compared with a 7% gap between the children in 2008 (NALDIC, 2013).

In 2012, an assessment was introduced into UK primary schools to determine the phonics decoding ability of 6-year-old pupils, who are in Year 1 of their schooling. The assessment requires the children to phonetically decode 40 words. In order for a child to meet the required standard of phonic decoding ability, they must correctly read 32/40 words. The results indicate that the scores for NS and EAL pupils were comparable, with both groups achieving 69% in the assessment, and able to correctly read 32+/40 words (NALDIC, 2013).

These figures provide some valuable information on the current profile of EAL and NS primary school aged children. However, these data all highlight the fact that it is crucial to gain a better understanding than previous studies have provided, of the reading development of primary school aged EAL children in the UK who are not meeting the expected national standard for their age.

The value of the current study is that it provides an empirical contribution to the theoretical issues outlined, based on data from children who received RR in 8 local authorities (LA) across England.

1.4 Structure of the thesis

This introductory chapter provides an outline of the rationale for the study and definitions for the main terms that are used. The chapter also provides some background statistics which describe England's current EAL children's literacy and reading scores on national tests. An overview of the chapters in this thesis is also given.

The aim of this research was to investigate whether, and in what ways, language background affects the progress made on literacy measures, especially comprehension, by EAL children in comparison with their NS peers, all of whom participated in the RR intervention. The

study comprises two phases: the first is the Pilot Study, where the standardised assessments were trialled for appropriateness with a sample of EAL children who had been selected by their schools for the RR intervention. The second phase is the Main Study, in which the measures were administered pre- and post-test in term time to 100 children (EAL, $N = 52$ and NS, $N = 48$), in order to investigate the contribution of language background to the progress made on literacy skills over time. A second aim was to describe the predictive relationships between pre-test literacy scores and comprehension performance for the two groups of learners at post-test.

Chapter 2 contains an overview of research which has investigated the RR intervention, and reading ability in EAL children, including some of the literacy constructs which have been well established as predicting reading comprehension. This chapter also reports the theoretical framework underpinning the study.

Chapter 3 reports the aims, research questions, and a detailed account of the sampling and methodological approach adopted in the Pilot and Main phases of the study.

Chapter 4 describes the statistical analyses that were conducted to answer the study's two research questions, and presents the results from these analyses. It also includes a post-hoc question on differential progress in EAL and NS learners on vocabulary.

Chapter 5 discusses the study's main findings in relation to the research literature outlined in Chapter 2. The study's strengths and limitations are also discussed, some implications for the RR intervention and pedagogy are presented, and suggestions for future research are also proposed.

Chapter 2 – Review of literature

2.1 Introduction

There is an extensive literature on the factors associated with reading success for native speaking children. Paradoxically, much less is known about the linguistic components that influence the literacy development and acquisition of reading comprehension of children learning EAL. As previous studies have established that these two groups of children approach reading in different ways, this study focuses on children participating in a well known early remedial literacy intervention programme, *Reading Recovery* (RR). The programme is referred to as ‘remedial’ over ‘preventative’ as the children participating in RR are those who have demonstrated difficulties in learning to read after one year’s formal instruction at school.

This literature review outlines the Reading Recovery intervention and the aims of the programme, and provides a discussion on the Observation Survey (OS), the sole instrument used in the programme to select and assess participating children. The review then presents evidence reporting its impact on literacy attainment. A discussion of the success and criticism of the programme is then presented, with consideration given to the long-term effectiveness of RR. The review also provides an overview of the use of RR with EAL learners, with respect to its ability to help EAL children achieve similar gains made by their NS peers. This review then discusses the Simple View of Reading, the theoretical foundation for this study. Following this, the review will present an overview of the reading development of EAL children, and some of the literacy constructs which research has shown to be associated with reading success, namely: a) reading comprehension, b) word reading accuracy, c) phonological skill, and d) vocabulary knowledge.

2.2 Reading Recovery: An overview

The RR programme has been implemented throughout the English-speaking world, and as it is a standardised intervention, all trained teachers are required to adhere to a specific structure and format of delivery. The RRTs will have been trained in its administration over the course of one academic school year, and spent approximately 75 hours working directly with children participating in RR. Typically, the child will spend approximately 20 weeks in the programme, participating in daily, 30-minute sessions on a one-to-one basis with the RRT, until the child is either '*referred*' with a recommendation for further support, or is successfully '*discontinued*' and can function at an average reading level for their age without the class teacher's support (Clay, 1993b). The child must therefore demonstrate that they can pass graded book levels in order for them to be successfully discontinued from the programme.

The aim of the RR intervention is to help the lowest-attaining readers to read independently at an average reading level for their particular class. This is achieved through an intensive course of tuition on literacy-related tasks, which place an emphasis on reading and writing comprehension (Clay, 2002). To that end, the literacy activities incorporate both bottom up processing (for example, recognising individual letter sounds and single words) and top down processing strategies, whereby the child interprets the items encountered accurately by using larger units of the language to infer and construct meaning from the text (Field, 2004). Table 2.1 provides an outline of a typical RR tutorial :

Table 2.1 – Typical RR tutorial

Construct	Content description
Literacy activities	<u>Reading</u> Independent reading aloud of familiar and new books
	<u>Letter work</u> Focusing on difficulties observed during the reading exercises. Aims to improve the child's letter knowledge and word comprehension
	<u>Written statement</u> Focusing on spelling and sentence forming
	<u>Cut-up word cards - assembling the written statement</u> Focusing on sentence construction – from single syllables to words in the child's mind
Speech activities	<u>Short conversation with RRT</u> Focusing on speech skills required to interact confidently in everyday life

Throughout the class, the RRT observes which strategies the child utilises in order to decode the text, and will also check to see if the child is monitoring his/her own reading and duly self-correcting errors (Clay, 2002). The progress of the children is monitored and recorded using the RR's own diagnostic assessments from the Observation Survey (OS), which are administered at

the child's entry and exit time points. The RRT will also detail the child's progression in a *Running Record* booklet for additional reference.

The children who are recruited to the RR intervention are those who have been identified as having a reading ability level which falls in the bottom 20% of their class. Inevitably, there will be a percentage of children who are learning EAL who fall within this percentile.

2.2.1 The Observation Survey of Early Literacy Achievement

The Observation Survey (OS; Clay, 2002) is the sole screening and diagnostic assessment instrument used in RR. The OS is available in several other languages (Rodriguez, Hobsbaum and Bourque, 2003) and such is its influence, that it is also adopted by practitioners and researchers who work outside of the RR programme, for use in measuring young children's reading ability and understanding of literacy-related constructs, so they can record progress at different time points.

Clay (2002) outlines three fundamental purposes of the OS. Firstly, that the OS may be used as a form of *screening*, particularly with children identified as candidates for literacy interventions such as RR. As Clay states, children begin primary education with varying levels of ability and knowledge of reading, and it is possible for the children's strengths and weaknesses to be detected through the use of *systematic observation tasks*, such as those incorporated in the OS (Clay, 2002:11). The OS assists practitioners in identifying those children who find it difficult to acquire reading skills and who would benefit from additional support (Clay, 2002:2).

The second purpose of the OS is that it can be used to *inform instruction* (Clay, 2002:13). Clay explains that, by its very nature, the OS provides a diagnostic evaluation of how a child is attending to '*...the complexities of the written language*' through completion of the tasks (Clay, 2002:13). This evaluation enables teachers to provide tailored activities in the reading tutorials,

based on the needs of the individual child – a feature which has been established as a major strength of the RR intervention programme (Clay and Cazden, 1990; Hobsbaum, Peters and Sylva, 1996; McDowall, Boyd, Hodgen and van Vliet, 2005; Clay, 1979; Pinnell, Lyons, DeFord, Bryck and Seltzer, 1994).

The third main purpose of the OS is that it can be used to measure a child's progress over time. Clay states that, if the tasks are administered on a repeated-measures basis, evidence of the child's literacy development can be obtained (Clay, 2002:3). Thus, when used in RR, the entry and exit results provide an indication of the overall effectiveness of the intervention for each child.

The assessments in the OS are designed to be used in conjunction with each other, in order to provide a detailed diagnostic evaluation of a child's literacy understanding. This is achieved by identifying the error behaviour demonstrated by the child and therefore establishing the child's current literacy foundation. As mentioned in Chapter 1, RRTs document the child's reading accuracy, patterns of error behaviour, self-correction and strategies in a Running Record during every tutorial to help plot the child's progress over time.

The above overview draws attention to important features of the OS. It must be noted however, that although the OS has been widely implemented by not only those working within RR, but also by practitioners involved in the literacy development of young learners, the OS tests constructs inherent to the content and teaching of the programme itself (Slavin, Lake, Davis and Madden, 2010). This has been evidenced through results producing very high effect sizes (Slavin, Lake, Davis and Madden, 2010:6). Thus, there is a need for research to measure children's literacy progress using additional standardised assessments. This study contributes to the literature by using such assessments, particularly the reading comprehension measures, in its investigation.

2.2.2 Attainment and closing the achievement gap

Figures included in the Evaluation of Every Child a Reader (ECaR; 2011) report from the Department for Education (DfE) indicated that the impact of Reading Recovery was very positive, with 26 percentage points on children attaining Level 1 or higher on reading tests at the end of Year 1. The evaluation also reports that 52% of the RR tutees had a reading level at or above the expected level for their age.

Recent evaluations of RR found that the intervention was effective in not only helping children achieve accelerated progress in reading, but also that children were able to sustain their literacy gains post-intervention (Monitoring report, European Centre for Reading Recovery, 2012-2013; Burroughs-Lange and Douët, 2007; Burroughs-Lange, 2008; Hurry, 2012; Holliman and Hurry, 2013; Pinnell, Lyons, DeFord, Bryk and Seltzer, 1994; Ruhe and Moore, 2005; Schmitt and Gregory, 2005; Escamilla, Loera, Ruiz and Rodríguez, 1998; Brown, Denton, Kelly and Neal, 1999; Askew, Kaye, Frasier, Mobasher, Anderson and Rodríguez, 2002).

Indeed, the latest available Monitoring report of Reading Recovery in the UK and the Republic of Ireland (European Centre for Reading Recovery, 2012-2013) reports on the impact of the intervention on achievement of participating children at the end of Key Stage 1 and Key Stage 2, and on the ability of RR to help close the achievement gap. The report summarised that for the academic year 2012-2013, approximately 12,500 children participated in the intervention. The report also stated that, of these participants, more than five out of six children who were successfully discontinued from RR, attained age-appropriate levels of reading ability (Monitoring report, European Centre for Reading Recovery, 2012-2013).

The report outlined that at the end of Key Stage 1, nine out of ten children who had made accelerated progress on the intervention programme subsequently went on to achieve level 2 or above in reading, and three quarters of the children did so in their writing assessments (Monitoring report, European Centre for Reading Recovery, 2012-2013). The report also

outlined that children who had been identified as in need of the early intervention at age 6, were the children most likely to fail to attain a level 3 in their Key Stage 2 assessments at age 11. However, the report detailed that, of the 1,218 RR pupils, 94% of the children achieved a level 3 or above in their reading assessments, and 74% attained a level 4 or above (Monitoring report, European Centre for Reading Recovery, 2012-2013).

The report also detailed the great success of the RR intervention in reducing the achievement gap between the RR pupils and their peers. Indeed, the report outlined that for the academic year 2012-2013, 48% of the RR cohort were from economically disadvantaged backgrounds (compared with 21% nationally) and that of these children, ‘...83% *reached the age-related expectancy for literacy, alongside 85% of their peers...*’. Furthermore, the report also stated that at age 11, the achievement gap between the former RR pupils and their more economically advantaged peers remained small, ‘...*with a difference of just 4% at level 4 in both reading and writing...*’ (Monitoring report, European Centre for Reading Recovery, 2012-2013).

A further benefit of the RR intervention was that, having participated in the programme, 1,558 children could be removed from the Special Educational Needs register. The 2012-2013 report also summarised that the children who participated in RR had made significant amounts of progress, moving from level 1 to reaching national benchmarks for their age. The report also stated that the children made, on average, a reading age gain of 21 months over the course of the programme (Monitoring report, European Centre for Reading Recovery, 2012-2013).

The positive effects of the RR intervention on the most at-risk and socially disadvantaged children were also reported in an evaluation by Burroughs-Lange and Douëttil (2007). The study evaluated the impact of RR on children’s literacy progress, in comparison with children attending similarly disadvantaged urban schools which implemented other interventions. Burroughs-Lange and Douëttil (2007) reported that the children were compared on reading,

writing and knowledge of phonics, and that all children had literacy levels lower than that of age 5 years at the start of the study (Burroughs-Lange and Douëtil, 2007).

The results from the study found that the children who had participated in RR made significant gains across all the assessments, when compared with the children who had not received RR. Furthermore, it was reported in the study that the children who were discontinued from RR gained an average of 20 months word reading age (the equivalent to 14 book levels, as measured by RR) and had an average reading age of 6 years and 7 months, which was in line with their chronological age. Following completion of the alternative literacy interventions offered by their schools, the comparison sample were 14 months reading age behind, with an average reading age of 5 years and 5 months. The researchers also reported the positive effect that the RR intervention had made on the children's working habits, social skills and learning attitudes (Burroughs-Lange and Douëtil, 2007).

2.2.3 The effects of RR on literacy improvement

The effectiveness of RR has been widely investigated, with topics ranging from the success of the teacher-pupil ratio, the expertise of specially trained teachers, the use of 'scaffolding' in the RR tutorials, and which literacy skills are developed over the course of the RR intervention.

2.2.3.1 Teacher – pupil ratio

A number of studies have investigated the effect of teacher-pupil ratio in literacy interventions on children's reading improvement, comparing one-to-one tuition with small group instruction (Slavin, Lake, Davis and Madden, 2010; Schwartz, Schmitt and Lose, 2012; Pinnell, Lyons, DeFord, Bryk and Seltzer, 1994). Indeed, in a review of studies by Slavin et al. (2010), the effectiveness of alternative approaches was examined by evaluating the literacy achievement

outcomes of young struggling readers. The programmes examined included, 1:1 tutoring and small group tutoring approaches; classroom tutoring approaches, and instructional technology. The researchers included 96 studies, all of which had to meet the following selection criteria: an RCT or well-matched control group design; the study had a duration of at least 12 weeks, and that outcomes were assessed using standardised measures or state tests.

Slavin's (2010) evaluation reported that 1:1 tutoring, delivered by professionals with specialised teaching expertise, was found to be very effective in improving the reading outcomes of struggling readers. From their evaluation of the 19 qualifying 1:1 tutoring programmes, the overall weighted mean effect size was +0.38. However, results from the eight qualifying RR studies included in the review showed that the weighted mean effect size was lower, at +0.23. The researchers suggested that this lower effect size could be attributed to the earlier version of the RR programme which had been adopted in the qualifying studies included in the review. Furthermore, they suggest that an improvement in the current form of RR has been made, as greater emphasis is now placed on developing phonological awareness and decoding skills (Slavin et al., 2010:7). Indeed, Slavin et al. report that the only qualifying RR study that included the revised version of the intervention showed '*...substantial positive effects...*' on children's reading ability. The review also reported that other 1:1 tutoring approaches ($N=11$) which placed focus on phonics instruction had the highest weighted mean effect size of +0.60 (Slavin et al., 2010).

The review found that small group tutoring was good at improving children's reading ability and certainly more cost effective than 1:1 programmes, which are typically the most expensive of approaches, given that several children can be taught at the same time (Slavin et al., 2010:8). However, the researchers suggested that this approach can simply replicate regular classroom teaching only on a smaller scale, which has already failed to assist struggling readers through a lack of individually-centred instruction. The results from the 20 qualifying small group

tutoring studies showed an overall mean effect size of +0.31 which was positive, but not as effective as the 1:1 approach (Slavin et al., 2010:8).

The researchers also examined the effectiveness of 16 alternative classroom tutoring approaches, and reported that adapting conventional teaching strategies facilitated most children very successfully, with a weighted mean effect size of +0.56 (Slavin et al., 2010:9). Furthermore, the review stated that alternative classroom tutoring approaches were most effective when phonics instruction and cooperative learning were implemented in classrooms. Cooperative learning refers to an approach whereby the children are divided into groups and complete tasks as a team, rather than being formally instructed by the classroom teacher. The review reports that eight of 16 classroom tutoring approaches incorporated cooperative learning elements and this was found to be very effective for the lowest achieving pupils, with a reported mean effect size of +0.58 (Slavin et al., 2010:9).

The findings in Schwartz et al. (2012) also reported the success of programmes that adopted a 1:1 tutoring structure, over and above small group instruction. In their study, the researchers investigated the teacher-pupil ratio and reading ability relationship using a randomized, experimental design, which included 85 RRTs and 170 children. The children were instructed by RRTs on a 1:1 vs. small group basis (1:2, 1:3, and 1:5) and assessed using the five sub-tests of the OS, routinely used in the RR intervention, and also by the Slosson Oral Reading Test-Revised (SORT-R; Slosson and Nicholson, 1990) which was designed to evaluate a child's oral word recognition and reading ability. Schwartz et al. reported that the 1:1 instruction produced significantly higher mean scores than the small group conditions on eight out of nine measures (Schwartz et al., 2012). They also reported that a trend analysis indicated a reduction in the performance on literacy assessment scores as the instruction group size increased. Their findings suggested that the children's performance on literacy outcomes was influenced by a combination of factors – namely, the expertise of the RRTs delivering the instruction and the

teacher-pupil ratio (Schwartz et al., 2012). Paige-Smith and Soler (2004) similarly reported that, due to the emphasis placed on the training of RRTs to raise individual awareness of their practice throughout the duration of the programme, specialist skills were maintained and RRTs were able to help the most at-risk children succeed.

The findings of Slavin et al. (2010) and Schwartz et al. (2012) provide recent evidence of the influence that tutor group size and teacher expertise has on struggling readers' literacy development. The research is in line with the results provided in previous studies which have investigated the effect of teacher-pupil ratio and compared progress made in RR with other literacy models in matched schools (Burroughs-Lange and Douëtil, 2007; Iverson and Tunmer, 1993; and Pinnell, Lyons, DeFord, Bryk and Seltzer, 1994). The large effect sizes reported in these studies demonstrate that the RR framework can significantly enhance the literacy outcomes of struggling readers.

Pinnell's (1994) study investigated the effectiveness of RRTs working with children as individuals or in small groups of 3-5, and then compared three other instructional models: 1) one which followed the RR framework but had a shortened professional development basis, delivered by certified teachers; 2) a 1:1 skills practice model delivered by certified teachers, and 3) a small group treatment delivered by RRTs. Pinnell et al. found that the RR intervention yielded the highest reading levels at post-test when compared with the other models, with an average post-test reading level of 10.58, compared with 6.25 for the small group treatment, 5.95 for the treatment following the RR framework with shortened professional development basis, and 4.31 for the 1:1 skills practice model (Pinnell et al., 1994:27). The researchers reported that the RR model was the only condition to have significant mean effects on all of the four measures at post-test: OR Dictation 2, Text Reading Level, Gates-MacGinitie, and Woodcock-Johnson (Pinnell et al., 1994:32).

2.2.3.2 Instructional approach

It has also been suggested that the skilled implementation of '*scaffolding*' by the RRTs throughout RR has a positive effect on the most at-risk and lowest-achieving children to attain average reading levels for their class. This concept relates to the interactions that are exchanged between the RRT and the pupil, whereby the child is supported in performing literacy tasks that they would otherwise be unable to complete (Wood, Bruner and Ross, 1976). This form of interactive learning relies on the RRT's ability to assess the child's existing literacy ability and present attainable learning goals (Clay and Cazden, 1990). However, as there is no direct causal evidence to support this claim, it must be treated with caution.

Hobsbaum, Peters and Sylva (1996) investigated the extent to which the RRTs used scaffolding in the writing component of RR tutorials. They reported that the RRTs created learning opportunities by successfully selecting the appropriate text level for the children, and facilitating them to make connections between their current knowledge and unknown items encountered (Hobsbaum et al., 1996:30). They also reported that, over the course of the RR programme, transitional phases were made by the children from teacher-guided learning to an increased ability to direct their writing on a more independent level. Hobsbaum et al. stated that this could be attributed to the interactive framework used in the scaffolding process (Hobsbaum et al., 1996:28). To summarise, Hobsbaum et al. found that scaffolding assumed a significant role in the children's ability to make accelerated progress through the RR intervention.

Shanahan and Barr (1995) carried out an independent evaluation of early instructional interventions, although questioning some claims relating to the superiority of RR, they similarly regarded the instructional approach as being a significant factor of the success of RR. Vellutino, Fletcher, Snowling and Scanlon (2004) also suggested in their review of reading disability research, in which they consolidated international findings of over forty years, that this individualised approach was found to reduce the representation of children with reading

difficulties to 1.5% of the population, in comparison with 10%-15% as other studies had documented (Vellutino et al., 2004:28).

2.2.3.3 Durability of gains

The value of the RR programme is further reiterated in a number of research papers which investigated whether the gains made in the programme were sustained by the children. In a recent evaluation by Hurry (2012) the long-term impact of RR five years post-intervention was reported, comparing the literacy progress of 127 comparison children at the end of Year 6 (former RR children $N=77$; matched comparison group from RR schools similar in population characteristics and Key Stage 1 attainment, but who had not received RR, $N=50$) (Hurry, 2012). The children had been recruited to the original study and were assessed in September 2005 using the sub-tests from the OS (Clay, 2002), the BAS word reading test (Elliott, Smith and McCulloch, 1997), and a word recognition and phonic skills test (WRAPS; Moseley, 2003) prior to the RR intervention (Hurry, 2012:7).

Following the end of the intervention, all children were re-assessed at the end of Year 1 in July 2006 and the end of Year 2 in July 2007 (Hurry, 2012:5). Follow-ups were then carried out at the end of Year 4 (June-July 2009), where the children's results from teacher-assessed National Curriculum sub-tests were gathered, plus optional SATs test results which were used in 80 out of 82 of the schools in the study (Hurry, 2012:7). A follow-up was then carried out at the end of Year 6 (July 2011) where the children's attainment was assessed using their scores on Key Stage 2 tests in English (reading and writing) and Maths, in addition to teacher assessments from the National Curriculum (Hurry, 2012:8).

Hurry's evaluation reported the findings from the follow-up study carried out on the children's literacy progress as they completed Year 6, aged between 10-11 years (Hurry, 2012:5).

Hurry further reports that data gathered from the children's Key Stage 2 tests showed that the children who had participated in RR had made significantly greater progress in English than the comparison children, with the average attainment being a National Curriculum level 4b – the expected level for the end of Year 6, demonstrating a secure foundation of knowledge (Hurry, 2012:10). Indeed, Hurry reports that 78% of the former RR children achieved a level 4, in comparison with 64% achieved by the comparison children who attended RR schools, but who had not received RR, and 62% achieved by the comparison children who attended non-RR schools (Hurry, 2012:10). The follow-up results also showed that only $N=3$ (4%) of the former RR children did not attain at least a level 3. This result compared with 12% for the comparison children from RR schools, and 13% for the comparison children from non-RR schools (Hurry, 2012:10). The study reports only results from those children who could be traced, therefore data from those children who were referred from RR, or who left the intervention, are not included in the findings.

The study also highlighted the detrimental effect that poor language skills had on children's reading and comprehension ability, with a number of children being on *School Action* – where the child's learning is supported by the Special Educational Needs Coordinator (SENCO) within their school (for example in the form of providing a teaching assistant or alternative learning materials) - or *School Action Plus* – where the child's needs go beyond the scope of the SENCO and external assistance must be sought (for example a Speech and Language Therapist, or Specialist Advisory Service to provide the child with other emotional and/or behavioural support). This is a most pressing issue given that a considerable number of children receiving RR are learning English as an additional language. Indeed, Hurry (2012) states that 47% of the children included in the study were learning EAL and that as a direct result of their underdeveloped English language skills, 5 out of 15 children were on either School Action or School Action Plus (Hurry, 2012:16). These issues highlight the value of RR over alternative

interventions, due to its one-to-one tutorials format, which are crafted by the RRT to the specific needs of each individual child. This enables the RRT, for example in the case of a child learning EAL, to focus on speech and vocabulary skills, if these are found to be limited.

The findings in Hurry's (2012) evaluation showed that the most at-risk and socially disadvantaged children can benefit from the gains made in RR five years post-intervention, enabling them to attain similar literacy levels as their more advantaged peers at the end of the primary phase. Hurry's evaluation also evidenced the positive impact of the RRT in ECaR schools where literacy and other broader elements of the curriculum could be supported, as children attending these schools achieved higher levels of literacy than those children attending non-RR schools.

In another comparative, follow-up study by Holliman and Hurry (2013) which investigated the long-term effectiveness of the RR intervention, similar results to Hurry (2012) were reported. The children, who had received RR ($N=73$), were found to have not only sustained the gains three years post-intervention, but also performed significantly higher in reading at the end of Key Stage 2 than the comparison children who had not received RR ($N=48$) (Holliman and Hurry, 2013). Indeed, Holliman and Hurry report that the former RR children attained an average National Curriculum level 3b in reading, which demonstrated that their knowledge at that level was secure and they were on track to progress to the expected level 4 in their final Key Stage 2 tests. On the other hand, the results from the comparison children who attended RR schools but who had not received the intervention, achieved an average National Curriculum level 2a in reading, which was significantly lower than the RR group and that expected for their year group (Holliman and Hurry, 2013).

Previous research investigating the RR intervention has shown that it is a very successful means of helping young, struggling readers achieve accelerated progress in reading skills in the short-term (Hurry and Sylva, 2007; Moore and Wade, 1998). However, there is a shortage of

information relating to the long-term durability of gains made during early remedial literacy intervention. The findings in recent research reported in this review have provided evidence that the effects of RR are still apparent long after a child has been successfully discontinued from the intervention. However, the lack of data for those children who are referred or leave the intervention before completion means that the effect of RR for all its participants remains unknown. The benefits of providing such an intervention to children in the primary phase of school extend into later life, in terms of academic success, positive attitudes to learning, self-esteem and, more globally, to the societal costs associated with literacy difficulties (Burroughs-Lange, 2006; Hurry and Holliman, 2009).

2.2.4 Criticisms of the RR intervention

As this review has reported, the RR intervention has been widely examined, and its success in helping the most at-risk children achieve reading success remains undisputed. However, concerns have been raised by researchers, who question the superiority of the programme over alternative approaches in ameliorating literacy problems in the primary years of schooling. Indeed, in a series of papers between Reynolds, Wheldall and Madelaine (2007; 2009) and Schwartz, Hobsbaum, Briggs and Scull (2007) these issues were debated. In their final rejoinder, Reynolds et al. (2009) summarised their main concerns surrounding the RR intervention as: a) the nature of evidence reporting the success of the intervention, b) the cost-effectiveness of implementing RR in schools, and c) children not sustaining the gains made over time.

In their (2009) rejoinder, Reynolds et al. do not contend that RR is an effective means of improving general reading ability in young at-risk learners, rather they outline that caution must be taken when interpreting the findings of research which do not include randomised control groups, and/or report only data of those pupils who received a complete programme, and who were successfully discontinued from RR (Reynolds et al., 2009:27). The researchers suggested

that, relative to the widespread implementation of the RR intervention, surprisingly few studies have been conducted where a randomised controlled or quasi-experimental design was adopted (Reynolds et al., 2009:20). In their 2009 paper, they also questioned the validity of an evaluation carried out by the What Works Clearinghouse (WWC, 2007a) which was used as the foundation of evidence in the rebuttal by Schwartz et al. (2007). The WWC was established in 2002 as an initiative of the Institute for Education Sciences (IES) at the US Department of Education. The aim of the WWC is to identify and evaluate the most credible and effective interventions in order to inform educational decision making, improving pupil outcomes based upon scientific evidence (U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, What Works Clearinghouse, found at, and hereafter referred to as: WWC, <http://ies.ed.gov/ncee/wwc/>).

Although the WWC evaluation of RR appears to provide an objective review of the efficacy of the programme, Reynolds et al. point out that the findings are misleading due to a) the nature of the studies accepted in terms of their design and b) the effect size requirements (Reynolds et al., 2009:19). Indeed, Reynolds et al. reported that the WWC include two or more studies which found statistically significant positive effects, one of which must be a randomised control trial. Furthermore, the WWC use a 0.25 effect size minimum requirement, which is lower than the 0.3 effect size generally accepted in special education research and, as Reynolds et al. caution, this may make interpreting their results problematic. Reynolds et al. also reported that no studies with negative effects that are statistically significant or greater than 0.25 are included in the WWC evaluation (Reynolds et al., 2009:19).

In addition to the issues raised by Reynolds et al. (2009) on the WWC's study inclusion policy, the researchers also claimed in their rejoinder to Schwartz et al. (2007) that the success and efficacy of the RR intervention is frequently overstated. Reynolds et al. stated that, due to the fact that many studies investigating the impact of RR only include those children for whom

they have complete and valid scores, and who have been successfully discontinued, the ‘failures’ have not been included. In a review by Reynolds and Wheldall (2007) the researchers suggested that approximately 60%-70% children participating in RR are considered to be successfully discontinued. Therefore, with approximately 30% of the children not completing the RR intervention, the researchers questioned the superiority of the programme (Reynolds et al., 2009:27).

A further criticism of the RR intervention concerns its cost-effectiveness. These expenses include training teachers to become specialist RR tutors, ongoing continuing professional development, and implementation costs to schools; and participation cost per child. Teachers wishing to become an RRT receive extensive professional development to deliver intensive remedial literacy tuition to the most at-risk young learners. This is achieved through systematic observation and evidence-based practice, where the RRT must be skilled in adapting and crafting the RR tutorials to the needs of the individual child for the duration of the child’s participation in the programme. This training costs approximately £2,700 and includes 22 in-service sessions, with continuing professional development and accreditation costs of approximately £1,000 per annum thereafter. In a publication by the House of Commons (2009) the cost of participation in the RR intervention was given as approximately £2,600 per child, which exceeds alternative literacy interventions.

The decision of the government in 2008 to implement RR as a central component in the Every Child a Reader (ECaR) programme was a contentious issue, as this was funded prior to any pilot studies having been completed, where the effectiveness of RR as the main intervention in the ECaR programme could have been ascertained. The ECaR programme was developed during 2005-2008 by a collaboration of the KPMG Charitable Trust (now Every Child a Chance), the Institute of Education and government. In 2008, the then-government issued a

national roll-out of ECaR, working in partnership with the RR network at the Institute of Education.

The ECaR programme operates on a tiered, three-wave approach to assist children with literacy learning in Key Stage 1. In an evaluation by the Department for Education (DfE; 2009) it was reported that Tier 1 is aimed at all children through class-based tuition. Tier 2 is a small-group intervention for those children who would benefit from additional support, and who would be expected to be able to catch up with their peers (DfE; 2009:9). Tier 3 then provides intensive, one-to-one support in literacy learning to those children who have been identified as being the most at-risk children of literacy failure in their class. The RR programme was implemented as the main intervention of the ECaR programme during this time.

However, policy changes in the funding for RR (previously ring-fenced) have since occurred, resulting in schools across the UK facing financial cuts, and consequently, many being unable to implement the RR intervention due to the expense of employing specially trained RRTs and the relatively small number of children who may benefit from the intervention. Consequently, significantly fewer children are able to benefit from RR in the UK, as schools do not consider it to be cost-effective, or it is deemed that the funding would be better spent on other provisions.

2.2.5 Effectiveness of RR for EAL learners

The issue of providing a literacy intervention such as the RR programme to L2 children who have low levels of English language proficiency is a widely debated one. There also exists a misconception that children learning EAL will not make the same gains as their NS peers, and implications for local authorities given the cost of the intervention per child. However, several studies now evidence the fact that RR benefits this population of children and that the

intervention enables them to make similar gains when compared to their NS peers (Hobsbaum, 1995; Kelly et al., 2005; 2008; Neal & Kelly, 1999; Ashdown & Simic, 2000; Clancy, 2009; Escamilla, Loera, Ruiz and Rodríguez, 1998).

In the first nationwide evaluation of RR in England conducted by Hobsbaum (1995) the progress made by bilingual and native-speaking children was investigated, based on the entry and exit scores of the OS measures. It was reported that no differences existed between the number of bilingual and NS children who were successfully discontinued from the programme, 63% and 66%, respectively (Hobsbaum, 1995:32). The research also found that the two groups of children made similar rates of progress on literacy outcomes. However, Hobsbaum raised the point that the teachers involved in the study may not have used the fluency ratings accurately.

In a large-scale study of some 55,231 children in American primary schools, Ashdown and Simic (2000) investigated the effects of RR on the reading achievement of EAL children. Their primary foci were to establish if three sample groups: fluent EAL, limited English proficiency (LEP) and NS children, benefitted from the intervention at a similar rate of progress, and whether the intervention narrowed the achievement gap between EAL and NS children. Results following completion of the intervention indicated that the fluent EAL group exhibited a higher success rate (66.3%) than either the NS or LEP groups, 62.2% and 61.7%, respectively (Ashdown & Simic, 2000:35). The LEP group was also found to be as successful as the NS group.

The results also showed that the RR intervention had closed the achievement gap between the EAL and NS students (Ashdown & Simic, 2000:35). These results support the claim that RR can contribute to the reading achievement of all struggling readers, regardless of their English language proficiency at the start of the intervention, and that EAL children are as likely to be successfully discontinued as their NS peers (Ashdown & Simic, 2000:35). The findings in Ashdown and Simic (2000) relating to a reduction in the achievement gap between the EAL and

NS children were consistent with reports from the Reading Recovery Council of North America (2007). In the report, they stated that research by Rodgers, Gómez-Bellengé & Wang (2004) found that the achievement gap that existed between average and low-performing children who participated in RR was reduced or closed (Reading Recovery Council of North America, 2007). The limitations with this study are that other factors which could influence the reading achievement of the EAL and NS students are not taken into account (for example, the children's socioeconomic status and teacher variance).

In Kelly et al. (2008), a nationwide study conducted in America, data submitted by RRTs to the National Data Evaluation Centre (NDEC) were analysed to investigate the text reading level and phonemic awareness of EAL and NS children in RR. The pre- and post-test scores from two of the OS tests – namely, Text Reading, and Hearing and Recording Sounds in Words (HRSIW) – were analysed to compare the children's scores (Kelly et al., 2008:244). It was found that the children learning EAL who participated in the RR intervention successfully achieved the reading ability level expected for children of their age group (Kelly et al., 2008:252). The implication they drew from this finding is that RR is a valuable and effective early intervention, which has a direct and positive effect on learner outcomes. Furthermore, they also reported that the children with EAL did not take longer to successfully complete the programme, as the initial language proficiency of the children did not relate to the number of weeks in RR. However, before concluding that RR is the answer to all reading problems, it is important to note that Kelly and colleagues did not compare the data from NDEC with a control group, and they also confined their study to the twin outcomes of accuracy and phonological skill. This thesis will include reading comprehension as a vital element in considering the success of the RR intervention.

Clancy (2009) investigated the effectiveness of RR when used with young EAL learners, in comparison with their native speaking peers. In this study, the issues raised in Kelly et al.'s

(2008) research were examined, in order to assess the extent to which these findings may be replicated in a UK educational context. These issues related to the efficacy of the RR intervention for use with EAL learners, and the ability of the EAL children to successfully complete their programme in comparison with NS children. The results reported in Clancy (2009) indicated that the first language background of the children did not influence the success or efficacy of the intervention on literacy related outcomes (e.g. the exit Book Reading Level of successfully discontinued children). It similarly did not affect the speed at which the children achieved a national average reading level. The results showed that children learning EAL, just as NS children, improved their reading and writing skills over the course of the RR intervention.

Alanís, Munter and Villamil-Tinajero (2003) suggest that effective interventions such as RR share similar components, including a well-structured and fast-paced approach to the instruction, consistent and frequent classroom tuition, and low teacher-to-pupil ratios (Alanís et al., 2003:93). In their study investigating the effects of intervention strategies for EAL students demonstrating early reading failure, they evaluated improvement in reading ability as measured by Running Records, interviews with tutors, classroom observations, and results from the Tejas LEE tool. The Tejas LEE is an instrument used to assess a child's reading skills and comprehension in Spanish. They claim that the teacher-student interaction is fundamental to the academic success of EAL children. ('Success' in the eyes of these researchers was established without standardised tests and without consideration of comprehension as an important outcome). Alanís and colleagues concluded that the tutorial groups should be kept to a minimal number (1-4 pupils) in order for the intervention to facilitate literacy development (Alanís et al., 2003:102).

Similar observations were found in a study by McDowall, Boyd, Hodgen and van Vliet (2005) which investigated the impact of RR for Māori and Pasifika pupils in comparison to their non-Māori peers. McDowall et al. believed that the structure of the RR model facilitated the

RRT's ability to identify a child's current literacy understanding and reading strategies, and to craft the lessons according to the individual needs of each pupil – a process that begins in the initial 10-day period of RAK, prior to formal instruction by the RRT. In their study, they carried out an analysis of the 2003 national RR data. The outcome in this study was exit scores on book levels and time spent in the intervention. Once again, there is a lack of standardised measures including comprehension, and the researchers did not compare the RR data with a control group (McDowall et al., 2005). The results of their study found that gains were made on the children's literacy skills, and that the disparity between their achievement level and that of their non-Māori peers, who did not participate in RR, was reduced at post-test (McDowall et al., 2005).

The researchers quoted above have argued that RR is an appropriate and effective means of improving the reading ability of the lowest-performing children, including those who are learning English as an additional language. The studies included in this discussion largely investigated the effects of supplemental reading tuition for EAL children, and the instructional elements that are required for successfully developing reading skill in this group of learners. However, there remains a lack of literature on the extent to which the RR model facilitates the reading comprehension skills of EAL participants in comparison with their NS peers, as the studies in this discussion did not assess reading comprehension specifically. It is also not known what the effect of the intervention is on the literacy skills utilised by this population of children to achieve successful reading comprehension. This study will provide an empirical contribution to this topic through the use of two standardised measures of reading comprehension, in addition to tests of phonological awareness, decoding ability and vocabulary knowledge.

To summarise, the body of research that has evaluated RR suggests that the current content of the intervention, with its focus on phonics instruction and decoding skills, ability to incorporate scaffolding in the sessions, the extent of professional development that is provided to the RRTs, and the teacher-pupil ratio, are all factors which positively influence the reading outcomes of young, struggling readers. It is based on these foundations that the intervention has

been recognised as providing effective remedial literacy instruction for struggling EAL and NS readers alike.

2.3 The theoretical framework for the study

A number of theoretical models have attempted to account for the different processes involved in reading, notably the Dual Route Cascaded model (Coltheart, Rastle, Perry, Langdon and Ziegler, 2001) and what are known as Triangle models (Harm and Seidenberg, 2004; Plaut, McClelland, Seidenberg and Patterson, 1996; Seidenberg and McClelland, 1989). These models have contrasting frameworks, but both share the assumption that bottom up information (specifically, orthographic) interacts with top down lexical knowledge to produce the oral representation, and to allow the meaning to be extracted from the words. However, the most appropriate model for discussion in this review, and that which provides the theoretical framework for the study, is the *Simple View of Reading*, proposed by Gough and Tunmer (SVR; 1986). To clarify the relationship between the study and its theoretical framework, the aim of this study is not to assess the appropriateness of the SVR for use with children learning EAL in the UK. In addition, it is not argued that other models of reading are unsuitable for use with the sample included in this study. Instead, the SVR will be used as a framework which motivates the study.

The SVR (Gough and Tunmer, 1986) is a conceptual framework, established to explain effective reading acquisition. The SVR was proposed during the height of the language and literacy movement in North America, and provided a first attempt at a ‘*balanced literacy*’ approach to reading (Kirby and Savage, 2008). Prior to this, theories of reading acquisition were distinctly polarised – specifically, one side advocated a *phonics-centred approach* and stated the need for good phonic decoding strategies in order to achieve reading success. The opposing side advocated a

'whole language' approach, whereby readers needed to apply their general language competency to text. This included recognising words as whole pieces of language, without breaking a word down into letters and decoding it, and understanding that words provide meaning when read in relation to each other. The SVR model acknowledged the value of both the whole language (top down) and phonics-centred (bottom up) theories, and was helpful in conceptualising the range of skills associated with successful reading comprehension. However, in spite of its wide acceptance and implementation as a guide for literacy instruction in various educational systems (Rose Report, UK, 2006) research has since suggested that the SVR is too brief an account of such a complex phenomenon, and that additional skills to those proposed in the SVR are necessary for successful reading (Ouellette and Beers, 2010; Tunmer and Chapman, 2012; Leider, Proctor, Silverman and Haring, 2013). This review discusses the concepts of decoding and linguistic comprehension in relation to the SVR, and then presents literature which has investigated the contribution of vocabulary knowledge as an additional skill required for reading comprehension.

2.3.1 The Simple View of Reading as a conceptual framework

Gough and Tunmer (1986) proposed in their SVR model, that reading comprehension (RC) was the result of successful decoding (D) and linguistic comprehension (LC) ($R = D \times LC$). The SVR proposed that reading comprehension could be accounted for by these two distinct, independent components, both of which are fundamental to the development of fluent and competent reading, while neither of which are sufficient alone (Hoover and Gough, 1990; Gough and Tunmer, 1986; Protopapas, Sideridis and Mouzaki, 2007; Oakhill, Cain and Bryant, 2003).

Hoover and Gough outline decoding as the ability to rapidly recognise a word and access the mental lexicon, retrieving the semantic information required to comprehend the word (Hoover and Gough, 1990:131). They state that for beginner readers this process is initially phonologically-based. It follows that this lexicon, which is already accessible on a phonological

basis, becomes accessible through the printed word as more language is acquired (Hoover and Gough, 1990:131). Research investigating decoding skill has highlighted the importance of phonological knowledge in the development of fluent and automatic word reading skills (Melby-Lervåg, Halaas-Lyster and Hulme, 2012). To that end, successful decoding entails the understanding of the correspondences between graphemes-phonemes, demonstrated by the child's ability to correctly 'sound out' and read the words. The SVR places a focus on instruction of phonological knowledge as a prime approach in teaching early reading, for if children are unable to recognise and decode words, they are prevented from fully comprehending the text (Rose Report, 2006:8).

Hoover and Gough defined linguistic comprehension as the '*...ability to take lexical information...and derive sentence and discourse interpretations*' (Hoover and Gough, 1990:131). They also state that linguistic comprehension must be assessed by determining an understanding of language, for example by administering content questions relating to a piece of text (Hoover and Gough, 1990).

Kirby and Savage (2008) evaluated the nature and validity of the SVR model, and its ability to explain the relationship between decoding and linguistic comprehension as contributors to reading comprehension. They suggested that, whilst the SVR is helpful in conceptualising these skills and in providing guidance for education by placing emphasis on decoding and linguistic comprehension components, it was incomplete as a scientific theory of reading (Kirby and Savage, 2008:80).

The evaluation reported that there was empirical evidence supporting the SVR, including '*double dissociation*' whereby the functions of decoding and linguistic comprehension involve different metacognitive processes and are independent of one another (Catts, Hogan and Fey, 2003) and the ability of the SVR to predict future progress in reading comprehension in the first four years of reading (Oakhill, Cain and Bryant, 2003). The evaluation also reported that the SVR

highlighted variation in children's decoding and linguistic comprehension skills, and that this variation should not be overlooked (Kirby and Savage, 2008:79). The SVR proposed that appropriate types of tuition and strategies must be given by teachers to help children access these fundamental skills (Kirby and Savage, 2008:79). Indeed, as Nation (2005) states, children who may be good decoders but have poor comprehension skills, do not need interventions focusing on phonics – some children demonstrate receptive comprehension difficulties that are wholly related to their understanding, not their ability to articulate words.

Kirby and Savage questioned the concept of decoding ability stated in the SVR, and stressed the need for clarification on the measurement of this skill. They reported that decoding ability is predominantly assessed by accuracy tests, rather than measures of word fluency (Kirby and Savage, 2008:80). However, they claim that if decoding is slow, although correct, it may not be adequate to support comprehension skills as the crucial information will have been lost by the time the whole text has been decoded (Kirby and Savage, 2008:80). In a study by Kirby (2007) it was reported that reading comprehension required decoding to be present in the working memory simultaneously, in order that the relationships between these two constructs could be processed. Further to this point, Kirby and Savage state that if the cognitive load is heavy due to effortful decoding, there are likely fewer working memory resources available to facilitate comprehension (Kirby and Savage, 2008:80). The evaluation suggested that research needed to be conducted assessing word fluency in the context of the SVR, in order to determine its validity as a theory of reading (Kirby and Savage, 2008).

2.3.2 The contribution of vocabulary knowledge to reading comprehension

In addition to the points raised in Kirby and Savage (2008), the SVR stimulated intense debate relating to the fundamental literacy skills required for successful reading. Whilst there is widespread acceptance that both decoding and linguistic comprehension skills do predict

successful reading, there is an extensive body of research which has reported the importance of vocabulary knowledge as an integral part of reading comprehension.

Ouellette and Beers (2010) investigated whether the SVR fully accounted for the constructs underlying reading comprehension and the relationships between print skills and oral language (Ouellette and Beers, 2010:190). There were two cohorts of children in their study (Grade 1, $N=67$ and Grade 6, $N=56$) with differing reading abilities from three English-speaking schools in Canada. The children were assessed on measures of phonological awareness (the sound-matching subtest of The Comprehensive Test of Phonological Processing, CTOPP; Wagner, Torgesen and Rashotte, 1999); decoding (Word Attack subtest of the Woodcock Reading Mastery Tests - Revisited, WRMT-R; Woodcock, 1998); irregular word recognition (list adapted from Adams and Huggins, 1985 by Ouellette, 2006); listening comprehension (understanding spoken paragraphs subtest of the Clinical Evaluation of Language Fundamentals, CELF-4; Semel, Wiig and Secord, 2003); oral vocabulary (Peabody Picture Vocabulary Test, PPVT-4; Dunn and Dunn, 2006) and reading comprehension (the passage comprehension subtest of the Woodcock Reading Mastery Tests – Revisited, WRMT-R; Woodcock, 1998) (Ouellette and Beers, 2010:195-197).

The results from these assessments showed that when all of the measures were controlled, vocabulary was found to explain (as a statistical predictor) reading comprehension ability in Grade 6, but not in Grade 1. Furthermore, vocabulary was also found to predict decoding in Grade 6 and irregular word recognition in both grades (Ouellette and Beers, 2010:203). These results supported the argument of Ouellette and Beers about the ‘not-so-simple view’ of the necessary components underlying reading comprehension. Their evidence was that vocabulary was found to be a significant contributor to reading comprehension. This finding highlighted that there are complex connections between orthographic skills and oral language (Ouellette and Beers, 2010:189).

Muter, Hulme, Snowling and Stevenson (2004) reported results which also affirmed the significant contribution made by not only word recognition, but also higher level language skills, including vocabulary and grammatical abilities as integral features of reading comprehension. In their two-year longitudinal study, they assessed children ($N=90$) who were beginning school in the UK at three time points. At time 1, the children were assessed on measures of rhyme detection, rhyme production, word completion – phonemes, phoneme deletion, ending sound and letter knowledge (Muter et al., 2004:669). The children's vocabulary (British Picture Vocabulary Test – Revised, BPVS-II; Dunn, Dunn, Whetton and Burley, 1997) and word recognition ability (Hatcher Early Word Recognition Test, Hatcher, Hulme and Ellis, 1994) were also assessed (Muter et al., 2004:669).

At time 2, the children were reassessed on all of the measures, excluding the BPVS. They were also tested using three additional measures: a word order correction test (Tunmer, 1989) a morphological generation task, and the British Abilities Scale-II (Elliot, 1996). At time 3, the children were re-administered the Hatcher Early Reading Test (Hatcher et al., 1994) and also tested using the Neale Analysis of Reading Ability-II (NARA-II; Neale, 1997).

Muter et al. concluded that in the first two years of schooling, word recognition and reading comprehension were predicted by different aspects of children's underlying language skills. They stated that the development of word recognition skills was fundamentally dependent on children's phonological ability, and their results showed that letter knowledge and phoneme sensitivity were powerful predictors of variability in the children's word recognition skills. Their results also showed that higher level language skills, namely, vocabulary knowledge and grammatical ability, were predictors of reading comprehension, even after controlling word recognition skills (Muter et al., 2004:675).

The results from this study demonstrated clearly that phoneme sensitivity and letter knowledge were critical to the development of word recognition skills, and also that vocabulary

knowledge and grammatical ability assumed significant roles in reading comprehension acquisition (Muter et al., 2004:675). Similar findings have been reported in Ricketts, Bishop and Nation, 2008; Ouellette, 2006 and Sénéchal, Ouellette and Rodney, 2006.

Indeed, Braze, Tabor, Shankweiler and Mencl (2007) investigated the ability of the SVR to account for all types of variation in reading comprehension, and whether orally assessed vocabulary accounted for significant variance in reading comprehension (Braze et al., 2007:226). In their study, the SVR was assessed using listening comprehension and decoding, and the importance of vocabulary for reading comprehension was also inspected. The results from their analysis showed that reading comprehension correlated significantly with word reading and vocabulary (Braze et al., 2007:233). Regressions showed that decoding and listening comprehension explained variance in reading comprehension, until vocabulary was added to the model, which accounted for additional variance (Braze et al., 2007:234). They stated that the significance of vocabulary on spoken language was paramount and that the study indicated how limited word knowledge may compound weaknesses in decoding skills, so that readers who have poorly developed lexical representations may have disproportionate difficulty with printed word identification (Braze et al., 2007). However, the results from this study were based on a small sample ($N=44$). (Two participants were excluded from the study as they did not meet the minimum IQ requirement, and one participant was found to have problematic data and was also exclude, therefore the results must be interpreted with caution).

Tunmer and Chapman (2012) investigated the hypothesis that word recognition and oral language comprehension to reading comprehension were not independent, because a component of vocabulary knowledge directly contributed to the variance in decoding. Three forms of statistical analyses were conducted on data from a sample of 7-year-old pupils ($N=122$), who were assessed on: vocabulary knowledge (Peabody Picture Vocabulary Test – Form M; PPVT; Dunn and Dunn, 1981); letter-sound knowledge using an adapted non-word reading test

(Richardson and DiBenedetto, 1985); context-free word recognition (Burt Word Reading Test, New Zealand Revision; Gilmore et al., 1981; and the reading subtest from the Wide Range Achievement Test; WRAT; Wilkinson, 1993), as well as reading and listening comprehension (Neale Analysis of Reading Ability, Revised, Neal, 1988) (Tunmer and Chapman, 2012:458).

The results from correlations (prior to hierarchical regressions) showed that vocabulary correlated more strongly with reading and listening comprehension ($r = .66, .69$) than with word recognition measures ($r = .42, .46, .43$) (Tunmer and Chapman, 2012:459). The hierarchical regressions indicated that this was significant ($p < .001$). Further exploratory factor analyses showed that, in support of the hypothesis in the SVR model, the word recognition and letter-sound knowledge measures loaded highly on the Decoding factor (.94, .93, .92) and listening comprehension and vocabulary knowledge loaded highly onto the Linguistic Comprehension factor (.89, .89). Tunmer and Chapman concluded that, rather than being considered a separate component, vocabulary knowledge is an integral part of the SVR model as it formed part of the linguistic comprehension component (Tunmer and Chapman, 2012:460).

Further analyses were conducted through structural equation modelling, whereby two latent variables (word recognition and oral language comprehension) were formed to determine whether oral language comprehension (specifically, vocabulary knowledge) had a ‘...*significant direct effect on reading comprehension...*’, and a ‘...*significant indirect effect...*’ on reading comprehension through word recognition (Tunmer and Chapman, 2012:460). This model created paths from both oral language comprehension and word recognition to predict reading comprehension. By creating a path from oral language comprehension to word recognition in predicting reading comprehension, it was possible to test whether this model fitted the data better than the SVR model. The researchers also tested whether word recognition had a significant indirect effect through oral language comprehension in predicting reading comprehension (Tunmer and Chapman, 2012:460). By creating these latent variables, it was possible for the researchers to propose a more comprehensive representation of the constructs and investigate the relationship

between the variables with greater specificity. The results from this modelling showed that oral language comprehension influenced reading comprehension both directly and indirectly through the word recognition construct (Tunmer and Chapman, 2012:462). This is a landmark study with sound analyses and conclusions.

The researchers suggested that the two-component structure of the SVR model should remain unchanged, but that the assumption that the components are independent should be relaxed, on the basis of their findings that vocabulary knowledge influenced reading comprehension both directly and indirectly through word recognition (Tunmer and Chapman, 2012:464). Similar findings have been reported in studies investigating the SVR hypothesis in other languages (Protopapas, Mouzaki, Sideridis, Kotsolakou and Simos, 2013).

To summarise, the SVR is a helpful framework in terms of conceptualising the skills associated with reading comprehension acquisition. The empirical evidence relating to the SVR generally supports its claims that decoding and linguistic comprehension are fundamental components in the reading process, and suggests that it is a good fit to scientific data on the reading development of typical and atypical learners (Kirby and Savage, 2008). However, the research has highlighted that the SVR is incomplete as a total model of reading, and suggested that the contribution of vocabulary knowledge is a requisite and integral component of achieving reading comprehension.

2.3.3 Investigating the reading skills of EAL children in relation to the SVR

The SVR has been used as a framework to investigate reading, but research literature has predominantly been conducted using monolingual participants (Johnston and Kirby, 2006; Muter, Hulme, Snowling and Stevenson, 2004; Ouellette and Beers, 2010; Chen and Vellutino, 1997). However, some studies have investigated the reading development of EAL children in relation to the SVR. Notably, Hoover and Gough (1990) conducted a longitudinal study over 5

years with English-Spanish bilingual children ($N=254$) in Grades 1 – Grades 4, in which they assessed the SVR. The results from their analyses showed that the linear combination of decoding skills and listening comprehension ability made significant contributions to explaining the variance in reading comprehension (Hoover and Gough, 1990:127). Indeed, they reported that the model explained 71% of the variance in reading comprehension at Grade 1, and 83% of the variance at Grade 3 for the language minority children (Hoover and Gough, 1990:141). These findings were also consistent with the SVR in that the relationship between decoding skills and linguistic comprehension ability is conditional (Hoover and Gough, 1990:142; Gottardo and Mueller, 2009).

However, Georgiou, Das and Hayward (2008) assessed English-speaking First Nations children in Canada ($N=50$) to evaluate the model with this sample of children, all of whom had average decoding and listening comprehension skills, but poor reading comprehension ability (Georgiou et al., 2008:6). The results appeared to contradict Gough and Tunmer's proposal in the SVR that poor reading comprehension stemmed from below average decoding and linguistic comprehension skills. The participants in Georgiou et al. were found to have ability levels within the normal average range for decoding and linguistic comprehension, challenging the SVR theory that reading comprehension was a product of these two components (Georgiou et al., 2008:6).

A recent study by Leider, Proctor, Silverman and Harring (2013) investigated the role of vocabulary depth and the effect of different types of reading measures on the reading comprehension of bilingual Latino pupils. Their study aimed to develop the theoretical assumptions in the SVR by examining the contribution of vocabulary depth and dual-linguistic ability in English reading comprehension. Their results showed that word reading tasks alone were not adequate in describing the reading comprehension process of bilingual children (Leider et al., 2013:1482). Furthermore, the researchers stated that the overall variance in the children's reading comprehension increased as vocabulary knowledge was added to the analyses. They

proposed that models of reading comprehension should be tested to challenge the assumptions of the SVR (Leider et al., 2013:1482).

In a longitudinal study by Verhoeven and van Leeuwe (2008) assessing the reading comprehension development of a stratified sample of 2143 Dutch-speaking children, they reported that, alongside decoding and listening comprehension as predictors of reading comprehension in the elementary years of schooling (Grade 1), so too was vocabulary knowledge. They reported that in the subsequent years of schooling (Grade 5) vocabulary became a stronger predictor of reading comprehension than decoding and listening comprehension skills. In line with studies conducted on monolingual samples, they suggested that there was a reciprocal relationship between decoding, linguistic comprehension and vocabulary knowledge (Verhoeven and van Leeuwe, 2008:420).

There is a need for further research investigating the predictive relationships of word reading, linguistic comprehension ability and the role that vocabulary knowledge assumes in the development of reading comprehension in EAL children. The findings from the studies quoted above led to the inclusion of a vocabulary assessment in this study, and it will consider whether the contributions from these components are different for EAL and NS children.

2.4 EAL literature investigating reading comprehension in the UK

Learning to read is fundamental to the educational development of children. This process entails children learning how to recognise and decode words efficiently and, importantly, extract meaning from the text they have read. Hoover and Gough (1990) suggested that reading comprehension can be defined and understood as comprising two strands: a first strand concerned with word recognition, and the second strand being concerned with understanding the meaning conveyed in the text (Hoover and Gough, 1990). Research has made good progress in identifying some of the requisite skills for reading success (Nation and Angell, 2006; Hulme

and Snowling, 2013; Nation, Cocksey, Taylor and Bishop, 2010; Snowling and Hulme, 2012; Oakhill and Cain, 2012; Lesaux, Crosson, Kieffer and Pierce, 2010; Rydland, Grøver Aukrust and Fulland, 2012; Cutting and Scarborough, 2006) yet there is more to be learned about the ways in which young, struggling EAL children achieve successful reading comprehension. There is an enormous body of research on the development of reading comprehension but this review will focus on the small body of UK research which has investigated the reading comprehension of EAL learners in comparison to their NS peers (Beech and Keys, 1997; Frederickson and Frith, 1998; Rosowsky, 2001; Hutchinson, Whiteley, Smith and Connors, 2003; Stuart, 2004; Burgoyne, Kelly, Whiteley and Spooner, 2009; Burgoyne, Whiteley and Hutchinson, 2011a; Burgoyne, Whiteley and Hutchinson, 2011b). The review will outline this literature and discuss some of the components established as being necessary for reading comprehension acquisition, namely decoding and phonological awareness. Consideration will also be given to the contribution of vocabulary knowledge to reading comprehension in EAL learners,

2.4.1 Reading comprehension in EAL learners and the contribution of vocabulary knowledge

The reading comprehension of young EAL learners in the UK has been investigated in age-matched studies, as identified above. It is argued that comprehension difficulties are not a result of poor decoding ability; rather that weak vocabulary knowledge prevents these learners from acquiring successful reading comprehension (Burgoyne, Kelly, Whiteley and Spooner, 2009).

Indeed, in their 2009 study, Burgoyne et al. assessed 7-8 year-old EAL children ($N=46$) and compared their reading comprehension scores with those of age-matched NS children ($N=46$). The children were assessed using the Comprehension component of the NARA-R (Neale, 1997). The Comprehension subtest from the NARA-R requires the child to read passages aloud independently. The passages are graded in terms of difficulty, with a set of orally-

administered questions relating to the content given at the end of each passage. Burgoyne et al. reported that the EAL group completed significantly more passages than the NS group before being discontinued due to errors of word reading accuracy (Burgoyne et al., 2009). They reported that when the accuracy scores were entered as a covariate in the analysis, the NS group was found to significantly outperform the EAL group ($\eta = .15$) on the comprehension component of the NARA-R (Burgoyne et al., 2009). Furthermore, the children were administered four passages from Form 2 of the NARA-R as a listening comprehension measure, and levels B and C of the Listening Comprehension Test Series (LCTS; Hagues, Siddiqui and Merwood, 1999). The results showed that the NS group again significantly outperformed the EAL group ($\eta = .07$) on the passages from the NARA-R. However, the groups were not found to differ significantly on the LCTS (Hagues et al., 1999; Burgoyne et al., 2009).

Rosowsky (2001) assessed 11-12 year-old EAL ($N=6$) and NS ($N=6$) pupils on the Comprehension component of the NARA (Neale, Christophers and Whetton, 1989) test. Rosowsky also reported that the EAL group progressed further on the passages than did the NS group. The finding then that the EAL group's comprehension scores were lower than the NS group, is particularly interesting. Rosowsky (2001) reported that there was a significant difference between the groups on the Comprehension component of the NARA (Neale et al., 1989). However, the statistical tests carried out on the data are not reported in the paper (if indeed any such tests were conducted). Thus, the findings of this small sample study cannot be accepted as reliable. Stuart (2004) also reported that the EAL group in the study scored lower than the NS group on the reading comprehension sub-test of the NARA-R. However, these findings must similarly be interpreted with caution due to the unequal sizes of the groups (NS, $N=12$ and EAL, $N=63$).

Beech and Keys (1997) reported similar patterns in their study, where they assessed a sample ($N=40$) of 7-8 year-old children, whose L1s were South East Asian in comparison to an

age-matched NS group ($N=29$). The children were administered the Suffolk Reading Scale (Hagley, 1987). This measure requires the pupil to silently read incomplete sentences and select the correct word to complete the sentence, from a choice of five words. The results showed that the children scored significantly below the NS group. The mean score for the EAL group was also greater than 1 standard deviation below that expected for their chronological age. Similar findings were reported in Frederickson and Frith (1998).

In a key study, Hutchinson, Whiteley, Smith and Connors (2003) were the first to investigate EAL children's reading-related outcomes longitudinally. Their sample consisted of age-matched EAL children ($N=43$) and NS children ($N=43$), who were assessed over the course of their schooling in Year 2 (6-7 years old), Year 3 (7-8 years old) and Year 4 (8-9 years old). The groups were administered the Comprehension sub-test of the NARA-R. The results showed that the NS group significantly outperformed the EAL group at each time point. The results also showed that, whilst the EAL group made significant progress between each school year on the Comprehension measure, there were no interaction effects reported, suggesting that they were not able to close the gap with their NS peers (Hutchinson et al., 2003).

Hutchinson et al. suggested that reading comprehension measures, such as the NARA-R, were closely associated with children's word reading accuracy and this allowed NS more opportunities to increase their scores on reading comprehension measures. Indeed, they argued that such measures were '*...confounded...*' by children's decoding ability and thus listening comprehension assessments were 'truer' measures of a child's linguistic comprehension ability (Hutchinson et al., 2003:22). Therefore, the researchers also administered a listening comprehension test at each time point. The test comprised an audio-recorded version of 4 passages from Form 2 of the NARA-R (Neale, 1997). The results showed that the NS group again outperformed the EAL group between Years 2-3 (Hutchinson, 2003; Burgoyne et al., 2009).

A possible explanation for this inability to catch up with their NS peers could be attributed to the background knowledge of the EAL children. Previous research has established that the background knowledge of EAL learners is fundamental to the comprehension of texts (e.g. Droop and Verhoeven, 1998). In their 1998 study, the researchers investigated the role of cultural background on reading comprehension for Grade 3 EAL children learning Dutch as the L2 in comparison to their NS peers. The children's reading comprehension and reading efficiency were assessed using three types of texts 1) texts referring to Dutch culture, 2) texts referring to the culture of the EAL learners (e.g. Turkish and Moroccan culture) and 3) neutral texts. They found that the cultural background of the EAL children affected both their reading comprehension and reading efficiency scores (Droop and Verhoeven, 1998:267). The study reported that EAL children could not profit from their own cultural knowledge if the texts they encountered were too linguistically complex for their L2 proficiency (Droop and Verhoeven, 1998:267). Thus, the contribution of background knowledge must be borne in mind when assessing the reading comprehension of young EAL learners.

Burgoyne et al. (2011) also investigated the comprehension development and reading-related skills of young EAL and NS learners longitudinally between Year 3 (7-8 years old) and Year 4 (8-9 years old). The groups (EAL, $N=39$ and NS, $N=39$) were assessed using the NARA-R text reading accuracy, comprehension and fluency sub-tests. The children's expressive and receptive vocabulary knowledge abilities were assessed using the expressive and receptive one-word picture vocabulary tests (Brownell, 2000). The findings showed that the EAL group demonstrated fast and accurate reading ability, but that their lower level of vocabulary knowledge significantly impeded their reading comprehension of both spoken and written texts (Burgoyne et al., 2011a). The results also showed that when the accuracy component from the NARA-R was controlled, the main effect of group was highly significant. The NS group was found to outperform the EAL group on reading comprehension in both Year 3 ($\eta = .13$) and Year 4 (η

=.30) (Burgoyne et al., 2011a). The researchers suggested that there was a reciprocal relationship between vocabulary knowledge and reading comprehension, and that this might lead to an increasing educational attainment gap between EAL and monolingual learners over time (Burgoyne et al., 2011a:353).

Burgoyne, Whiteley and Hutchinson (2011b) similarly reported that low levels of vocabulary knowledge were a contributing factor in reading comprehension difficulties in EAL learners. They assessed EAL ($N=16$) and NS children ($N=16$) on measures of word reading, reading comprehension (NARA-R; Neale, 1997), and receptive and expressive vocabulary (Receptive and Expressive One-Word Picture Vocabulary Tests; ROWPVT; EOWPVT; Brownell, 2000a; 2000b). The receptive vocabulary test requires the child to select one from a selection of four pictures that most closely represents the orally-administered test word. When assessing expressive vocabulary knowledge, the child is presented with a series of pictures depicting an object, concept or action, which they must correctly name (Burgoyne et al., 2011b:137). An experimental measure of reading comprehension, the 'Gan' fictional word paradigm (modified from Barnes, Dennis and Haeefe-Kalvaitis, 1996) was also administered to investigate the relationship between comprehension skill and inference-making ability (Burgoyne et al., 2011b:137).

The results showed that the differences in reading comprehension scores were significant on both measures in favour of the NS group (Burgoyne et al., 2011b:143). The researchers suggested that these differences were unrelated to word reading accuracy, as the groups were matched on single word reading (Burgoyne et al., 2011b:143). Interestingly, the scores on the 'Gan' tasks were found to correlate strongly with vocabulary knowledge for the EAL group, especially the picture recognition task (Burgoyne et al., 2011b:145). The researchers stated that weaker receptive and expressive vocabulary knowledge in the EAL group significantly contributed to their weaker reading comprehension (Burgoyne et al., 2011b:145).

To summarise, Burgoyne's assertion (2009) that reading comprehension difficulty experienced by EAL learners in comparison to their NS peers was likely due to weaker levels of vocabulary knowledge, is supported by this small body of UK research. The findings demonstrated that EAL children attain significantly lower scores on measures of receptive and expressive vocabulary than their NS peers throughout their schooling. Whilst further research is needed to better understand the relationship between vocabulary and comprehension, these results suggest that relationships between vocabulary and comprehension are stronger for EAL children than they are for NS learners (Murphy, 2014; Smith and Murphy, 2014; McKendry, 2012).

There are some key international studies which have similarly demonstrated the important contribution of vocabulary knowledge to EAL learners' reading comprehension (Mancilla-Martinez and Lesaux, 2010; Verhoeven, van Leeuwe and Vermeer, 2011; Lervåg and Grøver Aukrust, 2010; Droop and Verhoeven, 2003; Li, McBride-Chang, Wong and Shu, 2012). Indeed, in Lervåg and Grøver Aukrust (2010) they investigated the role of decoding and vocabulary knowledge as longitudinal predictors of reading comprehension in young EAL and NS learners in Norway. The findings reported that vocabulary knowledge was a stronger predictor of reading comprehension ability in the EAL group, and that their limited vocabulary knowledge would seem to suggest the delay in their reading comprehension development (Lervåg and Grøver Aukrust, 2010:612).

Similar findings were reported in Verhoeven, van Leeuwe and Vermeer (2011) in their nationwide, representative sample of 2,790 children in the Netherlands. The results from their longitudinal study investigating the relationships between vocabulary growth and reading development showed that there was a reciprocal relationship between vocabulary knowledge and reading comprehension in the elementary stages of schooling (Verhoeven, van Leeuwe and Vermeer, 2011:8). Mancilla-Martinez and Lesaux (2010) investigated the development of English

reading comprehension skills in Spanish-speaking pupils, and similarly reported that limited vocabulary growth led to levels of reading comprehension ability below that expected for their age (Mancilla-Martinez and Lesaux, 2010:10).

To summarise, research conducted both in the UK and internationally, has identified that a reciprocal relationship exists between vocabulary abilities and reading comprehension acquisition in EAL learners. Indeed, it has been argued that weak vocabulary knowledge will likely cause a delay in the reading comprehension development of EAL learners. This thesis aims to add to this area and investigates the contribution of vocabulary knowledge on reading comprehension in young struggling EAL readers, who have participated in the remedial RR intervention.

2.4.2 Decoding and the EAL learner

The UK studies identified in the previous section of this review have examined the contribution that *decoding* makes to reading comprehension acquisition using measures assessing word reading ability.

Gough and Tunmer (1986) provided a definition of *decoding* as being the ability to ‘...*read isolated words quickly, accurately...*’ (Gough and Tunmer, 1986:7). Furthermore, they emphasised the importance of letter-sound relationships and proposed that the ‘*purest measure*’ of decoding is the ‘...*ability to pronounce pseudowords...*’ (Gough and Tunmer, 1986:7). Following their definition of the purest measure of decoding, this would require that the children make accurate mappings between orthography and phonology, without any semantic or syntactic cues to facilitate the decoding process.

To that end, the UK studies mentioned above assessed their participants using either the single word reading subtest from the British Abilities Scale (BAS; Elliott, Smith and McCulloch,

1997); the Accuracy subtest from the Neale Analysis of Reading Ability – Revised British Edition (NARA-R; Neale, 1997); the Reading Decision Test (RDT; Baddeley, Gathercole and Spooner, 2003); or the Wide Range Achievement Test (WRAT3; Wilkinson, 1993).

The single word reading subtest from the BAS (Elliott et al., 1997) presents a list of context-free words, which provide no semantic cues that could assist the decoding process. The NARA-R Accuracy test (Neale, 1997) requires the children to read words which are presented in a story context. It is possible that a participant may use semantic and/or syntactic cues to decode these words. The Reading Decision Test (Baddeley et al., 2003) comprises two subtests. Firstly, the word decision subtest assesses the child's ability to distinguish between meaningful words and nonsense words. The letter decision subtest determines whether the reading difficulties are at the letter or word level, by assessing the child's ability to identify written letters. The WRAT3 test (Wilkinson, 1993) assesses the child's general academic coding skills required for learning to read.

Burgoyne, Kelly and Spooner (2009) suggested that poor reading comprehension skills in EAL learners was not due to inadequate decoding skills. This argument was generally affirmed by the other studies, in which it was reported that the word reading ability of EAL children was similar to that of their NS peers. Burgoyne et al., (2009) assessed 7-8 year old EAL and NS children on the WRAT3 (Wilkinson, 1993) and the Accuracy component from the NARA-R (Neale, 1997) and reported that the groups did not differ on either measure. Similarly, Beech and Keys (1997) reported that the EAL group did not differ significantly from the NS group on the single word reading subtest from the BAS (Elliott et al., 1997).

Stuart (2004) also reported that there were no significant differences between 7-year-old EAL and NS children when assessed on either the single word reading test from the BAS (Elliott et al., 1997), or the Accuracy subtest from the NARA-R (Neale, 1997). Hutchinson et al. (2003) assessed EAL and NS children on the Accuracy test from the NARA-R as they progressed from

Year 2 –Year 4 in primary school. They reported that both groups made significant progress on their word reading ability between each school year. They found that there was no significant effect of group or interaction effects, which showed that the groups did not differ in terms of their word reading ability as measured by the NARA-R. They also reported that the groups made similar rates of progress during their schooling in Years 2-4 (Hutchinson et al., 2003).

Conversely, a study by Rosowsky (2001) claimed that the EAL group had significantly higher scores than the NS group on the Accuracy subtest of the NARA-R. However, Rosowsky does not provide the details of the statistical analyses conducted to obtain these results, thus the findings must be interpreted with caution. In Burgoyne et al. (2011a), results showed that the EAL group significantly outperformed the NS group on both the Accuracy subtest of the NARA-R (Neale, 1997) ($\eta = .08$) and on the WRAT3 (Wilkinson, 1993) ($\eta = 0.10$) in both Year 3 and Year 4. Furthermore, Burgoyne et al. (2011a) report that between Year 3 and Year 4, both groups made similar amounts of progress on their decoding ability, as measured by the NARA-R (Neale, 1997) and WRAT3 (Wilkinson, 1993) which suggested that the EAL group sustained their gains and maintained their lead on these measures relative to the NS group (Burgoyne et al., 2011a).

However, Frederickson and Frith (1998) investigated the decoding ability of 10-11 year-old pupils and reported that the EAL group scored significantly lower than their NS peers on the Accuracy component of the NARA-R (Neale, 1997). This result was, however, still within 1 standard deviation of the expectation for the group's chronological age (Frederickson and Frith, 1998). Interestingly, Frederickson and Frith conducted further analyses on their data by comparing the EAL group's decoding performance on the NARA-R to that on the single word reading subtest of the BAS (Elliott et al., 1997). They reported that when standard scores were used in the analyses, the EAL group scored significantly higher on the BAS.

To summarise, the argument made by Burgoyne et al. (2009) that EAL children in the UK experience far fewer difficulties in decoding when compared to their NS peers is generally supported in some of the literature. However, if decoding is the accurate mapping between orthographic and phonological relationships, as outlined by Gough and Tunmer (1986), where the child must rapidly read context-free pseudowords, then Burgoyne's assertion is too strong. The UK studies presented in this review did not include a measure of phonological awareness, whereby the children's ability to decode pseudowords was assessed. This thesis will investigate the 'pure' decoding ability of 5-6 year-old EAL and NS children by including a measure of non-word decoding.

2.4.3 Phonological skill

The relationship between *phonological awareness* skills and reading acquisition is unquestionable, with numerous studies reporting that children's *phonological awareness* assumes a central role in their reading skill ability (Melby-Lervåg, Halaas-Lyster and Hulme, 2012; Castles and Coltheart, 2004; Bowyer-Crane et al., 2008; Duff and Hulme, 2012; Goswami and Bryant, 1990; Byrne, 1998).

The definition of the concept of '*phonological awareness*' remains ambiguous, and the term is frequently used in research to refer to a broad range of phonological processing skills. This phonological awareness is demonstrated through, for example, the child's ability to recognise individual phonemes, letter-blends, onset-rime units (the beginning and ending syllables of words), 'silent' phonemes, and identify rhyming words. In addition, it also relates to the child's ability to decode context-free, and pseudo- words.

However, a widely accepted distinction between *implicit phonological awareness* and *explicit phonological awareness* exists, which provides clarity when referring to the different skills that are associated with this construct (Hulme, Hatcher, Nation, Brown, Adams and Stuart, 2002; Melby-

Lervåg, Halaas-Lyster & Hulme, 2012). *Implicit phonological awareness* refers to tasks which require the child to use such phonological awareness to process the word encountered automatically, without reflecting upon the sound structure of the spoken word (Gombert, 1992; Melby-Lervåg, Halaas-Lyster & Hulme, 2012). *Explicit phonological awareness* refers to the child's ability to identify and manipulate individual speech sounds in the words they encounter (Gombert, 1992; Melby-Lervåg, Halaas-Lyster & Hulme, 2012). For continuity, this review will use the term *phonological awareness* to refer to both implicit and explicit phonological awareness when discussing the literature on this area.

This chapter is not intended to be an exhaustive review of this mature area of research, but presents literature which has investigated the role and predictive ability of phonological awareness on reading skill, and the findings from literacy intervention studies which have investigated the explicit tuition of phonological awareness and its effect on children's reading ability.

2.4.3.1 Role and predictive ability of phonological awareness on reading skill in young learners

Previous studies which have investigated the role of phonological awareness skills have reported the strong correlation between this construct and word reading development, particularly in L1 literature (Hulme et al., 2002; Castles and Coltheart, 2004; Cardoso-Martins, Mesquita and Ehri, 2011; Wagner and Torgesen, 1987; Duff and Hulme, 2012; Shankweiler and Fowler, 2004).

However, controversy remains surrounding children's progress in acquiring early reading skills, and the role that phonological awareness assumes in this development. The evidence that phonological awareness skills assist reading development is overwhelming. However, the question of which exact phonological skills are causal to reading success remains intensely debated. Some researchers have argued that children learn to read through their understanding

of larger phonological units in spoken words (Goswami and Bryant, 1990). Indeed, Goswami and Bryant claimed that the *developmental theory* applied to children's reading acquisition, whereby children initially learned to read by firstly attending to these larger phonological units, consisting of syllables, and then proceeding to develop their understanding of onset and rime divisions within the syllable. At the time, these researchers claimed that, having established these skills, only then could children progress to understanding smaller phonological units, consisting of individual phonemes (Goswami and Bryant, 1990).

However, more recently, studies have reported that children firstly use their phonemic awareness of small units – specifically, their knowledge of individual letter sounds and names, to decode words encountered in English (Duff and Hulme, 2012; Hulme et al., 2002). Indeed, as reported in Castles and Coltheart's review (2004) many letters represent individual phonemes, thus children must be aware of these most basic of speech units prior to learning about phoneme-grapheme relationships and attempting to read.

A study by Hulme et al. assessed the role of onset-rime vs. phoneme awareness as concurrent and longitudinal predictors of early reading ability (Hulme et al., 2002:19). In their study, they tested 72 children in the Reception year and Year 1, from primary schools in the UK. The children were divided into two groups, 'Poor readers' ($N=36$) and 'Better readers' ($N=36$) and assessed using the single word reading sub-test from the British Abilities Scale (BAS-II; Elliott, 1996), the receptive vocabulary knowledge test from the British Picture Vocabulary Scale (BPVS-II; Dunn, Dunn, Whetton and Burley, 1997), and four levels of phonological awareness were assessed (onsets, rimes, initial and final consonants) using three tasks (including sound detection, sound oddity and sound deletion) (Hulme et al., 2002:6). The children were then re-assessed using the BAS single word reading sub-test between 7-14 months later.

The results showed that measures of phonemic awareness were excellent predictors of early reading skills, which supported findings in previous research (Muter, Hulme, Snowling and Taylor, 1998; Hatcher and Hulme, 1999; Hulme et al., 2002:19). The results also indicated that

measures of onset-rime awareness were weak predictors of reading ability. Furthermore, the researchers found that once the variance of phonemic awareness measures was accounted for, there was no contribution from onset-rime measures to the prediction of children's reading ability (Hulme et al., 2002:19).

The findings of Duff and Hulme also showed that phonemic skills were positively associated with children's reading ability, and that children who had strong phonemic skills learned to read new words more quickly. In their study, they assessed the effect of phonology and semantic knowledge on reading development in 5-6 year old children ($N=18$) (Duff and Hulme, 2012). As measured by sub-tests from the York Assessment of Reading for Comprehension (YARC; Snowling, Stothard, Clarke, Bowyer-Crane, Harrington, Truelove, and Hulme, 2009) the children's scores for literacy were found to be, on average, age appropriate (Duff and Hulme, 2012). The children were taught 12 pseudo-words, four words in three conditions (phonological plus semantic pre-exposure; phonological pre-exposure; no pre-exposure) (Duff and Hulme, 2012:515). The researchers used correlations to explore the linguistic skills associated with individual differences in learning. They reported that children's letter knowledge, phonemic awareness skills and reading ability were all significantly correlated with reading the pseudo-words (Duff and Hulme, 2012:520). The researchers argued that children relied on a letter-sound decoding strategy in order to read the pseudo-words, and that phonological pre-exposure to unfamiliar pseudo-words improved their ability to read them (Duff and Hulme, 2012:521). Although results from this recent study support previous findings (e.g. Snow and Jule, 2005) caution must be taken when interpreting the results given the small sample size ($N=18$) and that no control group was included in this experiment.

Linklater, O'Connor and Palardy (2009) tested the effects of three phonemic awareness measures on the later reading performance of NS and EAL children. The sample included 289 NS children and 112 EAL children ($N=401$). The children were assessed using sub-tests from

the Dynamic Indicators of Basic Early Literacy Skills (DIBELS), including the Initial Sounds Fluency (ISF) test, the Phoneme Segmentation Fluency test (PSF), and the Combined Phoneme Segmentation Task (CPST) to investigate whether these skills predicted performance on Non-word Fluency (NWF) and reading (Linklater, O'Connor and Palardy, 2009). Results from regression analyses showed that ISF and CPST at the beginning of kindergarten significantly predicted the variability on post-test measures of pseudo-words, word identification and reading comprehension for both NS and EAL children (Linklater, O'Connor and Palardy, 2009:389). Furthermore, the results also showed that the EAL children scored significantly lower than the NS children on the ISF test, which the researchers suggested was due to the EAL children beginning school with lower reading skills (Linklater, O'Connor and Palardy, 2009:388). These findings correspond with research showing that individual differences in phonemic awareness and letter knowledge in both NS and EAL children alike are strong predictors of success in acquiring reading skills (Kame'enui, 2002; Quiroga, Lemos-Britton, Mostafapour, Abbott and Berninger, 2002).

Furnes and Samuelsson (2011) noted that a general pattern found in the literature on this topic was that the association between phonological awareness and reading ability was more pronounced in opaque languages such as English, and that this association was consistently found to predict reading and spelling development in NS and EAL children alike (Furnes and Samuelsson, 2011:85).

2.4.3.2 Literacy programmes teaching phonemic/phonological awareness skills

Hatcher, Hulme and Willis's (1994) classic longitudinal study investigated the '*phonological linkage hypothesis*', and reported that training in phonological awareness which involves explicit tuition of letter-sound correspondences (moreover, phonically-based reading tuition) is an effective way of improving and maintaining reading ability (Hatcher et al., 1994:43). Hatcher et al.'s sample

consisted of 128, seven-year-old children, with reading difficulties. Three treatment groups were identified (Reading + Phonology group; Reading Alone group and Phonology Alone group) and one Control group. The study adopted a pre- and post-test design (9 months later), following a 20-week intervention programme. The children were administered a large battery of literacy and phonology related assessments, with the post-test results indicating that for all of the measures, the Reading + Phonology group made the greatest reading progress (Hatcher et al., 1994:50). The Reading Alone group and Phonology Alone group were not significantly different from the Control group.

The findings supported the 'phonological linkage hypothesis', demonstrating that an effective means of improving the reading skills of young, struggling readers is to provide a programme which integrates developing phonological processing skills with reading tuition (Hatcher et al., 1994:43).

Ryder, Tunmer and Greaney (2008) also investigated whether explicit instruction in phonemic awareness and phonemically based decoding skills was effective for children who demonstrated early reading difficulties. Their sample included 6-7 year-old children ($N=24$) who were identified as the lowest performing pupils on the Burt word recognition test, New Zealand Revision (Gilmore, Croft and Reid, 1981) from a larger pool of 64 pupils across four classrooms in Year 2 and Year 3 of the participating primary school (Ryder et al., 2008:249).

The 24 children were then randomly assigned to treatment or control groups and pre-tested on their phonemic awareness (Robertson and Salter, 1997), phonological decoding ability (Richardson and DiBenedetto, 1985), word recognition in connected text (Neale, 1988) and reading comprehension (Neale, 1988) (Ryder et al., 2008:355). The treatment groups (1 teacher to 3 children) then participated in 56 semi-scripted tutorials in phonemic awareness and alphabetic coding skills (Ryder et al., 2008:249) over a period of 24 weeks.

ANOVA analyses were carried out and the post test results showed that the intervention group significantly outperformed the control group on all of the measures (Ryder et al.,

2008:364). Furthermore, results from the delayed post-tests administered two years later, showed that the intervention group again outperformed the control group on the Burt Test (effect size of .72) and Neale Accuracy sub-test (effect size of .81) (Ryder et al., 2008:364). The results of the follow-up reading measures showed that the intervention group had an average reading age 7 months below that of their chronological reading age, putting them within the normal range. However, the control group had an average reading age 17 months below that of their chronological reading age (Ryder et al., 2008:364). These results indicated the positive effects of the intervention on the children's phonemic awareness, pseudo-word decoding and context-free word recognition ability, and that these effects were maintained on the children's reading achievement two years post-intervention (Ryder et al., 2008:365).

Hatcher, Hulme, Miles, Carroll, Hatcher, Gibbs, Smith, Bowyer-Crane and Snowling (2006) conducted an RCT to evaluate the effectiveness of an intervention which targeted phoneme awareness, word and text reading and phonological linkage exercises (Hatcher et al., 2006:820). Their sample consisted of 5-6 year-old children ($N=77$) identified by their schools as having the weakest reading skills, and they were assigned to either the 20-week intervention group, or the 10-week intervention group who received no special support for the first 10 weeks of the intervention, but received the same tuition for the final 10 weeks (Hatcher, et al., 2006).

The children were assessed on a pre-/post-test basis on vocabulary (BPVS-II; Dunn et al., 1997), phoneme awareness (Phonological Abilities Test; Muter, Hulme and Snowling, 1997), phoneme manipulation (Sound Linkage Test of Phonological Awareness; Hatcher, 2000), letter identification and two measures of single word reading (Early Word Recognition Test, EWR; Hatcher et al., 1994; and the BAS-II; Elliott et al., 1997) (Hatcher et al., 2006:823). At the end of the first 10-week tuition period, the two groups were re-assessed, and the 20-week intervention group were found to have made significant gains across all measures compared with the 10-week intervention group who had not received tuition (Hatcher et al., 2006:824). The researchers reported the effect sizes of progress made by the 20-week intervention group as medium to

large: Cohen's *d*: BAS single word reading =.69, EWR single word reading =.79; letter knowledge =.94 and phoneme completion =.46) (Hatcher et al., 2006:824). However, by the end of the final 10-week tuition period, the 10-week intervention group had caught up (Hatcher et al., 2006).

The researchers concluded that both groups of children made significant rates of progress on reading ability, and that the effects of the intervention were maintained when the children were re-assessed 11 months post-intervention (Hatcher et al., 2006). Furthermore, they suggested that interventions which incorporated phonological awareness and reading tuition would be effective in helping children who demonstrated early reading delay (Hatcher et al., 2006). Similar findings have been reported in other L1 intervention studies which have investigated the effect of phonological training alongside reading tuition (Bowyer-Crane, Snowling, Duff, Fieldsend, Carroll, Miles, Götz and Hulme, 2008).

Quiroga, Lemos-Britton, Mostafapour, Abbott and Berninger (2002) reported the findings of their instructional design experiment, where the main outcome was improved word reading ability in Spanish-speaking EAL children (Quiroga et al., 2002:90). The eight participants consisted of the four lowest-achieving males and four lowest-achieving females from their original sample in another experiment. The children participated in 12, 30-minute lessons, delivered on a one-to-one basis, over the course of a six-week period (Quiroga et al., 2002). Quiroga et al. reported that the children received phonological awareness tuition in both Spanish and English, explicit instruction in the alphabetic principle (that words are made up of letters, and those letters represent sounds), practice in reading and re-reading text, and comprehension monitoring (Quiroga et al., 2002:100).

The researchers concluded on the basis of this small sample that both NS and EAL children who demonstrate serious reading delay can make substantial gains if they are given an empirically supported reading intervention (Quiroga et al., 2002:104).

Chiappe and Siegel (1999) examined the contribution that phonological processing made to the development and acquisition of reading skills in Punjabi (L1) children in comparison to their NS peers. The children were assessed using five measures of phonological processing, which included pseudoword tasks, phoneme recognition tasks, a phoneme location identification test, and a test to demonstrate deletion and substitution of phonemes within words (Chiappe and Siegel, 1999:22).

Their results indicated that *average* readers were distinguished from *poor* readers and that the *average readers* attained higher scores on both word recognition and phonological processing measures (Chiappe and Siegel, 1999:23). The findings suggested that the children's reading abilities in both language groups were strongly associated with good word recognition and phonological processing skills. Furthermore, the researchers reported that the performance profiles for the EAL group were similar to the NS group, and that phonological processing skills had a significant relationship with reading ability for both groups of children (Chiappe and Siegel, 1999).

Stuart (1999) also found that the '*focused and rapid*' tuition led to accelerated progress and understanding of these skills for both NS and EAL children (Stuart, 1999:603). In her study, 112 children, ninety-six of whom were learning EAL, were assigned to either an experimental programme, Jolly Phonics (JP; which focuses on phonics and phoneme awareness) or the control programme, Big Books (BB; which takes a more '*...holistic approach...*'; Holdaway, 1979) (Stuart, 1999:587). The children were assessed at pre-, post- and delayed post-test (one year later) using a stringent battery of phonological processing and reading accuracy and comprehension assessments.

The findings indicated that, at delayed post-test, the JP group outperformed the BB group on both the reading comprehension and dictation measures (Stuart, 1999:602). As Stuart states, the JP experimental intervention appeared to accelerate the children's acquisition of phonemic knowledge and other phonological processing skills, in addition to their ability to

apply these concepts to reading long after the intervention had finished (Stuart 1999:603). These results suggest that as a child's phonological processing skills developed so too did their ability to comprehend text. Similar findings were reported in Ehri, Dreyer, Flugman and Gross (2007).

In summary, empirical evidence has shown a strong correlation between phonological awareness and reading development. Indeed, those children with strong phonemic skills have been found to learn to read more quickly than those with lower levels of phonological awareness. Intervention studies have also demonstrated the effectiveness of explicit phonological awareness instruction on improving the reading skills of young children. These studies have reported that significant rates of progress on reading ability were made when phonological awareness was incorporated alongside reading tuition. The literature investigating the role of phonological awareness skills and the EAL learner similarly found that those children with strong phonological processing skills made accelerated rates of progress in reading acquisition. This study will investigate the contribution of phonological awareness to the reading comprehension of young EAL learners by including a pseudo-word test.

This review has outlined the RR intervention, including a discussion of its diagnostic and assessment instrument, the OS. The instructional approach of the intervention was discussed, including the teacher-pupil ratio, the use of 'scaffolding' and the expertise of the RRTs delivering the tutorials. The effectiveness of the intervention in narrowing the attainment gap and improving the reading ability of both EAL and NS children was also presented, along with criticisms of the methods in some of the studies.

The review presented the SVR as the theoretical framework underpinning this study, and provided a discussion on the contribution of vocabulary knowledge to reading comprehension. A discussion of the reading skills of EAL learners in relation to the SVR was also provided, and the reciprocal relationship between decoding, linguistic comprehension and vocabulary was considered.

Lastly, this review considered the current UK literature relating to reading comprehension in EAL learners. The discussion focused on three literacy constructs associated with reading success namely, vocabulary knowledge, decoding ability, and comprehension skills for this population of children. The research design and methodology of the study will be presented in Chapter 3.

Chapter 3 – Research design and methodology

3.1 Introduction

This chapter presents the methodology of the current research study, including the research design; research questions; measures administered; sampling; research procedures and ethics. The study comprises two phases – the first is the Pilot Phase, which entailed trialling the literacy measures in order to ascertain their suitability for use with EAL children and decide which tests would be administered in the Main Phase of the project. The second stage is the Main Phase, in which a group of native, English-speaking children and a group of children learning EAL were recruited to the study to investigate possible differences in progress made by these groups of learners on literacy outcomes, having participated in the RR intervention. The research outline for the study is presented in Table 3.1.

3.1.1 Aims

The purpose of this study was to investigate whether, and to what extent, language status has a differential effect on the literacy development of children learning EAL in comparison with their native speaking peers, all of whom were participating in the Reading Recovery intervention (RR: Clay, 2002). The literacy constructs which were assessed in this thesis included reading comprehension, vocabulary knowledge, word reading accuracy and phonological skill. More specifically, the study examined these skills through the use of tests standardised against a UK population designed to assess such literacy constructs.

Table 3.1 Research outline

Research Phase	Participants	Measures	Sessions
Pilot Phase	- N=20 EAL children - who are either about to start, or are in the ‘Roaming’ stage of the intervention.	- WASI - WIAT - YARC - BPVS	- A single, one-to-one testing session per child, lasting approximately 20 minutes. - All listed measures administered.
Main Phase	- N=100 - 48 NS children and 52 EAL children recruited to the RR intervention.	- WASI* - BAS - WIAT - PHAB - BPVS - YARC**	- Two, one-to-one sessions per child (pre- and post-test), lasting approximately 30 minutes - All listed measures administered

* administered at pre-test only ** administered at post-test only

The study was designed to address the two research questions that follow:

3.1.2 Research Questions

1) What is the contribution of EAL status to progress on literacy measures made by the children who have participated in the Reading Recovery intervention when compared with native speakers also in the intervention?

2) Are the predictive relationships between pre-test scores (single word reading accuracy, vocabulary knowledge and phonological skill) and post-test reading comprehension scores different for NS and EAL children?

3.2 Research Design

The study adopted a prospective, between-groups design, with two groups of young learners participating in Reading Recovery: native, English-speaking children (NS) and children for whom English is an additional language (EAL). The study explored possible differences in the patterns of gain on a range of outcome measures for NS and EAL children participating in the Reading Recovery intervention. It also investigated the degree to which pre-test measures in the two groups of children predicted their scores on a range of outcomes at the end of the programme. The UK standardised tests were administered at pre- and post-test to both groups of children.

3.2.1 Study overview

Data collection for the study took place during the academic year 2011-2012, and consisted of a Pilot Phase and a subsequent Main Phase. The Pilot Phase was conducted between March – May 2011. A total of twenty EAL children from nine primary schools across the UK participated in this stage. Each child had a single, one-to-one session with the researcher and completed assessments in single word reading, reading comprehension, vocabulary knowledge, non-word decoding and non-verbal general cognitive functioning. On the basis of the results from the Pilot Phase, the final measures to be used in the study were selected, and 100 children were recruited to participate in the Main Phase, which took place between May 2011 – July 2012. A total of twenty-three primary schools, located across England, agreed to participate in the study. These children were split into two groups, determined by their language status – the native, English-speaking group (NS) and the English as an additional language group (EAL). Each of these children participated in two, one-to-one sessions with the researcher: a pre-test followed by a post-test upon completion of the RR programme.

3.3 Sampling procedures

In order to investigate differential effects of the RR programme on the literacy development of struggling young readers in the UK, 48 NS children and 52 EAL children were recruited to the main sample of this study. The children recruited to the study were those identified as the weakest readers in their class, on the basis of the results from the Observation Survey (Clay, 2002) administered by the RR teacher during the selection process for the new cohort of RR participants. More specifically, the children demonstrated that they have a literacy ability which falls in the bottom 20% of their class, based on their SAT results taken at the end of Key Stage 1, and have a reading ability significantly below that of the national expectation for their age.

The children were all within 5 years 9 months and 6 years 3 months at the time of commencement of the intervention, as expressly required for inclusion in the RR programme. The EAL status of the children is classified as such where the L1 of the children is not English and the child is considered a 'sequential bilingual' (i.e. where the L1 is established at home prior to their learning English as the L2 when they begin school). The children's ethnicity is categorised into the following groups: White British ($N = 44$); Non-UK European ($N = 2$); Afro-Caribbean ($N = 2$); African ($N = 1$); South-East Asian ($N = 46$); and Other ($N = 5$). Those children at very high levels of social risk (e.g. child protection cases, or difficult asylum situations) were routinely excluded from the programme by the RR teachers due to family turmoil and the likelihood that the child might move from the area. However, once it was decided by the RR teacher that the children were suitable for the programme, they were included in the research, and the criteria for inclusion are the same for both groups. Thus, there are no children at high risk in either the NS or EAL groups.

In February 2011, all of the Reading Recovery Teacher Leaders (RRTLs) throughout the UK ($N=100$) were contacted to see if they would participate in the study. In March 2011, having obtained ethical approval from the Central University Research Ethics Committee (CUREC),

those Reading Recovery Teacher Leaders who expressed an interest in participating in the study ($N=8$) were sent an information sheet (Appendix 1) and a consent form (Appendix 2). Those who returned forms were then contacted to find out if they, or their RR teachers, had plans to work with children fitting the criteria for the Pilot Study (outlined in section 3.3.1).

In those cases where the RR teachers were about to work with suitable children, their primary schools were then sent a covering letter (Appendix 3), information sheet (Appendix 4) and a consent form (Appendix 5) in order to find out if the schools were willing to participate in the research. The RR teachers at the participating schools were then asked to send a letter home to the children's parents. The letter included an information sheet (Appendix 6) and an opt-in consent form (Appendix 7).

3.4 Measures used in the study

The standardised measures administered in this study have been extensively used in previous research with samples consisting mainly of native-speaking children (Cutting and Scarborough, 2006; Sesma et al., 2009; Hatcher, Hulme and Ellis, 1994; O'Hare and Khalid, 2002; Cain and Oakhill, 2011; Cunningham and Carroll, 2011). Previous research (Stuart, 1999; Clancy, 2010) has used the BAS single word reading test (Elliott et al., 1997) with a sample of EAL children and considered the validity and reliability of the measure to be satisfactory for use with this population of children. Clancy (2010) also administered the reading comprehension sub-test from the WIAT (Wechsler, 2006) and the non-word reading test from the PHAB (Frederickson et al., 1997) to a sample of EAL children participating in the RR intervention (Clancy, 2010). The instruction manuals for the WASI (Wechsler, 1999), BAS (Elliott et al., 1997), WIAT (Wechsler, 2006), PHAB (Frederickson et al., 1997) and the BPVS (Dunn et al., 1997) provide detailed information relating to the reliability and validity of the respective measures. Throughout

the testing sessions, the researcher adhered to the administration and scoring guidelines stipulated in these instruction manuals.

The concept of validity is fundamental to all assessment, as it provides an indication of how accurate a measure is. This concept takes several forms, including content validity, which refers to whether the content of the measure is appropriate for what it is trying to assess; and most importantly, construct validity, which refers to whether the outcomes reported as being the foci of the investigation were actually measured and attended to (Cohen and Manion, 1994; May, 2011; Joppe, 2000).

The element of reliability is of significant importance in research as it relates to the consistency in the measurements used, and facilitates the researcher in identifying and estimating any error that may be present in the analysis (Punch, 2005:95). As Punch (2005) states, error and reliability are inextricably linked, for if there is strong reliability in the study, there will likely be smaller error (Punch, 2005:96). When conducting any research, it is possible that researcher-error in the administration or scoring of the assessments may occur, thus careful attention was taken to avoid such error in this study. This involved scheduling sufficient time with each child and remaining patient when working with children of this age.

3.4.1 General cognitive functioning: The Wechsler Abbreviated Scale of Intelligence (WASI; Wechsler, 1999).

The Wechsler Abbreviated Scale of Intelligence is a nationally standardised assessment which can be used to estimate an individual's general cognitive functioning. The standardization data were obtained from a large-scale, representative sample of individuals aged between 6-89 years in America, allowing the norms to be used with confidence in the present study. The WASI has been used in previous research with participants who had varying levels of ability, including those learners who were above average learners and those who had learning disabilities or

language specific disorders (LoBello, 1991). The two-subtest forms of the assessment include a matrix reasoning test which measures the child's ability to process visual data and their abstract reasoning ability. The WASI was included in this study in order to ensure that the monolingual English children and those children learning EAL were comparable in their general cognitive ability. The matrices were not used for diagnostic purposes.

The measure includes two initial practice patterns, following which are 31 incomplete patterns that comprise the test. The child is required to select from a choice of five possibilities the picture which correctly completes the pattern. Unlike other tests of general cognitive functioning, the WASI is quick to administer, taking approximately 5 - 10 minutes, which was advantageous when working with young children. The speed at which this test can be administered was very practical as this not only minimised the amount of time that the children were absent from their regular classroom work, but also because it allowed the tests to be carried out in a single session, thereby avoiding multiple trips to the school and the potential disruption that this would have caused.

The test developers used split-half and test-retest methods to calculate the reliability coefficients for the WASI assessment. The developers report that, in general, the average reliability coefficients for the sub-tests were quite strong (Wechsler, 1999). The average reliability coefficients for children aged 6-16 years ranged from .87 - .92. The test developers used the test-retest method to assess the stability of the scores on the WASI, whereby the participants were assessed twice over a 2 – 12 week period. The results showed that for the child sample ($N = 116$) the average stability coefficients ranged from .88 - .93 for the IQ sub-test (Wechsler, 1999). On the basis of these findings, the WASI can be considered reliable. The content and construct validity of the measure was also assessed by the test developers. In order to investigate the content validity of the WASI matrices, correlations were performed between the performance on this measure, and its equivalent from the WAIS-III (Wechsler, 1997). The mean correlation coefficient across age groups was reported as .66 (Wechsler, 1999). In order to assess the

construct validity of the WASI, intercorrelations were established between the WASI sub-tests and IQ scales and the outcomes of factor analyses (Wechsler, 1999). The results of these correlations showed that the WASI matrices correlate significantly with the sub-tests from the WAIS-III at a moderate level (between .48 - .54) (Wechsler, 1999:140).

This non-verbal IQ assessment can be considered appropriate for use with those children who may have limited English skills given that the test not only requires little verbal explanation, but also because the child is not required to vocalise or provide explanation for their answers. Pilot work was carried out to ensure the suitability of the test for use with the main sample.

3.4.2 Reading comprehension ability: The Wechsler Individual Achievement Test-II (WIAT-II; Wechsler, 2006).

The Wechsler Individual Achievement Test-II has been widely used in research investigating the literacy ability and development of young children (Cutting and Scarborough, 2006; Berninger et al., 2004; Sesma et al., 2009). The measure was nationally standardised on 800 children living in the UK, thus providing a similar representation of the population of children to be recruited to the present study (Wechsler, 2006). The reading comprehension subtest assesses the child's '*...literal, inferential and lexical comprehension*' (Wechsler 2006:1) through various activities which include matching single words with corresponding pictures, and reading sentences and short texts and answering content-related questions (Wechsler 2006:1). The WIAT reading comprehension assessment includes low floor items which enables the test to accurately measure the ability of lower functioning pupils. This allows the researcher to obtain a detailed evaluation of the child's current reading comprehension level. The suitability of the WIAT reading comprehension sub-test for use with this population of children was established in a previous study conducted by the researcher (Clancy, 2010). In Clancy (2010), the test was used with NS

children and EAL children who had been recently discontinued from the RR programme (post-test stage) thus extensive pilot work was carried out to ensure the suitability of using the WIAT with children at the pre-test stage of the RR programme. The test developer reports that the majority of reliabilities meet or exceed .80 (for sub-tests) and .90 (for composites), thus evidencing the test's reliability (Wechsler, 2006). Furthermore, the measure's validity is reported as being determined through comparisons of the WIAT with other assessments of achievement (Wechsler, 2006).

3.4.3 Reading comprehension ability: The York Assessment of Reading for Comprehension (YARC; Snowling et al., 2009).

The York Assessment of Reading for Comprehension, developed in the UK, is a relatively new measure of children's reading comprehension. The assessment includes a Passage Reading test which is suitable for use with primary school aged children between the ages of 5 – 11 years. There are two forms (Form A and Form B) of texts for the researcher to choose from. The assessment measures the child's reading accuracy, reading rate and reading comprehension (Snowling and Hulme, 2011) and can provide a diagnostic evaluation of underlying difficulties which may impact on the child's reading progress (Snowling et al., 2011). The YARC test was standardised on a sample of 1,324 primary school aged pupils throughout the UK. This sample included EAL pupils ($N = 89$) and the results from the standardisation sample showed that, for the reading comprehension sub-section of the YARC test, the EAL children's scores were between 6 – 10 points lower than their NS peers. The test developers state that as the YARC is an individual assessment, it is suitable for use with EAL children.

The child is asked to read a short passage aloud, during which the researcher times the child's reading and notes the word reading accuracy. The child is then asked a set of

comprehension questions. The child can progress to the following passage if no more than 15 reading errors are recorded. Only the reading comprehension sub-test of this measure was administered in this study.

The reliability of the measure is detailed in the manual (Snowling et al., 2009, pp. 58-61) and, with regard to the reliability of the comprehension scores, which were lower than the reliability scores reported for accuracy and rate, the test developers cite the fact that comprehension is a complex construct and they have relatively few comprehension questions for each of the passages upon which to ascertain comprehension ability (Snowling et al., 2009:58). In order to establish the validity of the assessment, the test developers administered the comprehension questions from both Forms A and B to pupils in all year groups, including children learning EAL, without using the accompanying comprehension passage. Snowling et al. (2009:61) report that the pupils were mostly unable to provide correct responses to the questions, thus the test can be considered as having appropriate content validity.

The YARC was scored following the scoring procedures provided in the manual. For the comprehension passages, the child received a raw score equalling the number of comprehension questions answered correctly. This raw score is then converted into an ability score, which takes the passage level completed into account. Following this, a mean ability score is calculated, based on the number of passages administered to the child. Mean ability scores were then used to obtain standard scores for the comprehension sub-test for each child.

3.4.4 Vocabulary knowledge: The British Picture Vocabulary Scale (BPVS-II; Dunn et al., 1997).

The British Picture Vocabulary Scale is a standardised, receptive, vocabulary picture-based test, which has been validated in the UK with monolingual English learners and EAL learners. It has been widely used in research investigating many features of children's cognitive, educational and

social development (Lervåg & Grøver-Aukrust, 2010; Oakhill and Cain, 2011; Cunningham and Carroll, 2011) in order to measure a child's English receptive vocabulary knowledge (Dunn et al. 1997). The test is appropriate for use with children between 3 and 18 years of age. The BPVS is quick and uncomplicated to administer as the researcher dictates a single word to which the child must select the matching picture from four picture options; this may be done by pointing to the picture.

The BPVS-II was updated and standardised in 1995 in the UK using a population of 2,571 children (Dunn et al. 1997). The instrument was also standardised using a sample of 410, 3-8 year old children who were learning English as an additional language in the UK (Dunn et al., 1997). Dunn et al. (1997) report that internal reliability was high (Cronbach's alpha 0.93) and that the test differentiated well between the groups, thus the measure was found to be valid. The test is also suitable for use with children who are unable to read or who have specific learning difficulties (Dunn et al., 1997). The assessment can be considered appropriate for use with those children who may have limited English skills given that, firstly, the test requires little verbal explanation; secondly, it is suitable for use with those children who may be non-readers in English; and thirdly, because the child is not required to vocalise the answer.

3.4.5 Single word reading ability: The British Ability Scale (BAS; Elliott et al., 1997).

The Word Reading test, taken from the School Age Battery, tests the '*...recognition and oral reading of single words*' (Elliott et al., 1997:86). The test is suitable for use with children aged 5:5 and above and is simple to administer, requiring little verbal explanation. The child is given a card with a sample of single words, beginning with high frequency words and progressing in difficulty to less frequently encountered words. The child must then read each word aloud, reading across the rows and using correct syllable emphasis. A copy of the reading list can be found in Appendix 8. This standardised measure was selected for the Main Study, firstly, as its suitability for use with

this population of children was established in a previous study (Clancy, 2010) and secondly, on the basis of its well-established validity and reliability from previous research investigating children's word reading abilities (Stuart, 1999; Hatcher, Hulme & Ellis, 1994).

The BAS was standardised on children aged from 2:6 – 17:11 years across the UK (Elliott et al., 1997:128). In order to assess the reliability of the scales, the test developers used the test-retest method. The concurrent validity of the measure was also assessed by comparing the BAS scales with four other measures which assessed similar concepts. These included the BAS-R (Elliott et al., 1979), the Wechsler Preschool and Primary Scale of Intelligence (WPPSI-R; Wechsler, 1989), the Wechsler Intelligence Scale for Children third edition (WISC-III; Wechsler, 1991) and WORD (The Psychological Corporation, 1992) (Elliott et al., 1997:133). Each child was assessed using the BAS and one other battery, administered after an interval of four weeks (Elliott et al., 1997:133). The results from the test-retest are reported in the manual, and these results indicated that there was a strong relationship between BAS scores and the other assessments, supporting the construct validity of the BAS (Elliott et al., 1997:238).

3.4.6 Phonological skill: The Phonological Assessment Battery (PHAB; Frederickson et al., 1997).

The Non-word reading test from the Phonological Assessment Battery assesses the child's ability to decode pseudowords. The test has a practice word card, followed by two further word cards that the child must read aloud. The first card consists of ten, one-syllable items and the second card contains ten, two-syllable items (Frederickson et al., 1997:35). The Non-word reading measure from the PHAB was used in the Main Study to assess the children's phonological processing skills and their understanding of letter-sound relationships, similar to previous research (O'Hare & Khalid, 2002). The measure was standardised on a sample of 629 children, in conjunction with the Neale Analysis of Reading Ability (revised) (NARA-II, 1997) and internal

consistency reliability was found to be adequate as most alpha coefficients were above .8 (Frederickson et al., 1997). The suitability of the Non-word reading test for use with NS and EAL children participating in RR was established in a previous study conducted by the researcher (Clancy, 2010). A copy of the reading lists may be found in Appendix 9.

3.4.7 Training

The researcher received training in all of the standardised measures included in this study by a qualified user at the Department of Education, University of Oxford. In addition, the researcher completed an MSc. in Education Research Methodology at the University of Oxford prior to the start of her doctoral study, which provided courses on data collection and data analysis in educational research.

3.4.8 Use of L1 measures on EAL children

Issues relating to the appropriateness of using UK standardised assessments on this population of children are raised, given the potential for linguistic and cultural biases. The concern is that EAL children could be placed at an unfair disadvantage when assessed using tests which have been normed on representative samples that include very few EAL children, and it is possible that their performance will be less accurately assessed. However, the findings in Clancy (2010) indicated that the WIAT reading comprehension sub-test, the BAS Word reading test and the PHAB Non-word reading test, were found to be suitable for use with both native, English-speaking children and EAL children who participated in RR. Thus, to assume that children learning EAL will inevitably under-perform on standardised L1 measures would be a misconception. A limitation of this study is that the generalisation of these findings will be limited to the L1 groups included in this sample.

3.5 Minimising bias

3.5.1 Setting

The setting for the testing sessions during both the Pilot Study and the Main Study was dependent on the school's available space. In most cases, a vacant classroom, study area or the RR tutor's room was used, which allowed the tests to be administered in a quiet environment outside the child's classroom. The tests were given on a one-to-one basis during both the Pilot Study and the Main Study. The administration and scoring procedures of these standardised tests were adhered to by the researcher.

3.6 Pilot Study

A total of nine primary schools agreed to participate in the Pilot Phase of the project (based in Bradford (1); Leeds (2); Hull (1); Oldham (2); Nottingham (1); Bedford (1) and inner London (1)). The Pilot Study was carried out during March – May 2011. Twenty EAL children who were either about to start RR, or who were still within the initial Roaming Around the Known (RAK) stage of the programme, were recruited. RAK is a 10-day, assessment-only stage, which allows the RR teacher to ascertain the child's current literacy knowledge and ability. The child does not receive formal tuition during this stage of the programme. Only those children who were learning English as an additional language were recruited to the Pilot Study as the measures being used are all standardised, and therefore appropriate for use with the native, English-speaking population to be recruited to the project.

The purpose of the Pilot Study was, firstly, to determine which reading comprehension task to administer to the children in the Main Phase, thus the children in the Pilot Study were assessed using both the WIAT reading comprehension sub-test and the YARC measure in order to compare them. Secondly, it was necessary to ensure that the measures were not only suitable for use with the intended EAL participants recruited to the study, but also to check that they

were enjoyable for the children, as well as allowing the researcher to become familiar with the measures and their administration and scoring. The BAS and PHAB assessments were used on the same population of children previously (Clancy, 2010). Given that the researcher had previous experience in the scoring and administration of the BAS and PHAB measures, and that the researcher was confident that the participants would be able to carry out the tests, it was not considered necessary to include these measures in the Pilot Study, in an effort not to unduly test the children.

3.6.1 Criteria for inclusion

The criteria for inclusion in the Pilot Study (and subsequent Main Study) were that the children:

a) were learning English as an additional language (EAL). For the purposes of this research, a child will be considered EAL if their first language (i.e. the language spoken in their homes) is not English;

b) were either about to immediately enter the RR programme, or were those who were still within the ten-day RAK stage of the intervention. As the child does not receive formal tuition on reading in this period, it was deemed an appropriate time for the researcher's testing to be carried out, as the child's current literacy knowledge and ability would not be attributable to the RR programme.

The researcher administered measures of non-verbal, general cognitive functioning; decoding; reading comprehension and vocabulary knowledge. Information relating to the children's age, language background and gender was collected from the RR teachers. Table 3.2 provides a summary of the characteristics of the children who participated in the Pilot Study.

Table 3.2 Summary of characteristics of the Pilot Study participants (*N* = 20)

Ethnicity	L1	Gender	Age	LA
Pakistani	Urdu	F	5:11	Bradford
Pakistani	Urdu	F	5:11	Bradford
Polish	Polish	F	6:3	Hull
Pakistani	Urdu	M	6:3	Nottingham
Bangladeshi	Bengali	M	5:11	Leeds
Pakistani	Urdu	M	5:11	Leeds
Pakistani	Urdu	F	5:11	Leeds
Iranian	Farsi	M	6:3	Leeds
Pakistani	Urdu	M	6:3	Leeds
Pakistani	Urdu	M	6:2	Leeds
Pakistani	Urdu	F	6:1	Leeds
Turkish	Turkish	F	6:1	London
Vietnamese	Vietnamese	M	6:7	London
Bengali	Bengali	M	5:8	London
Bengali	Bengali	M	5:10	London
Pakistani	Urdu	F	6:2	Oldham
Pakistani	Urdu	F	5:10	Oldham
Pakistani	Urdu	F	5:10	Oldham
Pakistani	Urdu	M	6:2	Oldham
Polish	Polish	F	5:9	Bedford

3.6.2 Representativeness of the Pilot Study sample

RR is typically offered in urban authorities in the UK where there are high numbers of disadvantaged children. The Pilot Study sample in this project was drawn from similar authorities.

3.6.3 Results from the Pilot Study

3.6.3.1 Descriptive statistics

The means (raw scores) and standard deviations for the children are reported below (Table 3.3) for the WASI general cognitive functioning test, WIAT reading comprehension sub-test, the YARC reading comprehension task and the BPVS vocabulary knowledge test.

Table 3.3 Mean and standard deviation for Pilot Study group on literacy measures

Test	N	Mean	SD	Min.	Max. (possible score)
WASI	20	5.60	3.70	1*	12 (28)
WIAT	20	20.10	8.45	4	44 (68)
YARC	20	2.45	1.39	0	5 (16)
BPVS	20	38.65	10.21	16	60 (60 at Age 10 Set)

*only one participant received a score of 1, no child received a score of 0. This was an unusual child, and although it was possible this child received a low score because they did not understand the instruction, it would be impossible to deliver it in the native language as there are so many in the study and the researcher does not have the funds to hire a translator.

The lowest possible score for the WASI is 0, and the maximum possible score for the age range 6-8 years is 28. From the results of the WASI, one can see that none of the EAL children in the Pilot Study were at floor and the children were able to attempt the test. Therefore, the test can be considered suitable for use with this population of children. The minimum score possible on the WIAT reading comprehension task is 0 and the maximum possible score is 68. When looking at the results from the WIAT task, no floor effects were found and the children were all able to attempt the test. Thus, the test can be considered suitable for use with this population of children. The maximum possible score for the Beginner Level and Level 1 texts which the children were administered on the YARC reading comprehension test was 16. The results indicate that many children scored 0 on the YARC assessment suggesting that the test was too difficult for the children's literacy ability at the pre-test stage. However, it should be borne in mind that this sample of children were potential RR candidates, who had identifiable problems with reading, but who had not yet received any remedial support. Therefore, it is to be expected that their scores would be lower. Furthermore, given the multiple processes involved in reading

comprehension, and the difficulties assessing this construct using only one measure, the YARC reading comprehension assessment will also be administered to the children at post-test when it is expected that the children's reading will be sufficiently developed to enable them to complete the YARC.

With respect to the BPVS, the fact that all of the children were able to score on this measure, and indeed the lowest score was 16, suggests that there are no floor effects. Thus, the decision was made to include this vocabulary measure in the study, given its suitability for these children at the pre-test stage.

3.7 Main Study

Following the completion of the Pilot Stage, which indicated that the measures were suitable for use with the intended population of children, the participants for the main sample were recruited. Thus, there were two groups of children, a group of native, English-speaking children ($N=48$) and a group of children who were learning English as an additional language ($N=52$). The participants were recruited adopting the same selection process that was implemented during the recruitment phase for the Pilot Study. Therefore, the children were only recruited to the study if they were either about to start, or were still within the RAK phase of the RR intervention. A summary of the Main Study participants' characteristics (namely, age; gender; language background and local authority) is presented in Table 3.4.

Table 3.4 Summary of characteristics of the Main Study participants (N=100)

Group	Gender (N)	Age (Mean no. of months)	L1s Represented	LAs represented
NS	M =28 F =20 Total = 48	71.33	British English	Bradford Oldham Leeds Lancashire Sheffield Stockport Hull Blackburn with Darwen West Yorkshire Newcastle Birmingham Nottingham Hackney, London
EAL	M = 35 F =17 Total = 52	73.08	Urdu (38) Arabic (3) Spanish (2) Turkish (1) Bengali (4) Polish (1) Latvian (1) Portuguese (2)	

All language backgrounds were included in the study. There is no published data available on the language backgrounds of the EAL children supported by the RR intervention in the UK.

However, the majority of senior RRTs participating in the study confirmed that this is an approximate representation of the children recruited. The heterogeneity of EAL children in the UK is a complex issue, with over 360 languages spoken and significant variation in the percentage of these learners in different types of schools and their location in the country.

Figures from NALDIC at the time of recruitment to this study reported that Bradford, Lancashire, Birmingham and London had some of the highest numbers of schools where EAL children were the majority of pupils attending those schools. The children recruited to this study were drawn from a varied and geographically widespread sampling frame in order that the findings may be more generalised to EAL children in RR. Indeed, pupils from Asian backgrounds comprise approximately 31% of EAL learners in the UK. Correspondingly, a significant proportion of children from Asian backgrounds were represented in this study (81% of the EAL group). As reading progress will be influenced by the particular language of the

learner, a sample of mainly Urdu speaking children was deliberately chosen as this is such an important group in English education.

3.7.1 Tests used in the Main Study

Based on the findings from the Pilot Study, which was carried out to assess the suitability of the measures for use with EAL children participating in the RR programme, the following assessments were used in the Main Study:

- a) the matrix reasoning test of general cognitive functioning from the WASI (Wechsler, 1999);
- b) the reading comprehension sub-test from the WIAT-II (Wechsler, 2006);
- c) the YARC reading comprehension measure at post-test only (Snowling et al., 2009);
- d) the BPVS-II test of receptive vocabulary knowledge (Dunn et al., 1997);
- e) the BAS single word reading test (Elliott et al., 1997);
- f) the PhAB non-word reading test (Frederickson et al., 1997).

3.7.2 Group comparisons on demographic variables

In order to ascertain whether there was equality between the two groups (NS and EAL) on demographic variables known to be related to literacy development, a chi-square analysis was carried out, focusing on the gender, and an independent-samples t-test was conducted to compare the age (in months) of the children. The result of the chi-square test on gender was not significant, indicating that there was equality between the two groups on gender $\chi^2(1) = .862, p > .05$. There was a statistically significant difference between the groups on age, as the results of the independent-samples t-test determined the mean ages for the EAL group ($M = 73.08, SD = .285$) and the NS group ($M = 71.33, SD = .321; t(98) = 2.87, p = < .005$, two-tailed) indicating that the EAL group was significantly older. It was not possible to compare the socioeconomic

status of the two groups, as data relating to the children's eligibility for free school meals were unfortunately not available to the researcher. It is important that the groups are matched on these variables as it is less likely that these demographic variables (e.g. gender, age) will contribute unequally to the outcomes.

3.7.3 Researcher effects

The effect of the presence of an unfamiliar adult on test performance is a consideration with all research involving young children. However, the participants in the present study were used to being separated from their class for individual learning, given the nature of the selection process for RR. In addition, many had their OS assessments administered by an unfamiliar second marker who was not their RR teacher. Throughout the duration of the researcher's testing sessions in both the Pilot Phase and the Main Phase, all of the children appeared relaxed and happy to do the tasks presented. None of the participants, at any point, requested to withdraw from the study.

The researcher took great care to administer the tests in a friendly and non-threatening manner in order that a good rapport was maintained with the child. The researcher's attitude throughout the testing sessions was encouraging but neutral to the children's responses, so as to avoid indicating that a child had given a correct or incorrect answer. When a child asked if they had answered a question correctly on any of the measures administered, the researcher replied that she was unable to tell them whether they had answered correctly, but remained encouraging towards their participation. There was no way that the Researcher could be blind to the language status of the children, given that it was evident in speaking to them informally before the session began. The measures used in the study were all standardised tests with very clear and fixed instructions for administration, which were adhered to throughout the data collection.

3.7.4 Content and structure of the sessions

The content and structure of every session towards all participants was identical throughout the Pilot and Main Phases of the study. This includes the way in which verbal assent was obtained from the child, and the delivery of all instructions and explanations of the tasks. The researcher was conscious of the young age of her participants and took care to observe if a child appeared fatigued or frustrated by the tests. However, with the exception of one child, none of the participants in either the Pilot Study or the Main Study exhibited any such signs. On the single occasion where this participant became upset, the researcher requested that the child's classroom teacher join the session and sit next to the child, in order that the child would feel supported. This strategy was effective and the child was then happy to continue with the session. Thus, a high level of consistency across the participants was achieved by the researcher in all testing sessions. The tests were given on a one-to-one basis and followed the testing schedule outlined in Table 3.5.

Table 3.5 Testing schedule

Research Phase	Measure	Duration
Pilot Study	WASI	3-7 minutes
	WIAT	5-15 minutes
	YARC	5-15 minutes
	BPVS	5-15 minutes
Main Study	WASI*	3-7 minutes
	BAS	5 minutes
	WIAT **	5-25 minutes
	YARC***	15 minutes
	PHAB	5-10 minutes
	BPVS **	5-20 minutes

*administered at pre-test only **more time was required for this measure at post-test ***administered at post-test only

3.7.4.1 Research procedures

Prior to the start of the testing, the researcher introduced herself to the participants and aimed to make the participants feel at ease. Following this, the researcher obtained verbal assent from each child recruited to the project by saying the following, *'I would like to read some stories with you and do some word games together. Do you understand? Would that be OK?'* The researcher assured each participant that they could pass on any question that they found too difficult, and that they could stop at any point during the session, should they so wish. At the end of the session, the researcher thanked the child for their participation and let them choose a sticker. When a child asked if they would be working with the researcher again, the researcher explained that she planned to see them when they had finished the RR programme, and that she would do some more activities with them at that point.

3.8 Ethical considerations

Prior to the researcher's data collection, the research was approved by the University of Oxford Social Sciences and Humanities Inter-divisional Research Ethics Committee (IDREC). The study conformed to Protocol MSD/IDREC/2005/P2.1 for research using non-invasive methods with typically developing children. The data gathered about individual children from the primary schools was kept securely in a password-protected computer file, with no names or other identifying characteristics. All of the records and results included in the study were treated in the strictest confidence and all data kept anonymous. The data was only available for access by the researcher and her supervisors at the University of Oxford (see Appendix 10 for the research ethics approval letter). As it was necessary to have unsupervised access to test the children, the researcher undertook an Enhanced Disclosure Criminal Record Bureau check (CRB check) and received approval. All the requirements specified by IDREC to ensure ethically responsible research were adhered to. In addition, care was taken to ensure that the study conformed to the

professional guidelines of both the British Educational Research Association Ethical Guidelines for Educational Research and the British Psychological Society Code of Ethics and Conduct.

3.8.1 Recruitment and language considerations

The researcher obtained (informed) *proxy consent* (whereby the participant's right to consent is transferred to another person) from all parents or caregivers prior to any testing, given that the children in the study were under the age of sixteen (Wiles et al., 2005). As a significant proportion of the children's parents had limited or no English language skills, there was a concern that they may be unable to fully comprehend the nature of their child's involvement in the study and thus obtaining informed consent may prove to be difficult. In order to avoid this situation, a detailed information sheet which clearly set out the purpose of the study and what participation in the project would entail, was distributed to the parents of the children (see Appendix 6 for a copy of the parental information sheet and Appendix 7 for the opt-in consent form). The information sheet was written in clear and concise language that endeavoured to be accessible to non-native speakers of English. In addition to this, the researcher provided the parents and caregivers with opportunities to either meet in person, correspond via email, or speak on the telephone, to discuss the study and answer any questions that the parents had. In some instances, it was appropriate to provide a translation of the detail of the study and the consent form. Translations in Chinese, Polish and Urdu were provided where required (see Appendix 11 for copies of the translations).

Further to this point, it was intended that a language background questionnaire would be provided to the children's parents and caregivers to collect information on the linguistic, cultural and educational environment in the home. However, a substantial number of the children's parents did not have sufficient English proficiency to be able to complete a language background questionnaire. Indeed, in some cases, it was necessary for bilingual RRTs to liaise with some of

the parents to ensure they understood the nature of participation in the study. Unfortunately, given the restrictions of the study being a doctoral project, it was not possible for the researcher to translate the language background questionnaire into all of the languages represented.

Although some researchers have collected background information from the children themselves, the children in this study also did not have sufficient language skills to complete a questionnaire, thus the decision was made to omit this feature from the study.

3.8.2 Disruption to the school day

The head teacher and RR teacher were consulted in each participating school prior to the testing sessions, in order to discuss how best to administer the tests, and ensure that minimal disruption was caused. The individual classroom teachers at each school were also consulted to see whether there were particular times when it would not be convenient for a child to leave the classroom to attend the testing session. In some cases, the schools preferred the RR teacher to remain in the researcher's work area throughout the testing sessions, and in these cases the RR teacher would bring each child and return them to the classroom at the end of the session. The preferences of each school were noted and taken into consideration when collecting the data.

3.8.3 Inclusion

When consulting with the headteacher, RR teacher and classroom teacher prior to the start of the testing sessions, the issue of how best to avoid any of the pupils feeling singled out by being asked to participate in the study, or similarly, other pupils in the class from feeling excluded by not being asked to participate in the sessions was also raised. With regard to the RR children who were participating in the study, the teachers explained that these children were quite used to leaving the class to attend individual sessions given the nature of the recruitment process to the

RR programme. Some of these children also attended other individual sessions, for example speech and language, or social and behavioural development sessions, where they worked with other practitioners and teachers, either alone or in small groups away from the regular classroom environment. The researcher did not have ethics approval from the participating schools to obtain information on children's behavioural problems or learning disabilities. Free school meal status (FSM) information was also requested, however, given the amount of missing data, it was not possible to include this in the study. In cases where a non-participating child expressed concern that they could not participate in the study, all of the schools were happy for the child to be told that only children who attended the RR programme were participating in the research.

3.8.4 Working with young pupils

There are several issues that can prove difficult when conducting research with young children. Some children do not respond well to different settings, new types of activities, or working with an unfamiliar adult. These factors can sometimes cause a child to feel anxiety or frustration, and result in behavioural changes which can potentially influence their performance on the measures. In order to minimise these issues, clear explanations of the assessments were provided, and the testing sessions were made as non-threatening and enjoyable as possible for the participants. Throughout the data collection period, the tests were referred to as 'word games' and 'stories' when talking to the children. The children were also told that they could say 'skip' if they found a question too difficult.

3.9 Summary

This research design and methodology chapter has outlined the main aims and research questions of the current study. It has also presented the design of the study; the Pilot Phase; the

sampling and research procedures implemented, and included details of the measures used in the project.

Chapter 4 – Results

4.1 Research questions

The study was designed to address two research questions:

- 1) What is the contribution of EAL status to progress on literacy measures made by the children who are participating in the Reading Recovery intervention when compared with native speakers also in the intervention?

- 2) Are the predictive relationships between pre-test scores (single word reading accuracy, vocabulary knowledge and phonological skill) and post-test reading comprehension scores different for NS and EAL children?

4.2 Descriptives and exploration of the data

The study adopted a prospective, between-groups design, with two groups of young learners participating in Reading Recovery: native, English-speaking children (NS) and children for whom English is an additional language (EAL). The study explored possible differences in the patterns of gain on a range of outcome measures for NS and EAL children participating in the Reading Recovery intervention. It also investigated the degree to which pre-test measures in the two groups of children predict their scores on a range of reading outcomes at the end of the programme. The UK standardised tests were administered at pre- and post-test to both groups of children.

Descriptive statistics will be presented first, including tests of normality and equality of variance. These will be followed by: ANOVA, ANCOVA and multiple regression analyses.

4.2.1 Means and standard deviations of pre- and post-test scores for all children

The means and standard deviations of the pre- and post-test scores on the BAS single word reading test, WIAT reading comprehension measure, PHAB non-word reading test, BPVS vocabulary knowledge assessment and the post-test scores on the YARC reading comprehension measure for all children are presented in Tables 4.1 – 4.5.

Table 4.1 Means and standard deviations for EAL and NS children on BAS measure

Language status		N	Min.	Max.	Mean	Std. Deviation	Theoretical range of scores (min-max)
EAL	Pre-test BAS	52	0	26	9.55	5.70	13-14 min
	Post-test BAS	52	12	49	26.23	8.88	140+ max
NS	Pre-test BAS	48	1	35	10.85	6.53	13-14 min
	Post-test BAS	48	7	45	24.50	7.94	140+ max

Table 4.2 Means and standard deviations for EAL and NS children on WIAT measure

Language status		N	Min.	Max.	Mean	Std. Deviation	Theoretical range of scores (min – max)
EAL	Pre-test WIAT	52	0	49	19.00	9.92	0
	Post-test WIAT	52	16	57	38.26	9.95	44
NS	Pre-test WIAT	48	3	43	21.22	11.07	0
	Post-test WIAT	48	7	60	40.45	9.94	44

Table 4.3 Means and standard deviations for EAL and NS children on PHAB measure

Language status		N	Min.	Max.	Mean	Std. Deviation	Theoretical range of scores (min – max)
EAL	Pre-test PHAB	52	0	13	4.28	2.71	1
	Post-test PHAB	52	3	16	7.78	3.47	20
NS	Pre-test PHAB	48	0	13	4.89	3.08	1
	Post-test PHAB	48	0	14	7.14	3.10	20

Table 4.4 Means and standard deviations for EAL and NS children on BPVS measure

Language status		N	Min.	Max.	Mean	Std. Deviation	Theoretical range of scores (min – max)
EAL	Pre-test BPVS	52	12	59	36.34	11.08	0
	Post-test BPVS	52	19	58	38.44	12.74	160
NS	Pre-test BPVS	48	16	88	52.64	14.69	0
	Post-test BPVS	48	22	84	49.16	17.34	160

Table 4.5 Means and standard deviations for EAL and NS children on YARC measure administered at Time 2 (post-test) only

Language status		N	Min.	Max.	Mean	Std. Deviation	Theoretical range of scores (min – max)
EAL	Post-test YARC	52	0	15	4.59	3.37	0 – 31
NS	Post-test YARC	48	0	21	6.10	4.04	0 - 31

4.2.2 Assessing normality and homogeneity of variance

The main methods of analysis used to answer Research Question 1 are mixed model ANOVAs and ANCOVAs, as these analyses allow the children's scores to be compared over time, whilst covarying specific variables. ANOVA models require that four assumptions are met. The first is that the data are normally distributed, and the second, that there is homogeneity of variance. The Kolmogorov-Smirnov statistic was used to assess the normality of distribution for all the variables, and it was found that the scores on some of the assessments were not normally distributed. The distributions of these scores for the EAL group are reported in Table 4.6 and only significant tests are reported:

Table 4.6 Results showing which tests differ from normality (K-S) for EAL group

Test	Distributions	
	PRE-TEST	POST-TEST
BAS		
WIAT		
PHAB	$D(52) = 0.15, p < .05$	
BPVS	$D(52) = 0.12, p < .05$	$D(52) = 0.19, p < .001$
WASI (PRE-TEST ONLY)	$D(52) = 0.23, p < .001$	
YARC (POST-TEST ONLY)		$D(52) = 0.14, p < .05$

The EAL group's entry scores on the BAS word reading test and the WIAT reading comprehension assessment were found not to deviate significantly from normality. The exit scores for the EAL group on the BAS word reading test, the WIAT reading comprehension measure, and the PHAB phonological awareness test were also normally distributed.

The distributions of scores for the NS group are now reported in Table 4.7 and only significant tests are reported:

Table 4.7 Results showing which tests differ from normality (K-S) for NS group

Test	Distributions	
	PRE-TEST	POST-TEST
BAS	$D(48) = 0.15, p < .05$	
WIAT	$D(48) = 0.20, p < .05$	$D(48) = 0.13, p < .05$
PHAB		$D(48) = 0.16, p < .05$
BPVS		$D(48) = 0.15, p < .05$
WASI (PRE-TEST ONLY)	$D(48) = 0.20, p < .001$	$D(48) = 0.16, p < .05$
YARC (POST-TEST ONLY)		

The NS group's entry scores on the PHAB phonological awareness measure and the BPVS vocabulary knowledge assessment, together with the exit scores on the BAS word reading test were normally distributed.

The second assumption, homogeneity of variance, was assessed using the Levene's test. This test was used to determine whether the variance in scores for each of the variables was equal across the groups at all levels (Field, 2009). It was found that the variances did not significantly deviate from equality for 5 of the measures, with the exception of the exit scores on the BPVS vocabulary knowledge test, $F(1, 98) = 4.23, p = <.042$. Field (2009) states that homogeneity of variance is more important in deciding on the use of parametric statistics than normality. Therefore, a decision was taken to use parametric statistics throughout.

The third assumption that must be met when conducting ANOVA analyses is that the data are measured (at least) at the interval level. This means that the difference between each point on the scale is identical to all other differences on the scale, and this assumption was met. The final assumption that must be met is that there is independence between the participants. This requires that the responses from one participant do not influence the responses of another participant, allowing there to be independence of the data. With very few exceptions, the children in the study were not nested within classrooms or schools and so scores are independent.

In order to address the distributional problems in the initial data, square root transformations were carried out on those variables which were non-normal. The data were then re-assessed for normality of distribution using the Kolmogorov-Smirnov test, indicating that normality was improved for some of the variables (parametric assumptions will be revisited later in the chapter). As the results from initial ANOVAs on untransformed data were so similar to the results from ANOVAs on transformed data, it was decided that the untransformed data would be used on all analyses so that the results would be easier to interpret. Moreover, most of the distributions met the assumptions of parametric testing, especially the Levene's test for equality of variance, which is robust when faced with non-normality in similar sized groups (Field, 2009). Results for analyses using the transformed data can be found in Appendix 12, so that they can be easily compared to results on untransformed distributions. Furthermore, the analyses reported are carried out using raw scores from the tests, as a significant proportion of the children were below the age of standardisation, and thus it was not possible to use standardised scoring.

4.2.3 Group comparison on general cognitive functioning (WASI)

An independent-samples t-test was conducted to compare the scores of the EAL and NS children on the WASI matrix reasoning test. There was no significant difference in scores for

the EAL children ($M = 1.90$, $SD = .63$) and the NS children ($M = 2.04$, $SD = .70$; $t(98) = -1.1$, $p = .25$, two-tailed). The effect size was measured using Cohen's d , which indicated that the magnitude of the differences in the means was small (Cohen's $d = 0.2$). Although the two groups do not differ significantly on cognitive functioning, ANCOVAs are presented later in the chapter as a means to investigate the effects of literacy predictors after taking account of the WASI at an individual level.

4.3 Language background status and differential progress in literacy measures

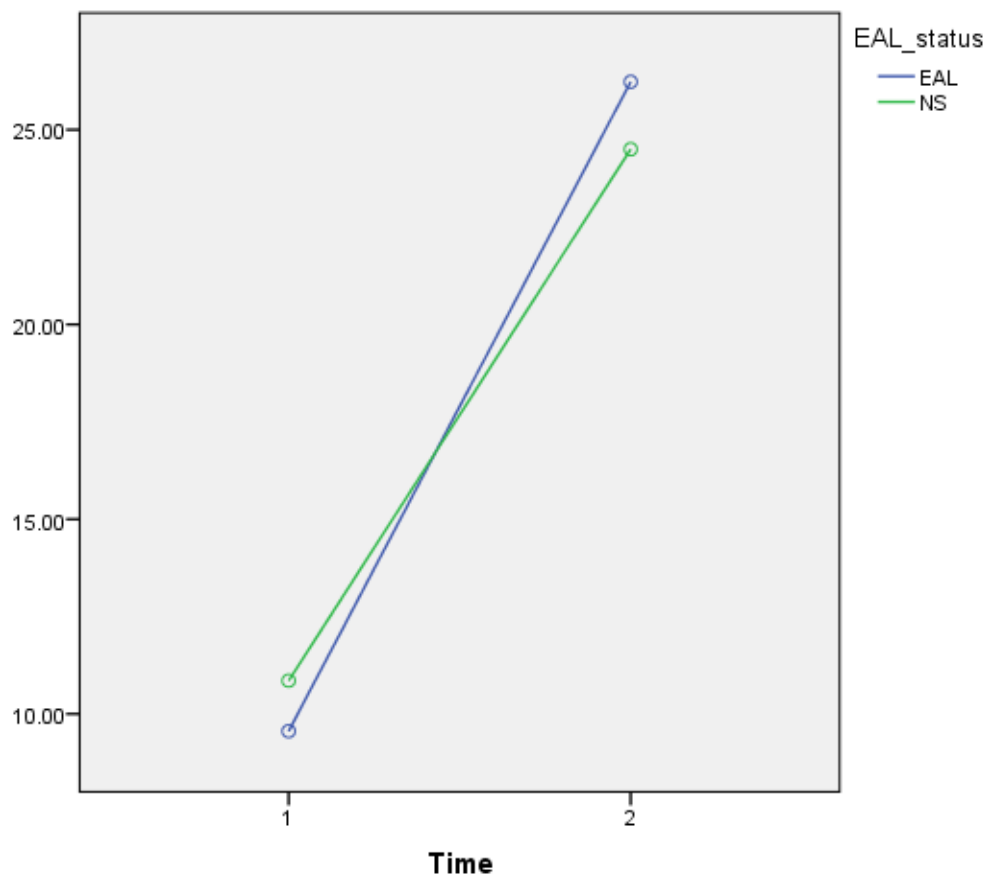
4.3.1 Two-way mixed ANOVA on BAS

To answer Research Question 1, a series of two-way mixed ANOVAs was conducted with one Between-Subjects variable (language group: EAL/NS) and one within-subjects variable (time; pre-/post-test) to compare test scores on the literacy assessments prior to the children participating in RR, and again following completion of the programme (pre- vs. post-test). There was no significant main effect of language status, $F(1, 98) = .028$, $p = .866$, *partial eta squared* ($\eta = .000$). There was a significant main effect of time on the children's scores, $F(1, 98) = 438.615$, $p < .001$, *partial eta squared* ($\eta = .82$), with both groups showing an increase in scores between pre-test and post-test. There was a significant interaction effect between time and language status where, $F(1, 98) = 4.37$, $p < .04$, *partial eta squared* ($\eta = .043$), indicating that scores on the BAS word reading measure were differentially affected by time for both groups of children. The interaction is shown in Figure 4.1.

To identify the locus of the significant interaction effects, these were further explored in tests. A paired-samples t-test was conducted to evaluate the progress made by the EAL group on the BAS test. There was a statistically significant increase in scores from pre-test, ($M = 9.55$, $SD = 5.70$) to post-test, ($M = 26.23$, $SD = 8.90$), $t(51) = -14.726$, $p < .001$. The effect size was measured using Cohen's d , which indicated that the magnitude of the differences in the means

was very large (Cohen's $d = 2.2$). A second paired-samples t-test was conducted to evaluate the progress made by the NS group on the BAS test. It showed that there was a statistically significant increase in scores from pre-test ($M = 10.85$, $SD = 6.53$) to post-test ($M = 24.50$, $SD = 7.94$), $t(47) = -15.596$, $p = < .001$. The effect size was measured using Cohen's d , which indicated that the magnitude of the differences in the means was small (Cohen's $d = 1.8$). The interaction (Figure 4.1) is plotted below. The analyses suggest that the EAL group make more progress over the course of the intervention and this may be due to differential variability in the variance in the two groups.

Figure 4.1 Profile plot of interaction effect between Time x Language status on BAS scores



4.3.2 Two-way mixed ANOVA on WIAT

A two-way mixed ANOVA was conducted (group (EAL/NS) x time (pre/post)) to compare scores on the WIAT reading comprehension measure at pre- and post-test. There was no main effect of language status, $F(1, 98) = 1.488, p = .225, \text{partial } \eta = .015$. There was a significant main effect of time on the children's scores, $F(1, 98) = 407.224, p = <.001, \text{partial } \eta = .806$. There was no interaction effect between time and the language status of the children, $F(1, 98) = .000, p = .983, \text{partial } \eta = .000$.

4.3.3 Two-way mixed ANOVA on PHAB

A two-way mixed ANOVA (group x time) was conducted to compare scores on the PHAB phonological awareness test at pre- and post-test. The F -test statistic showed that there was no main effect of language status, $F(1, 98) = .001$, $p = .973$, $partial\ \eta = .000$. There was a significant main effect of time on the children's scores, $F(1, 98) = 69.599$, $p < .001$, $partial\ \eta = .415$. There was no interaction effect between time and the language status of the children, $F(1, 98) = 3.289$, $p = .073$, $partial\ \eta = .032$.

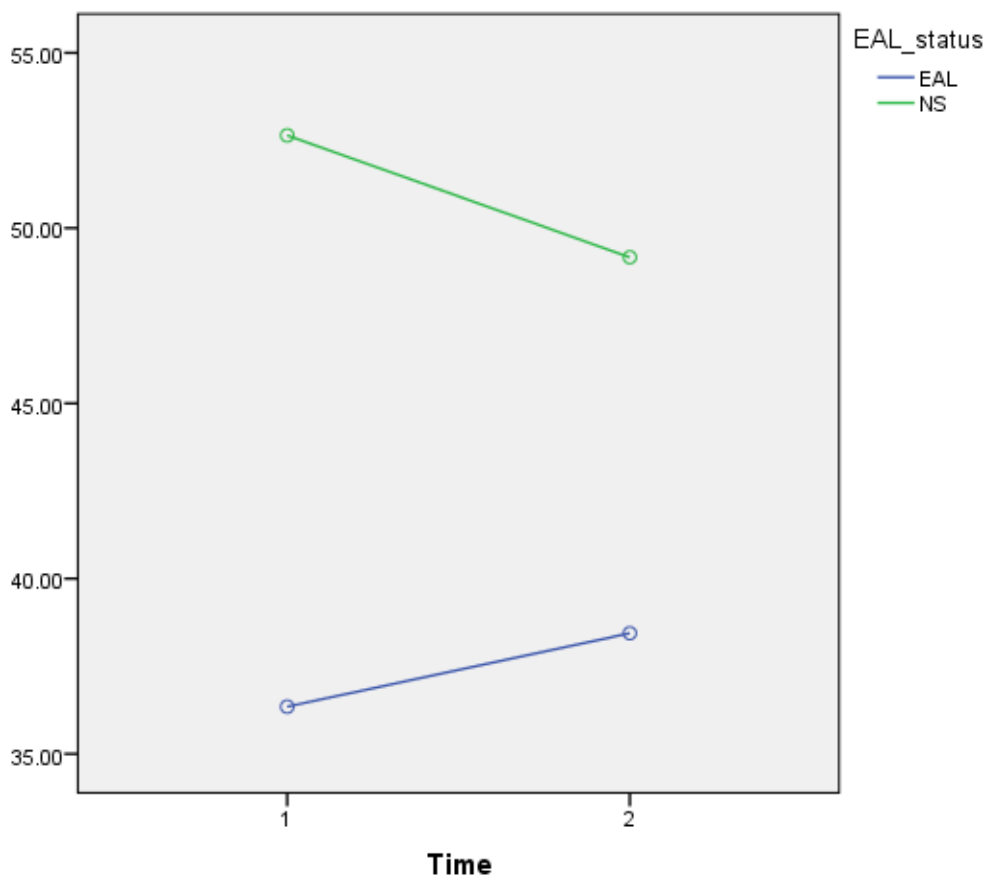
4.3.4 Two-way mixed ANOVA on BPVS

A two-way mixed ANOVA (group x time) was conducted to compare scores on the BPVS vocabulary knowledge assessment at pre- and post-test. There was a main effect of language status, $F(1, 98) = 30.217$, $p < .001$, $partial\ \eta = .236$, with the EAL children's scores lower at both time points. There was no main effect of time, which is not surprising as RR does not focus on vocabulary building, $F(1, 98) = .252$, $p < .617$, $partial\ \eta = .003$. However, there was an interaction effect between time and the language status of the children, $F(1, 98) = 4.097$, $p < .05$, $partial\ \eta = .040$. Figure 4.2 illustrates that the NS children's scores on the BPVS vocabulary measure declined over time, while the EAL children's scores increased.

To clarify the significant interaction effects, these results were further explored in tests. A paired-samples t -test was conducted to evaluate the progress made by the EAL group on the BPVS measure. The results showed that there was no significant increase in scores from Time 1, ($M = 36.34$, $SD = 11.08$) to Time 2, ($M = 38.44$, $SD = 12.74$), $t(51) = -1.614$, $p = .113$. The effect size was measured using Cohen's d , which indicated that the magnitude of the differences in the means was small (Cohen's $d = 0.3$). A second paired-samples t -test was conducted to evaluate the progress made by the NS group on the BPVS assessment. The results showed that

there was no significant difference in scores from Time 1 ($M = 52.64$, $SD = 14.69$) to Time 2 ($M = 49.16$, $SD = 17.34$), $t(47) = 1.392$, $p = .170$. The effect size was measured using Cohen's d , which indicated that the magnitude of the differences in the means was small (Cohen's $d = 0.2$).

Figure 4.2 Profile plot of interaction effect between Time x Language status on BPVS scores



4.3.5 ANOVA analyses summary

The results of the ANOVA analyses (Table 4.8) indicated that both groups of children made progress on the literacy measures over time, with the exception of the BPVS. In terms of answering Research Question 1, these analyses show that the effect of EAL status (language

background) on progress made on both the BAS and BPVS is significant, post-hoc tests showed that the effect of the interaction is stronger for the EAL children on the BPVS. In order to control for selected covariates, analyses of covariance (ANCOVA) will now be reported, where the children's scores on the WASI, PHAB and BPVS tests were used as covariates when investigating differential groups.

Table 4.8 Table of ANOVA analyses summary

Test	Main effect (group)	Main effect (time)	Interaction effect (group x time)
BAS		YES $F = 438.615, p = < .001$	YES $F = 4.37, p = < .04$
WIAT		YES $F = 407.224, p = < .001$	
PHAB		YES $F = 69.599, p = < .001$	
BPVS	YES $F = 30.217, p = < .001$		YES $F = 4.097, p = < .05$

4.4 Language status and differential progress on WIAT, BAS and YARC covarying WASI, PHAB and BPVS

The ANCOVA analyses are also motivated by Research Question 1, but they allow statistical control for non-reading measures whilst examining the effect of the intervention on reading. A series of two-way mixed analyses of covariance (ANCOVA) were conducted to compare the

children's progress on the WIAT, BAS and YARC reading measures after partialling out non-reading measures. The children's scores on the WASI general cognitive functioning test, the BPVS vocabulary knowledge test, and the PHAB phonological awareness test were used as the covariates in these analyses. The children's language background was used as the grouping variable (fixed factor) in these analyses.

4.4.1 Two-way mixed ANCOVA on exit WIAT scores covarying WASI

The results of the two-way mixed ANCOVA (2 x 2) showed that there was no interaction effect between time and the language background of the children on the exit scores on the WIAT test, after controlling for the WASI. This result indicates that once the pre-test scores from the WASI had been covaried, language background does not have an effect on the progress made on the WIAT. There was a significant effect of the pre-test WASI on the exit scores of the WIAT, $F(1, 98) = 4.314, p = .04, \text{partial } \eta = .043$. This result indicates that the pre-test WASI scores significantly predicted the WIAT at post-test.

4.4.2 Two-way mixed ANCOVA on exit WIAT scores covarying PHAB

The results of the two-way mixed ANCOVA (2 x 2) indicated that there was no significant interaction effect between time and the language background of the children on the exit scores on the WIAT test, ($F < 1$). This result indicates that once the pre-test scores from the PHAB had been covaried, language background does not predict the WIAT at post-test.

There was a significant effect of the pre-test PHAB on the post-test WIAT, $F(1, 98) = 65.205, p = .001, \text{partial } \eta = .402$. This result indicates that the pre-test PHAB scores significantly predicted the WIAT at post-test.

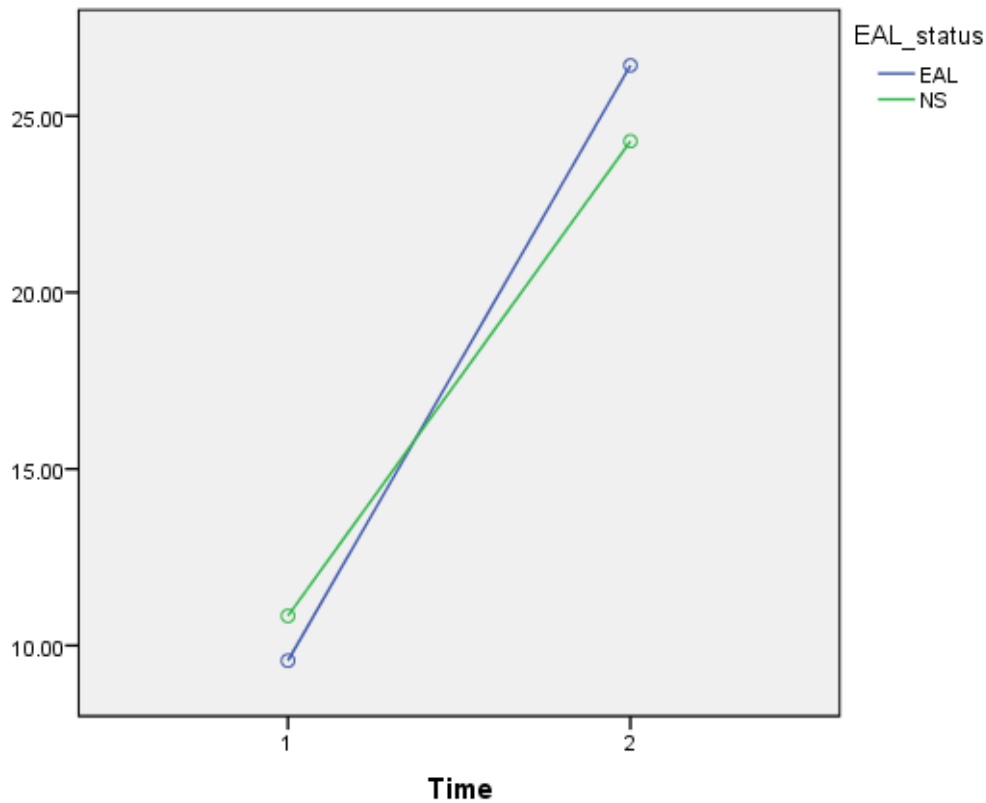
4.4.3 Two-way mixed ANCOVA on exit WIAT scores covarying BPVS

The results of the two-way mixed ANCOVA (2 x 2) indicated that there was no significant interaction effect between time and the language background of the children on the exit scores on the WIAT test, ($F < 1$). This result indicates that once the pre-test scores from the BPVS had been covaried, language background does not have an effect on the progress made on the WIAT. There was a significant effect of the pre-test BPVS test on the post-test WIAT, $F(1, 98) = 10.953, p = < .001, \text{partial } \eta = .101$. This result indicates that the pre-test BPVS scores significantly predicted the WIAT at post-test.

4.4.4 Two-way mixed ANCOVA on exit BAS scores covarying WASI

The results of the two-way mixed ANCOVA indicated that there was a significant interaction effect between time and the language background of the children, $F(1, 98) = 5.765, p = < .02, \text{partial } \eta = .056$. This result indicates that once the pre-test scores from the WASI had been covaried, the intervention had differential effects on the progress made on the BAS by the different language groups. There was a significant effect of the pre-test WASI test on the post-test BAS, $F(1, 98) = 2.288, p = .134, \text{partial } \eta = .023$. Inspection of the profile plot (Figure 4.3) suggests that the EAL children made greater gains on the BAS test than the NS children over time, starting at a lower score and ending on a higher score than their NS peers. The analyses covarying the WASI show that the inclusion of non-verbal cognitive functioning changes the direction of the findings reported earlier, in which the NS group made more progress.

Figure 4.3 Profile plot of interaction effect between Time x Language status on BAS scores with WASI as covariate

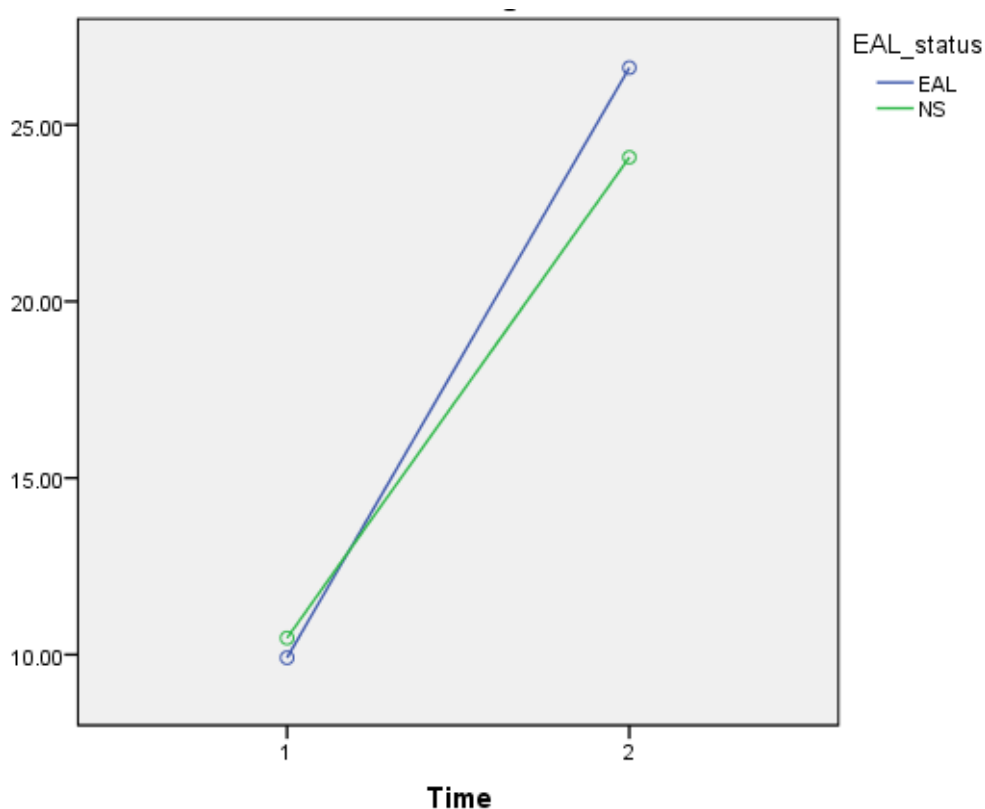


4.4.5 Two-way mixed ANCOVA on exit BAS scores covarying PHAB

The results of the two-way mixed ANCOVA indicated that there was a significant interaction effect between time and the language background of the children, $F(1, 98) = 4.483, p < .04$, $partial \eta = .044$. This result indicates that once the pre-test scores on the PHAB had been covaried, the intervention had differential effects on the progress made on the BAS by the different language groups. There was a significant effect of the pre-test scores on the PHAB test on the exit scores on the BAS, $F(1, 98) = 47.627, p = .001, partial \eta = .329$. Inspection of the profile plot (Figure 4.4) suggests that the EAL children made greater gains on the BAS test than

the NS children over time, starting at a lower score and ending on a higher score than their NS peers.

Figure 4.4 Profile plot of interaction effect between Time x Language status on BAS scores with PHAB as covariate

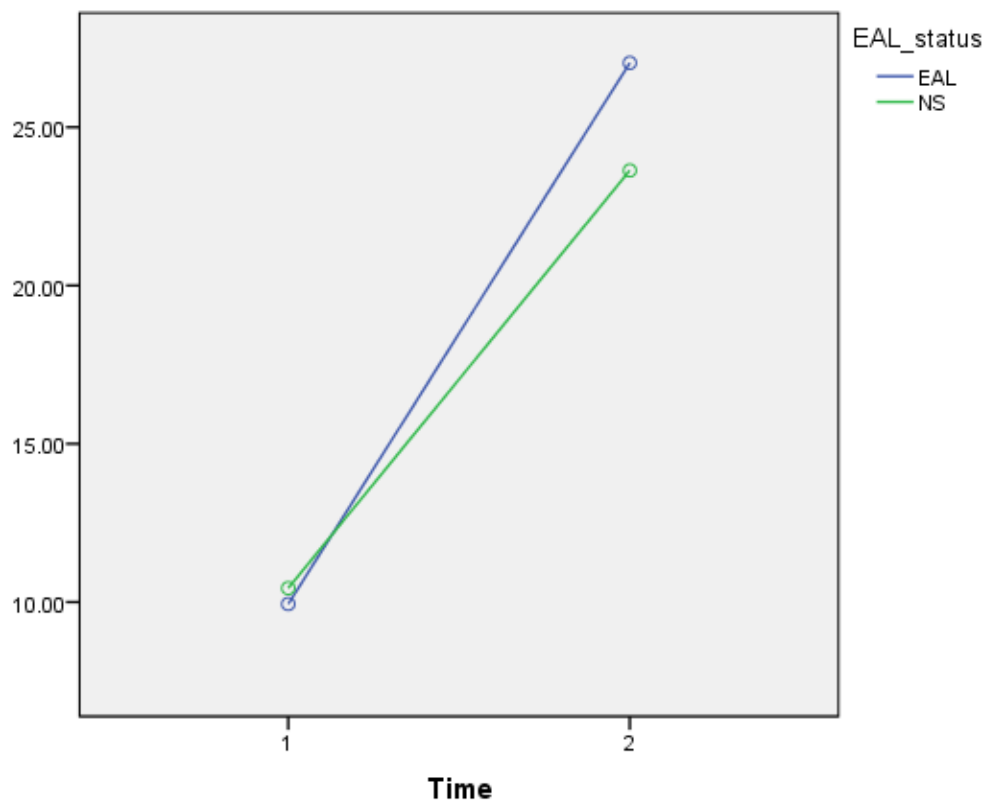


4.4.6 Two-way mixed ANCOVA on exit BAS scores covarying BPVS

The results of the two-way mixed ANCOVA indicated that there was a significant interaction effect between time and the language background of the children, $F(1, 98) = 5.161, p = < .03$, $partial \eta = .051$. This result indicates that once the pre-test scores from the BPVS had been covaried, there was a significant interaction between time and group. There was a trend towards significant differences on progress on the BAS once the BPVS had been covaried, $F(1, 98) = 2.301, p = .133, partial \eta = .023$. Inspection of the profile plot (Figure 4.4) illustrates that the

EAL children made greater gains on the BAS test than the NS children over time, starting with similar scores and ending on a higher score than their NS peers.

Figure 4.5 Profile plot of interaction effect between Time x Language status on BAS scores with BPVS as covariate



In order to clarify the significant interaction effect, this was further explored in post-hoc tests. A one-way ANCOVA was conducted to evaluate the progress made by the EAL group on the BAS measure after covarying the BPVS. The results showed that there was not a significant effect on the exit BAS scores once the pre-test scores from the BPVS had been covaried, $F(1, 51) = 3.638, p = .06, \text{partial } \eta = .068$. A second one-way ANCOVA was conducted to evaluate the progress made by the NS group on the BAS test after covarying the BPVS. The results showed

that there was not a significant effect on the exit BAS scores once the pre-test scores from the BPVS had been covaried, $F(1, 47) = .212, p = .648, \text{partial } \eta = .005$.

4.4.7 One-way between-group ANCOVA on exit YARC controlling pre-test WASI scores

The YARC was measured only at post-test and so one-way ANCOVAs were conducted. Firstly, a one-way between-subjects ANCOVA was conducted on the post-test scores from the YARC reading comprehension measure, controlling for the pre-test scores on the WASI general cognitive functioning assessment. The results of this ANCOVA indicated that there was no significant language background (group) effect on the exit scores of the YARC, $F(1, 98) = 3.587, p = .061, \text{partial } \eta = .036$ after covarying the WASI. The results also showed that there was no significant effect of pre-test scores on the WASI test on the exit scores on the YARC, $F(1, 98) = 1.121, p = .292, \text{partial } \eta = .011$. Therefore, language background did not have an effect on the YARC at the post-test.

4.4.8 One-way between-group ANCOVA on exit YARC controlling pre-test BAS scores

A one-way between-subjects ANCOVA showed that there was no significant group effect on the exit scores on the YARC once the pre-test scores from the BAS had been controlled, $F(1, 98) = 2.938, p = .090, \text{partial } \eta = .029$. The results also showed that there was a significant effect of pre-test scores on the BAS test on the exit scores on the YARC, $F(1, 98) = 28.155, p < .001, \text{partial } \eta = .225$

4.4.9 One-way between-group ANCOVA on exit YARC controlling pre-test PHAB scores

A one-way between-subjects ANCOVA was conducted on the post-test scores from the YARC reading comprehension measure, controlling for the pre-test scores on the PHAB non-word

reading assessment. The results of this ANCOVA indicated that there was no significant language background (group) effect on the exit scores of the YARC, $F(1, 98) = 2.981, p = .087$, $\text{partial } \eta = .030$. The results showed that there was a significant effect on the exit scores on the YARC once the pre-test scores from the PHAB had been controlled, $F(1, 98) = 23.621, p < .001$, $\text{partial } \eta = .196$.

4.4.10 One-way between-group ANCOVA on exit YARC controlling pre-test BPVS scores

A one-way between-subjects ANCOVA was conducted on the post-test scores from the YARC reading comprehension measure, controlling for the pre-test scores on the BPVS vocabulary knowledge test. The results of this ANCOVA indicated that there was no significant language background (group) effect on the exit scores of the YARC, $F(1, 98) = .159, p = .691$, $\text{partial } \eta = .002$ after covarying the BPVS. The results showed that there was a significant effect from the pre-test scores on the BPVS on the post-test scores on the YARC, $F(1, 98) = 6.427, p < .013$, $\text{partial } \eta = .062$.

4.4.11 ANCOVA analyses summary

The analyses indicated that the language background of the children did not make a significant contribution to progress on the WIAT after controlling for the WASI, PHAB and BPVS. Next, the analyses indicated that differential progress was made by the two groups on the BAS when the children's pre-test scores on the WASI, PHAB and BPVS had been covaried. The ANCOVAs reported here showed some interesting results. The effect of the intervention was stronger for EAL children than their NS peers on the BAS after covarying the PHAB and the WASI. These ANCOVA analyses provide a robust answer to Research Question 1 by showing greater gains in reading for the EAL group after appropriate controls are included in the analyses. The results of these analyses suggest a post-hoc question may be raised: what is the

contribution of vocabulary to gains made during the intervention for both groups of children?
This post hoc question will be further explored in the regression analyses that follow.

4.5 Predictive relationships and post-test reading comprehension performance

In order to answer Research Question 2, ordinary least squared regressions were carried out to investigate the relative strength of each predictor whilst controlling for others. Correlations will be reported first as they will guide the regressions.

4.5.1 Correlations – entry scores from the WIAT, BPVS, PHAB and BAS tests, language status, and exit scores on reading measures

In order to answer the second research question, Pearson bivariate correlation analyses were initially conducted on the data before running regression analyses, as suggested by Field (Field, 2009). The results of the correlation between the entry scores from the WIAT reading comprehension, PHAB non-word reading, BPVS vocabulary knowledge and BAS word reading assessments and the exit scores from the WIAT and YARC reading comprehension measures are reported in Table 4.9.

Table 4.9 Entry and exit on WIAT and YARC by all pre-test scores for all children

(*N* = 100)

	Entry BAS WR	Entry WIAT RC	Entry PHAB NWR	Entry BPVS VK
Exit YARC RC	.483**	.532**	.452**	.314**
Exit BAS WR	.530**	.506**	.440**	.076**
Exit WIAT RC	.447**	.572**	.460**	.291**
Exit PHAB NWR	.371**	.377**	.375**	-.006

**** Correlation is significant at the 0.01 level (2-tailed)**

4.6 Multiple regression analyses

Multiple regression was used to assess the ability of six (independent) predictor variables (the WASI general cognitive functioning test, the WIAT reading comprehension measure, BPVS vocabulary knowledge test, the BAS word reading test, the PHAB non-word reading test, and the children's language status) to predict post-test scores on the YARC and WIAT reading comprehension measures (dependent variables). This should be interesting as it will provide some indication of the initial skills which contribute to later success.

4.6.1 Multiple regression Model (i) – effect of pre-test scores from WASI, BAS, WIAT, PHAB, BPVS, and language status on exit WIAT test

This regression model (Table 4.10) is interpreted as follows: After entry of the pre-test scores, the total variance explained by the model as a whole was 33%. Unsurprisingly, the pre-test scores from the WIAT reading comprehension measure were found to have a significant positive effect on the exit scores from the WIAT reading comprehension. The pre-test scores from the WASI, BAS, PHAB and BPVS tests were not found to have significant effects on the exit scores from the WIAT reading comprehension. Similarly, the language status of the children was not found to be statistically significant ($\beta = -.043, p = .66$). The results of the regression are presented in Table 4.10.

4.6.2 Multiple regression Model (ii) – interaction effect of pre-test scores from WASI, BAS, WIAT, PHAB, BPVS, and language status on exit WIAT test

Multiple regression analysis was conducted to investigate possible interaction effects between pre-test scores and language background status. This regression model (Table 4.10) is interpreted as follows: After entry of the pre-test scores x language background status, the total variance explained by the model as a whole was 33%. The language background of the children did not significantly interact with any pre-test scores in predicting the outcome on the WIAT. The results of the regression are presented in Table 4.10.

Table 4.10 Model (i) and Model (ii) – Multiple regression on WIAT at post-test

($N = 100$, Model (ii) includes interaction effects)

Predictors	B	<i>SE</i>	B	<i>P</i>
Constant	39.320	.817	-	.001
Entry WASI	1.119	.853	.112	.193
Entry BAS	.810	1.265	.081	.524
Entry WIAT	3.699	1.420	.371	.011
Entry PHAB	1.220	1.127	.122	.282
Entry BPVS	1.481	1.034	.149	.155
Language status	-.432	.984	-.043	.661
Adjusted $R^2 = .328$				
Predictors	B	<i>SE</i>	B	<i>P</i>
Constant	39.610	.987	-	.001
Entry WASI x language status	1.000	.859	.099	.248
Entry BAS x language status	1.360	1.273	.136	.288
Entry WIAT x language status	-.988	1.428	-.099	.491
Entry PHAB x language status	1.014	1.136	.101	.375
Entry BPVS x language status	-1.033	1.072	-.088	.338
Adjusted $R^2 = .329$				

4.6.3 Multiple regression Model (iii) – effect of pre-test scores from WASI, BAS, WIAT, PHAB, BPVS, and language status on exit YARC test

This regression model (Table 4.11) is interpreted as follows: After entry of the pre-test scores, the total variance explained by the model as a whole was 35%. The pre-test scores from the literacy measures were not found to have a significant influence on the exit scores from the YARC reading comprehension test. Similarly, the language status of the children was not found to be statistically significant ($\beta = .053, p = .60$). The pre-test scores from the literacy measures were not found to have a significant effect on the exit scores on the YARC after controlling for the language background of the children. The results of the regression are presented in Table 4.11.

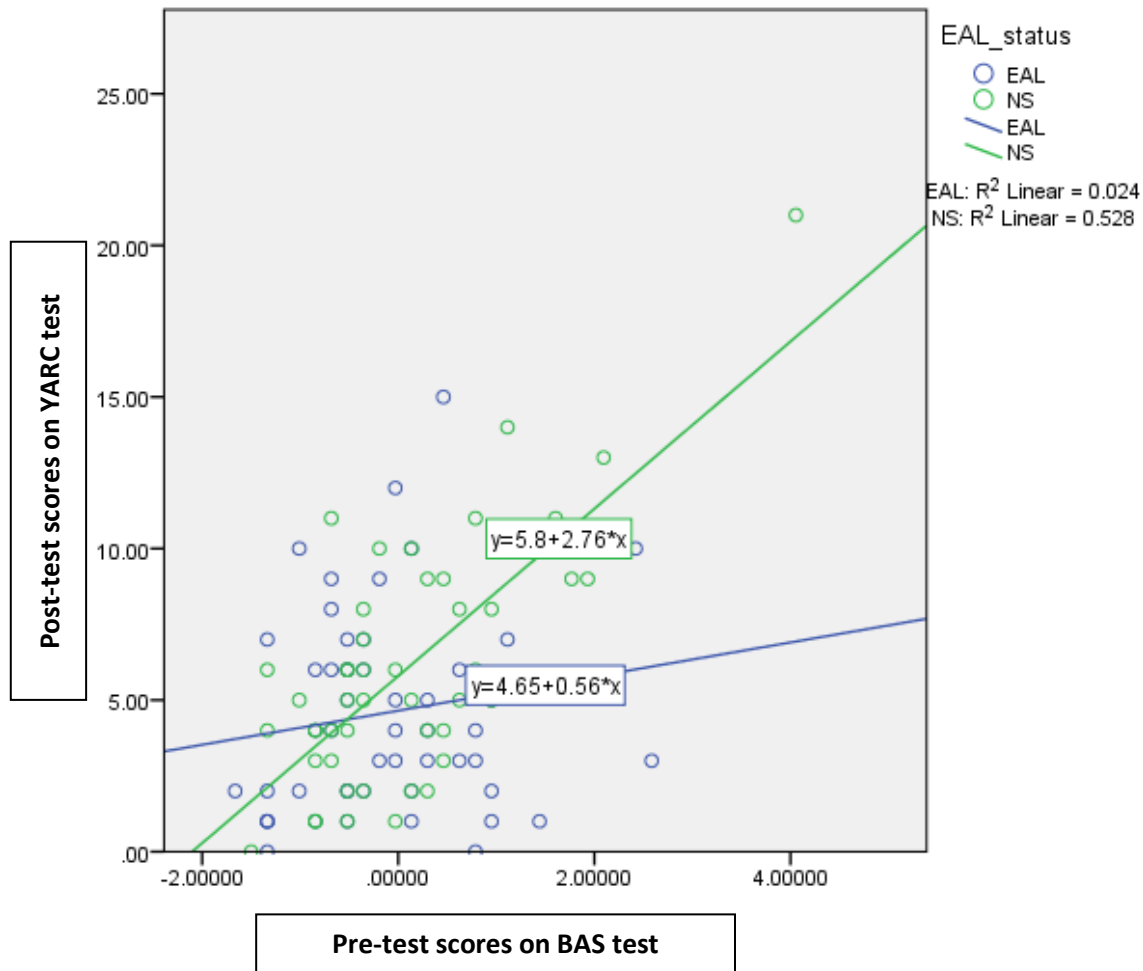
Table 4.11 Model (iii) - Multiple regression on YARC at post-test ($N = 100$)

Predictors	B	SE	β	P
Constant	5.320	.314	-	.001
Entry WASI	.084	.329	.022	.798
Entry BAS	.751	.487	.199	.126
Entry WIAT	.887	.547	.235	.108
Entry PHAB	.533	.434	.141	.223
Entry BPVS	.588	.398	.156	.143
Language status	.202	.379	.053	.596
Adjusted $R^2 = .305$				
Predictors	B	SE	β	P
Constant	5.618	.355	-	.001
Entry WASI x language status	-.223	.309	-.059	.472
Entry BAS x language status	.997	.458	.263	.032
Entry WIAT x language status	.240	.513	.063	.641
Entry PHAB x language status	.054	.409	.014	.896
Entry BPVS x language status	-.769	.385	-.173	.049
Adjusted $R^2 = .396$				

4.6.4 Model (iv) – effect of pre-test scores from literacy tests x language status interaction on exit YARC test

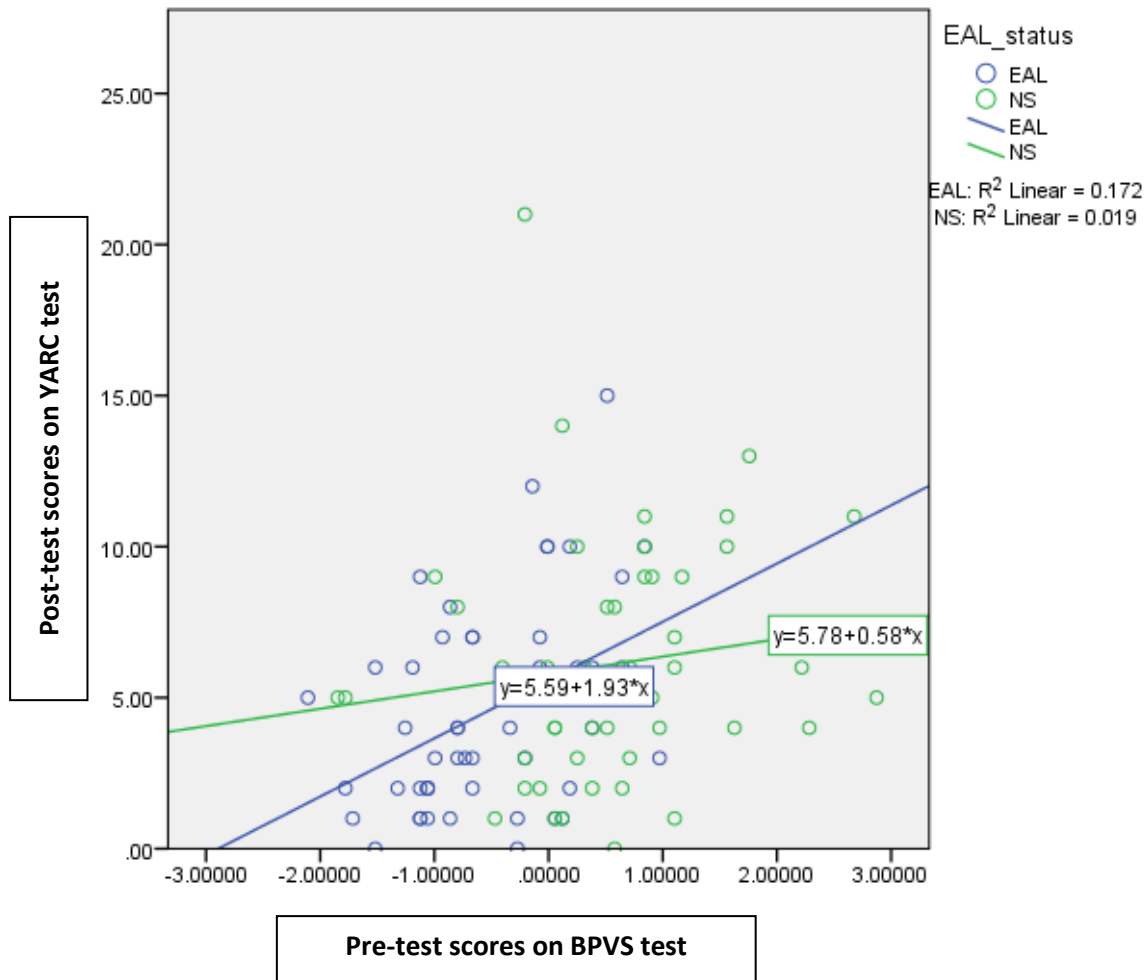
This regression model is interpreted as follows: After entry of the pre-test scores x language background status, the total variance explained by the model as a whole was an additional 12%. The pre-test scores from the BAS word reading test were found to have a significant effect on the exit scores from the YARC reading comprehension measure when controlling for the language background of the children where, $t(5, 88) = 2.178, p = <.032$ (see Figure 4.5). However, the strength of the predictor was stronger for the NS group than the EAL group, as seen in Figure 4.10.

Figure 4.6 Pre-test scores from BAS test on post-test YARC test when language background is included as a predictor



The pre-test scores from the BPVS vocabulary knowledge test were also found to have a significant influence on the post-test scores from the YARC measure when the language background of the children was controlled where, $t(5, 88) = -1.995, p = <.049$ (see Figure 4.6).

Figure 4.7 Pre-test scores from BPVS test on post-test YARC test when language background is included as a predictor



4.7 Summary

Research Question 2 posed questions about the relative contribution of decoding (BAS) and vocabulary knowledge (BPVS) on reading comprehension (WIAT and YARC). The analyses show that pre-test vocabulary scores were a stronger predictor of reading comprehension as measured by the YARC for the EAL group when compared with the NS children. Conversely, the native speaking children's decoding skills were a stronger predictor (compared with the EAL

children) of reading comprehension at post-test YARC. This shows clearly that the children's progress through the RR intervention is based on differential pre-test abilities, with the NS group most dependent on decoding and the EAL group most dependent on vocabulary.

The findings and interpretations will be discussed in Chapter 5.

Chapter 5 – Discussion and conclusions

5.1 Introduction

Many scholars now suggest that the course of literacy learning is different for NS and EAL children. This study investigated this area by focusing on differential progress in poor readers of both groups of children after participating in the RR intervention. The entire study is a very specific way to investigate the literacy acquisition of both groups, by focusing on poor readers and their progress through the intervention. This chapter presents a discussion of the main findings in relation to the research questions and literature outlined in Chapter 2; the limitations of the study; some suggestions for future research; educational implications from the findings; and concluding remarks. The primary goal was to investigate whether, and in what ways, language background had a differential effect on literacy development, especially reading comprehension, for the two groups of the children who had participated in the RR intervention. The children were those who were learning EAL and their progress was compared with that of their NS peers. The literacy constructs of interest in this study included reading comprehension, vocabulary knowledge, word reading accuracy and phonological skill. The study examined these constructs through the use of standardised measures.

5.2 Language background status and differential progress in literacy measures

The results from the statistical analyses revealed that the language background of the children had a significant effect on the progress that the groups made on two of the literacy measures included in this study. Firstly, the results on the single word reading measure indicated that the EAL children made more progress on single word reading and on reading comprehension, once vocabulary was controlled. What this research adds to the literature is how successfully RR caters

to the needs of EAL children. Whilst both groups of children made significant increases in scores from pre-test to post-test on most measures, the EAL group made greater gains than the NS group. These findings suggest that the children were differentially affected by the RR intervention according to their language group.

The results also affirm previous findings which have demonstrated that the decoding ability of EAL learners is comparable, or stronger, when compared with their NS peers. Indeed, it was reported in Burgoyne et al. (2009), Beech and Keys (1997), Hutchinson (2003) and Stuart (2004) that there were no significant differences between the two groups of learners when their decoding skills were assessed. Furthermore, Burgoyne et al. (2011a) reported that between Year 3 and Year 4, both the EAL group and NS group made similar amounts of progress on their decoding ability, as measured by the NARA-R (Neale, 1997) and WRAT3 (Wilkinson, 1993) and that the EAL group maintained their lead on these measures relative to the NS group (Burgoyne et al., 2011a).

ANCOVA analyses were subsequently carried out to compare group differences whilst controlling for the non-reading measures (e.g. cognitive ability test; pseudo-word reading ability and vocabulary knowledge). The findings showed that the pre-test scores on cognitive ability and the vocabulary knowledge assessments predicted progress made on the single word reading measure. Indeed, the results from the ANCOVAs showed that, once vocabulary knowledge is controlled, there is a trend for the EAL group to make greater progress on the decoding test ($p < .07$) starting at a similar point to the NS group with a much steeper slope than the NS group. Comparisons on Figure 4.1 with Figure 4.5 show how the gap is wider in Figure 4.5 after vocabulary is controlled. .

Secondly, the results from the ANOVA analyses showed that the language background of the children also had a significant effect on the progress made on vocabulary knowledge. The findings revealed that there was a main effect of language status, with the EAL children's

vocabulary knowledge scores being lower at both time points, but showing a steeper slope of progress over the course of the intervention when compared with the NS group. Interestingly, the analyses showed that the NS children's scores declining over time, whilst the EAL children's scores on the vocabulary knowledge measure increased. It would appear from these findings that the children were differentially affected by the RR intervention according to their language group. The EAL children benefitted the most on vocabulary development in comparison with the NS children who had much higher entry scores. Interestingly, RR may be viewed as an excellent intervention for vocabulary development in non-native speakers.

The results from this study support previous literature which has found that restricted vocabulary knowledge in EAL learners significantly contributed to their weaker reading comprehension, when compared with their NS peers (Burgoyne et al., 2011b:145). Furthermore, these lower levels of vocabulary likely contributed to their reading comprehension difficulties. Whilst further research is needed to better understand the relationship between vocabulary and comprehension, the results suggest that relationships between vocabulary and comprehension are also stronger for EAL children than they are for NS learners in a RR context.

ANOVA analyses revealed that the progress made by both groups did not differ significantly on either of the reading comprehension assessments (where there was no pre-test for the YARC reading comprehension measure). Subsequent ANCOVA analyses were carried out to covary the three non-reading measures (e.g. cognitive ability, pseudo-word reading ability and vocabulary knowledge). Covariates did not alter the effects of RR on the WIAT reading comprehension measure. However, the EAL group made greater gains in single word reading after covarying their cognitive ability. The NS group had higher cognitive ability (perhaps because they were more able to understand the instructions on the cognitive ability test). Using cognitive ability as a covariate created a level playing field for the two groups, enabling the EAL children to demonstrate greater progress.

There was also a significant effect of language group on single word reading ability after covarying the children's vocabulary knowledge. Once again, the important contribution of vocabulary to comprehension has been demonstrated.

Finally, the effect of the intervention on the YARC reading comprehension assessment was stronger for the EAL group after controlling for the children's single word reading ability. Thus the RR intervention assists both groups of children in reading comprehension, but it may help EAL learners more. RR appears to facilitate vocabulary development in EAL learners. It appears to do this to a greater extent than it does in improving decoding ability, as measured by the BAS assessment, in NS children. To summarise, vocabulary knowledge may be regarded as the 'Achilles heel' of the EAL learner, and decoding ability the 'Achilles heel' of the NS learner. RR appears to help EAL learners improve their vocabulary knowledge to a greater extent than the decoding skills of the NS learner, thus the EAL learners benefit more from the intervention.

5.3 Predictive relationships and post-test reading comprehension performance

An important question related to which skills at pre-test underpinned the progress made by two groups of children. Multiple regression was used to explore the pre-test predictors of both comprehension measures, and the findings showed that the children's decoding and vocabulary knowledge predicted reading comprehension on the YARC when the language background of the children was also entered into the model.

These results converge with previous literature that has reported the importance of decoding and its effect on reading comprehension acquisition for both EAL and NS children alike. In a recent longitudinal study by Burgoyne, Whiteley and Hutchinson (2010) in which they explored the development of reading and listening comprehension skills in EAL children and

their NS peers, they found that strong word reading accuracy (decoding) was important for reading comprehension in both groups of children (Burgoyne et al, 2010:9).

Cutting and Scarborough (2006) examined three reading comprehension measures in order to test whether word recognition, oral language and other cognitive skills could predict reading comprehension ability in L1 children. In their study they found that word recognition was not only a significant contributor to the reading comprehension of L1 children, but also the strongest predictor of children's reading comprehension. The conclusions drawn by Cutting and Scarborough (2006) indicate the importance of word recognition skills in children's reading comprehension ability. As outlined in Burgoyne et al. (2010) these basic level skills are also important for EAL children, as the inability to decode the words they encounter would restrict their ability to access meaningful sources of information (Alanís et al., 2003; Torgesen, 2000). For the majority of EAL children in the UK, the formal instruction received at school (spoken and written) is delivered in the L2, thus those with poor vocabulary knowledge would struggle with literacy instruction.

The results of this study also replicate those reported in previous research, as the direction of the findings shows that vocabulary is a stronger predictor of reading comprehension (YARC) for the EAL learners, than for their NS peers (Oakhill and Cain, 2012; Lesaux, Crosson, Kieffer and Pierce, 2010; Verhoeven, Van Leeuwe and Vermeer, 2011; Proctor et al., 2012; Verhoeven, 2003; Burgoyne et al., 2009; Hutchinson et al., 2003; Stuart, 2004).

This research has consistently identified that vocabulary knowledge is a fundamental factor in reading comprehension and literacy development in general. Therefore, having a restricted knowledge of English vocabulary has serious implications for a large proportion of EAL children in the UK who are 'sequential bilinguals', where their L1 has been established in their home environment, prior to the introduction of the L2 which is largely only spoken at school and in the children's wider community. In light of this, these children will have a more

limited exposure to an L2 environment which, as established in L1 research, makes it more difficult for the children to extend their English vocabulary knowledge, and thus their reading comprehension skills (Anderson and Freebody, 1981; Cummins, 2000; Linan-Thompson, Vaughn, Prater and Cirino, 2006; Mancilla-Martinez and Lesaux, 2010).

Hutchinson et al. (2003) similarly highlighted the importance of good L2 language skills including vocabulary in their paper investigating the reading ability, reading comprehension and receptive and expressive vocabulary of EAL learners in the UK. Their findings, which assessed EAL and NS children's performance on reading comprehension and vocabulary tasks, indicated that the NS group of children were approximately two years ahead of their EAL peers on receptive vocabulary skills, with the EAL children unable to close the achievement gap (Hutchinson et al., 2003:28). Whilst these results correspond to the findings of other research studies investigating the effect of vocabulary knowledge on reading comprehension, they should be treated with caution due to the relatively small sample size of the study ($N=86$) and the fact that there is great diversity in EAL children in the UK..

The above discussion has illustrated that vocabulary knowledge is an essential component to the development of reading comprehension, and an area that must be targeted in EAL children in order for them to improve their reading comprehension ability. This discussion has also highlighted that vocabulary knowledge is particularly important for EAL children when compared to their monolingual peers. These children often have very little exposure to the (majority) L2 prior to starting school and, as a consequence, they have significantly poorer English language skills than their NS peers (Burgoyne et al., 2010; Sammons, Elliot, Sylva, Melhuish, Sivaj-Blatchford and Taggart, 2004). Furthermore, this vocabulary deficit makes reducing the achievement gap between these two groups of learners difficult to close. This discussion has also identified that the EAL children in this study made more gains in a RR context to their NS peers, after controlling for their levels of vocabulary. More research is

required in order to better understand the processes implemented by EAL learners in achieving reading comprehension.

5.4 Limitations

There are limitations to this study, some owing to the fact that the research is a doctoral thesis, carried out by a lone researcher over a relatively short period of time. It is thus constrained by available resources (e.g. time and finances).

5.4.1 Sampling

The limited number of participants ($N= 52$ EAL children and $N= 48$ NS children) suggests some caution in generalising the results. Whilst the sample in this study was small, the children were, however, drawn from 8 local authorities all over England, and therefore provide a good representation of the children who participate in the RR intervention across the UK. ANOVAs and ANCOVAs were used where appropriate, and the statistical tests can be regarded as robust enough to successfully compare the groups when they are of similar sizes, as was the case in this study (Field, 2009).

5.4.2 Home and language background of participants

As reported in section 3.8.1, the lack of English language proficiency of the EAL children's parents made it difficult to obtain detailed information on pupil background (e.g. FSM, parental L1 and L2 proficiency and education) through a home environment and language questionnaire. Indeed, translations were made of the parental consent and information forms in three languages, and in other cases, bilingual RRTs liaised with some of the parents to ensure they understood. Given that research has established the important contribution of the home

educational environment to young learners' academic achievement (Burgess, Hecht & Lonigan, 2002; Davis-Kean, 2005; Melhuish et al., 2008) it would have been ideal to have collected information on the linguistic and education environment in the home. However, due to missing data and the difficulty of measuring these factors through a language background questionnaire, this was not possible. Teachers reported that many parents did not understand the information sheets or consent forms, but they were willing to sign after discussion with the RRTs. Unfortunately, no amount of willingness would enable them to complete a detailed questionnaire.

Additionally, the children in the study were unable to complete the language background questionnaire as a formal questionnaire was beyond their English language proficiency and young age.

5.4.3 Use of standardised measures with EAL children

A possible limitation of this study is the use of some of the standardised measures. Whilst the measures have been previously evaluated and widely used with children of this age range (5-6 years), and some included a proportion of EAL children in their norming procedures (see Chapter 3 for details) they were not developed for specific use with EAL children presenting with difficulties in literacy. It is worth noting here that the pilot-testing revealed that the children were unable to access the reading passages on the YARC at pre-test.

However, some of the measures in this study had been administered in the researcher's previous study, thus there was confidence that they were suitable for use with this population of children. Additionally, there was homogeneity of variance for most of the measures (as the variance did not deviate from equality) and the children were capable of attempting the tasks. The Pilot Phase of the present study similarly determined that the EAL children were able to

comprehend the instructions for the tasks. Furthermore, the children were found to have comparable ability on the reading comprehension assessment at post-test, suggesting that the EAL children were not at a linguistic disadvantage.

5.4.4 Absence of L1 measures

Whilst it would have been ideal to include L1 measures in the study, the lack of available L1 assessments and the heterogeneity of the EAL group, made doing so beyond the scope of the thesis. There is a need for future research investigating the literacy development and reading acquisition skills of this population of children, to incorporate L1 measures in order to gain a more complete understanding of the L1 factors that are associated with these skills in EAL learners e.g. L1 vocabulary.

5.4.5 School and teacher effect

It is possible that there is a teacher effect as some RRTs may work more successfully with EAL children than others. The RRTs' number of years working experience may also have had an effect on how many of the children were able to successfully complete the RR programme; however, this information was not available to the researcher. The small sample size did not allow a multi-level design which would have clustered children within teachers, and explained the effect of individual teachers. However, in this study it is unlikely that there are significant teacher effects because there were 26 tutors in the Main Study, and there were relatively even distributions of NS and EAL children among them. Fortunately, RR is also prescribed in its format and administration, so this again helped to limit teacher effects. The children were also recruited from a number of different regions, which helped to provide a more diverse sample of teachers.

5.5 Implications for EAL learners in Reading Recovery

On the basis of the results from this study, RRTs should support the children's sentence-level decoding skills of children with EAL, and exposure to written language to help build knowledge and understanding of the English language, with the aim of increasing vocabulary breadth. The RR intervention provides opportunities for EAL children to develop English language proficiency through activities which allow the child to engage in meaningful conversations with the RRT. As has been established in the literature, when a child's fluency in English improves, so too will their reading ability (Hobsbaum, 1995). The RR intervention in the UK should be concerned that the EAL children make differential progress compared to NS peers and perhaps address this in professional training of tutors so they are equipped to meet the needs of learners with EAL.

5.6 Pedagogical implications for EAL learners

Given the predictive relationship between vocabulary knowledge and reading comprehension, it is worth considering that RR tutors explicitly teach vocabulary items to young EAL learners in order to support their reading comprehension. They might do this through discussing words in the texts. There is a reciprocal relationship between vocabulary knowledge and reading skill, as more reading will expose learners to greater numbers of words, thus improving their reading. It would be beneficial for future research to consider these relationships in order to better understand reading acquisition of EAL children.

5.7 Future research

Two areas of future research can be suggested, 1) investigating specific aspects of vocabulary e.g. depth. An extension of this study could include an investigation into the predictive ability of

vocabulary, and more specifically, vocabulary depth in EAL learners who have participated in RR. Previous studies have shown that a strong relationship exists between vocabulary and reading success for young native speaking children (Hulme et al., 2002; Castles and Coltheart, 2004; Cardoso-Martins, Mesquita and Ehri, 2011; Duff and Hulme, 2012; Quiroga et al., 2002).

2) developing an enhanced RR intervention for EAL learners. As there remains a lack of evidence regarding EAL children who have reading comprehension difficulties and the contribution of vocabulary knowledge to their development, it would be worthwhile devising an enhanced RR intervention specifically for EAL learners followed by an RCT. The RCT would include three groups: RR+ (explicit vocabulary tuition), RR (normal tutorial) and a control group.

5.8 Conclusion

This study is, to the best of the researcher's knowledge, the first attempt to investigate the contribution of language background to progress made on literacy development by EAL children in comparison with their NS peers, whilst participating in the RR intervention. This research has demonstrated the contribution to reading of vocabulary knowledge and decoding for two different groups of learners, as seen through the lens of RR. The study also examined the predictive relationships between the pre-test scores on literacy constructs and post-test scores for reading comprehension, in order to determine whether the relationships were different for EAL and NS children. Vocabulary was a stronger predictor on progress in EAL children and decoding was a stronger predictor on progress for NS children (highly dependent on phonological skills). This study has found that, within an RR sample, EAL children make greater progress than NS children on decoding and reading comprehension – this confirms earlier research on the greater gains of EAL children, and potentially extends that by presenting decoding and comprehension data as separate constructs.

In light of the findings from this study, a differential intervention could be established which incorporated the core components of RR, but with emphasis placed on developing vocabulary and oral language skills in order to support struggling young EAL readers. It is hoped that the findings from this study can provide some useful insights and serve as a foundation for further investigation into this area, as so little is currently known about the way in which EAL children who have participated in a literacy intervention such as RR achieve reading success.

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Appendix 1: Information sheet for RRTL

UNIVERSITY OF OXFORD DEPARTMENT OF EDUCATION

15 Norham Gardens, Oxford OX2 6PY
Tel: +44(0)1865 274024 Fax: +44(0)1865 274027
general.enquiries@education.ox.ac.uk www.education.ox.ac.uk
Director Professor Anne Edwards



Researcher details: Charlotte Clancy

Email: charlotte.clancy@education.ox.ac.uk

Reading Recovery: investigating differential effects on the literacy development of young children for whom English is an additional language and their native speaking peers.

Information for Reading Recovery Teacher Leaders

Dear Sir/Madam,

My name is Charlotte Clancy and I am a postgraduate student at the University of Oxford, studying for a doctoral degree. I am conducting a research study investigating the differential effects on the literacy development of young children for whom English is an additional language and native English speaking children in the Reading Recovery programme. I would like to invite you to participate in the research and in order to help you decide, I will outline what your role would involve. Your role would include: a) allowing me to have access to the literacy assessment results of the children participating in the study, prior to the start and at the end of their Reading Recovery sessions with you. This will help me to accurately measure the progress made by the children at the end of their Reading Recovery programme; and b) discussing your experiences as a Reading Recovery Teacher Leader with me in an informal interview. This would provide invaluable insight into this area of research. You would be free to withdraw from the study at any point. The project has been reviewed and received ethical clearance through the University of Oxford Central University Research Ethics Committee.

I hope that you will be willing to participate in the study and I would be very grateful for your contributions. If you have any questions or would like more information, please do not hesitate to contact me at the address provided above; alternatively you may also contact my supervisors Professor Kathy Sylva or Dr. Victoria Murphy at the following: Department of Education, University of Oxford, 15 Norham Gardens, Oxford, OX2 6PY. Email: kathy.sylva@education.ox.ac.uk and victoria.murphy@education.ox.ac.uk. If we are unable to answer your queries, you may also contact Dr. Lars-Erik Malmberg, Head of IDREC for the Department of Education, at the following: Department of Education, University of Oxford, 15 Norham Gardens, OX2 6PY, UK Telephone: (+44) 01865-274047. Email: larserik.malmberg@education.ox.ac.uk.

Thank you. Yours sincerely,

Charlotte Clancy

Appendix 2: Consent form for RRTL



UNIVERSITY OF OXFORD DEPARTMENT OF EDUCATION

15 Norham Gardens, Oxford OX2 6PY
Tel: +44(0)1865 274024 Fax: +44(0)1865 274027
general.enquiries@education.ox.ac.uk www.education.ox.ac.uk

Director Professor Anne Edwards

Reading Recovery: investigating differential effects on the literacy development of young children for whom English is an additional language in comparison to their native speaking peers.

Consent form for Reading Recovery Teacher Leader

This research study aims to investigate the differential effects on the literacy development of native English speaking children and children who have English as an additional language in the Reading Recovery programme. This is a study undertaken by Charlotte Clancy, graduate student on the doctoral programme, at the Department of Education, University of Oxford.

Please tick the boxes to indicate your agreement and consent:

1. I have read and understood the information sheet about this study and have had the opportunity to ask questions. ☐
2. I understand that I can withdraw from the study without consequence at any time, simply by informing the researcher of this decision. ☐
3. I agree to be informally interviewed. ☐
4. I agree to allow the researcher access to the pre-test and post-test results of the children participating in this study. ☐
5. I know who to contact should I have any questions following participation in this study. ☐
6. I understand that this project has been reviewed by and received ethical clearance through the University of Oxford Central University Research Ethics Committee. ☐

I agree to participate in this study.

Name: _____

Researcher: _____

Date: _____

Date: _____

Signature: _____

Signature: _____

Appendix 3: Covering letter to schools
UNIVERSITY OF OXFORD
DEPARTMENT OF EDUCATION



15 Norham Gardens, Oxford OX2 6PY
Tel: +44(0)1865 274024 Fax: +44(0)1865 274027
general.enquiries@education.ox.ac.uk www.education.ox.ac.uk

Director Professor Anne Edwards

Researcher: Charlotte Clancy
University of Oxford,
Department of Education,
15 Norham Gardens,
Oxford OX2 6PY

Email: charlotte.clancy@education.ox.ac.uk Telephone: 07852571608

Dear

My name is Charlotte Clancy and I am doctoral student in the Department of Education at the University of Oxford. I am conducting a study which investigates the Reading Recovery programme and the differential effects on the literacy development of young children for whom English is an additional language in comparison to their native speaking peers. I would like to invite you to participate in the study and, in order to help you decide, I will outline what the school's participation would involve.

I hope to collect the data for my project in two sessions - when the children enter and exit the Reading Recovery programme. The data collection would involve me, the researcher, meeting with each child individually at your school for two sessions of no more than 45 minutes. The tests are all oral and have been used successfully with children aged 6-7 years of age in previous research. Many children enjoy them.

Enclosed with this letter is an Information Sheet for Schools, a Consent form for Schools and a sample Information Sheet and Consent form for Parents, which would be sent home with the children if you agree to participate. I would be more than happy to discuss the project with you, by letter, email or telephone. I will send you a short report on the findings of my study if you wish. You may also contact my supervisors, Professor Kathy Sylva or Dr. Victoria Murphy at the following: Department of Education, University of Oxford, 15 Norham Gardens, Oxford, OX2 6PY; Email: kathy.sylva@education.ox.ac.uk and victoria.murphy@education.ox.ac.uk. If we are unable to answer your queries, you may also contact Dr. Lars-Erik Malmberg, Head of IDREC for the Department of Education, at the following: Department of Education, University of Oxford, 15 Norham Gardens, OX2 6PY, UK Telephone: (+44) 01865-274047. Email: lars-erik.malmberg@education.ox.ac.uk.

I hope that you will choose to participate in my study. I greatly appreciate the time you have taken to read my letter and the enclosed information and look forward to hearing from you at your earliest convenience.

Yours sincerely, Charlotte Clancy

Enc. Information Sheet for Schools; Consent form for Schools; Information Sheet for Parents; Consent form for Parents.

Appendix 4: Information sheet for Schools

UNIVERSITY OF OXFORD DEPARTMENT OF EDUCATION

15 Norham Gardens, Oxford OX2 6PY
Tel: +44(0)1865 274024 Fax: +44(0)1865 274027
general.enquiries@education.ox.ac.uk www.education.ox.ac.uk

Director Professor Anne Edwards



Child Literacy Study

Information Sheet for Schools

Reading Recovery: investigating differential effects on the literacy development of young children for whom English is an additional language in comparison to their native speaking peers.

For my doctoral research project, I am conducting an investigation into the differential effects of Reading Recovery on the literacy development of native English speaking children and children who have English as an additional language. There are very few studies on the Reading Recovery programme and its effects on children who use English as an additional language in the U.K. Further research is needed in order to have a deeper understanding of how children with different language backgrounds develop their reading skills, and it is hoped that the study will help provide insight into this issue.

This study has received ethical approval by the Central University Research Ethics Committee and I have police clearance (enhanced disclosure CRB check) to work with children.

If your school agrees to participate in the project, then those children on the Reading Recovery programme will be given an information sheet and opt-in consent form to give to their parent(s)/caregiver(s), which they should then return if they agree to allow their child to participate in the study.

Where consent is given by the parent(s)/caregiver(s), each child would be tested in one session individually, with the session lasting approximately 45 minutes. The tests given will assess the child's general cognitive functioning; word reading skills; reading comprehension and phonological awareness, using standardised tests which have been successfully used with 6-7 year old children in previous research. In addition to obtaining verbal assent, the child can stop participating at any time and will be made aware of this from the beginning of the tests. This study will aim to investigate the extent to which participating in the Reading Recovery intervention has differential effects on EAL and NS children's literacy progress. By finding out more about these issues, it will help us to better understand the reading development of EAL children.

If you would like to discuss the project with the researcher, please don't hesitate to contact:

Researcher: Charlotte Clancy

Address: Department of Education, University of Oxford, 15 Norham Gardens, Oxford, OX2 6PY

Email: charlotte.clancy@education.ox.ac.uk **Telephone:** 07852571608

Supervisors: Professor Kathy Sylva and Dr. Victoria Murphy

Address: Department of Education, University of Oxford, 15 Norham Gardens, Oxford, OX2 6PY

Email: kathy.sylva@education.ox.ac.uk and victoria.murphy@education.ox.ac.uk

If we are unable to answer your queries, you may also contact Dr Lars-Erik Malmberg, Head of IDREC for the Department of Education, at the following: Department of Education, University of Oxford, 15 Norham Gardens, OX2 6PY, UK Telephone: (+44) 01865-274047. Email: lars-erik.malmberg@education.ox.ac.uk.

I hope that you will be willing to participate in the project and if you have any questions or would like further information about the study, please do not hesitate to contact me directly, or my supervisors (see details provided).

Thank you for taking the time to read this information.

Appendix 5: Consent form for Schools



UNIVERSITY OF OXFORD DEPARTMENT OF EDUCATION

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general.enquiries@education.ox.ac.uk www.education.ox.ac.uk

Director Professor Anne Edwards

Reading Recovery: investigating differential effects on the literacy development of young children for whom English is an additional language in comparison to their native speaking peers.

Consent form for Schools

This research study aims to investigate differential effects on the literacy development of native English speaking children and children who have English as an additional language in the Reading Recovery programme. This is a study undertaken by Charlotte Clancy, graduate student on the doctoral programme, at the Department of Education, University of Oxford.

Please tick the boxes to indicate your agreement and consent:

1. I have read and understood the information sheet about this study and have had the opportunity to ask questions. ☐
2. I understand that the participation of my pupils is voluntary and that they will be able to withdraw at any time, without giving any reason and without consequence. ☐
3. I understand that data will be stored securely, anonymously and will be destroyed at the end of the project. I understand that the data provided by pupils during the project may be looked at by the researcher and her supervisors. I give permission for those individuals to have access to the information provided. ☐
4. I know who to contact should I have any questions following participation in this study. ☐
5. I understand that this project has been reviewed by and received ethical clearance through the University of Oxford Central University Research Ethics Committee. ☐

I agree to participate in this study.

Name: _____

Researcher: _____

Date: _____

Date: _____

Signature: _____

Signature: _____



Appendix 6: Information sheet for Parents
UNIVERSITY OF OXFORD
DEPARTMENT OF EDUCATION

15 Norham Gardens, Oxford OX2 6PY
Tel: +44(0)1865 274024 Fax: +44(0)1865 274027
general.enquiries@education.ox.ac.uk www.education.ox.ac.uk

Director Professor Anne Edwards

Child Literacy Study

Information Sheet for Parents

In partnership with the University of Oxford, your child's school has agreed to take part in a study investigating literacy skills in both native English speaking children and children who have English as an additional language. The study will investigate the role of the Reading Recovery programme in this development. I would like to invite your child to take part in this study. I hope that you would like to participate, but before you decide, please read the following information which will explain why the research is being conducted and what exactly it will involve.

What is the study trying to find out?

The study will explore the effects of the Reading Recovery programme for native English speaking children and children who have English as an additional language in the Reading Recovery programme. This type of research is important because it will provide us with a better understanding of how children with different language backgrounds develop their reading skills. We hope that the study will help us to understand more about this important issue.

If you have any questions or would like further information about the study, you can contact the researcher or her supervisor (see details provided).

What will happen if my child takes part?

The researcher would come to visit your child at school and on this occasion, the researcher would look at literacy progress associated with Reading Recovery, such as comprehension in reading. The activities would involve matching written words with pictures; reading different passages and answering questions relating to the passages, in order to demonstrate comprehension of the story. The children will be seen individually in a quiet area of the school and the two sessions would last no more than 45 minutes. The activities

have been successfully used with children aged 6-7 years in previous research and they will not affect your child in any way. Many children enjoy them.

What happens to the results of the study?

The results of the study will be kept strictly confidential. Children will be identified by a code number and all information and results will be kept in a locked filing cabinet in the researcher's room. When the study is finished, a summary will be given to the school and will be available to interested families.

Who is conducting the research?

The research project is being organised by Charlotte Clancy of the Department of Education at the University of Oxford. The research project is being supervised by Professor Kathy Sylva and Dr. Victoria Murphy. The study has received ethical approval through the University of Oxford's ethical clearance process for research involving participants and the researcher has full police clearance to work with children.

If you would like to discuss the project with the researcher, please don't hesitate to contact:

Researcher: Charlotte Clancy

Address: Department of Education, University of Oxford, 15 Norham Gardens, Oxford, OX2 6PY

Email: charlotte.clancy@education.ox.ac.uk **Telephone:** 07852571608

Supervisors: Professor Kathy Sylva and Dr. Victoria Murphy

Address: Department of Education, University of Oxford, 15 Norham Gardens, Oxford, OX2 6PY

Email: kathy.sylva@education.ox.ac.uk and victoria.murphy@education.ox.ac.uk

If we are unable to answer your queries, you may also contact Dr Lars-Erik Malmberg, Head of IDREC for the Department of Education, at the following: Department of Education, University of Oxford, 15 Norham Gardens, OX2 6PY, UK Telephone: (+44) 01865-274047. Email: lars-erik.malmberg@education.ox.ac.uk.

Appendix 7: Consent form for Parents

UNIVERSITY OF OXFORD DEPARTMENT OF EDUCATION

15 Norham Gardens, Oxford OX2 6PY
Tel: +44(0)1865 274024 Fax: +44(0)1865 274027
general.enquiries@education.ox.ac.uk www.education.ox.ac.uk

Director Professor Anne Edwards

Reading Recovery: investigating differential effects on the literacy development of young children for whom English is an additional language in comparison to their native speaking peers.

Consent form for parents

This research study aims to investigate the differential effects on the literacy development of native English speaking children and children who have English as an additional language in the Reading Recovery programme. This is a study undertaken by Charlotte Clancy, graduate student on the doctoral programme, at the Department of Education, University of Oxford.

Please tick the boxes to indicate your agreement and consent:

1. I/we have read and understood the information sheet about this study and have had the opportunity to ask questions. ☐
2. I/we understand that I/we can withdraw from the study without consequence at any time, simply by informing the researcher of this decision. ☐
3. I/we agree to allow my child's pre-test and post-test literacy records, made by the Reading Recovery Teacher Leader, to be shared with the researcher. ☐
4. I/we understand that my child will not be identified in any write-up of the research. ☐
5. I/we agree to allow my child to participate in an oral literacy task. ☐
6. I/we know who to contact should I/we have questions following participation in this study. ☐
8. I/we understand that this project has been reviewed by and received ethical clearance through the University of Oxford Central University Research Ethics Committee. ☐

I/we agree to participate in this study.

Name: _____

Researcher: _____

Date: _____

Date: _____

Signature: _____

Signature: _____

Word Reading Card

the	up	he	you	box
at	said	out	jump	fish
one	cup	wood	bird	clock
ring	water	window	men	light
oil	ship	running	dig	money
paper	gate	knock	heel	skin
coat	carpet	brick	thin	building
tail	travel	babies	writing	climb
collect	early	piece	piano	whistle
invite	guest	electric	enormous	shoulder
wreck	favour	supplies	encounter	universal
ceiling	generation	environment	cough	character
avenue	experience	radiant	statue	audience
curiosity	obscure	diameter	chaos	boisterous
tentative	trauma	jeopardy	silhouette	desultory
reminiscent	divulge	diplomacy	rheumatism	tyrannical
catastrophe	regurgitate	meticulous	initiate	tertiary
criterion	archaic	monosyllabic	mnemonic	facetious

Appendix 9: PHAB Non-word reading lists – Sheet 1

pim

gat

fot

lub

hin

chog

trum

pran

nabe

leaze

haplut

ligtade

yutmiip

cromgat

musnate

ropsatch

pootfeg

rissbick

shendom

plutskirl

Appendix 10: Research ethics approval letter

Sent: 09 March 2011
13:50
To: Charlotte
Clancy
Cc: Kathy Sylva;
Victoria
Murphy

Dear Charlotte Mary Clancy,

Application Approval Title: Reading Recovery: investigating differential effects on the literacy development of young children for whom English is an additional language in comparison to their native speaking peers.

The above application has been considered on behalf of the Departmental Research Ethics Committee (DREC) in accordance with the procedures laid down by the University for ethical approval of all research involving human participants. I am pleased to inform you that, on the basis of the information provided to DREC, the proposed research has been judged as meeting appropriate ethical standards, and accordingly approval has been granted. Should there be any subsequent changes to the project, which raise ethical issues not covered in the original application, you should submit details to DREC for consideration.

Yours sincerely,

Justina Kurkova

Research Office

Department of Education

University of Oxford

15 Norham Gardens

Oxford

OX2 6PY

Email: research.office@education.ox.ac.uk

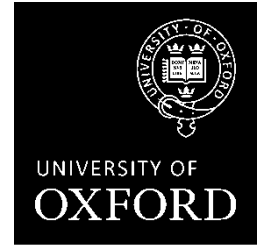
Web: <http://www.education.ox.ac.uk/>

Appendix 11: Parental Information sheet – translation

UNIVERSITY OF OXFORD
DEPARTMENT OF EDUCATION

15 Norham Gardens, Oxford OX2 6PY
Tel: +44(0)1865 274024 Fax: +44(0)1865 274027
general.enquiries@education.ox.ac.uk www.education.ox.ac.uk

Director Professor Anne Edwards



Child Literacy Study

بچوں میں خواندگی پر تحقیق

Information Sheet for Parents

معلوماتی دستاویز برائے والدین

In partnership with the University of Oxford, your child's school has agreed to take part in a study investigating literacy skills in both native English speaking children and children who have English as an additional language. The study will investigate the role of the Reading Recovery programme in this development. I would like to invite your child to take part in this study. I hope that you would like to participate, but before you decide, please read the following information which will explain why the research is being conducted and what exactly it will involve.

آکسفورڈ یونیورسٹی کے ساتھ شراکت میں، آپ کے بچے کا اسکول آبائی انگریزی بولنے والے بچوں اور ان بچوں جن کی انگریزی ایک اضافی زبان ہے میں خواندگی کی مہارت کی تحقیق میں حصہ لے رہا ہے۔ یہ تحقیق اس زمرے میں ریڈنگ ریکووری پروگرام کے کردار کا مطالعہ کرے گی۔ میں آپ کے بچے کو اس تحقیق میں حصہ لینے کے لئے مدعو کرنا چاہتی ہوں۔ مجھے امید ہے کہ آپ اس تحقیق میں حصہ لیں گے، لیکن فیصلہ کرنے سے قبل براہ مہربانی مندرجہ ذیل معلومات پڑھ لیں جو اس بات کی وضاحت کرے گا کہ یہ تحقیق کیوں کی جا رہی ہے اور اس میں کیا شامل ہے۔

What is the study trying to find out?

The study will explore the effects of the Reading Recovery programme for native English speaking children and children who have English as an additional language in the Reading Recovery programme. This type of research is important because it will provide us with a better understanding of how children with different language backgrounds develop their reading skills. We hope that the study will help us to understand more about this important issue.

If you have any questions or would like further information about the study, you can contact the researcher or her supervisor (see details provided).

یہ تحقیق کیا معلوم کرنے کی کوشش کر رہی ہے؟
یہ تحقیق آبائی انگریزی بولنے والے بچوں اور ان بچوں جن کی انگریزی ایک اضافی زبان ہے میں ریڈنگ ریکووری پروگرام کے اثرات کا مطالعہ کرے گی۔ اس قسم کی تحقیق اس لیے اہم ہے کیونکہ یہ ہمیں مختلف زبانوں کے پس منظر رکھنے والے بچوں میں پڑھنے کی صلاحیت کی بہتر تفہیم فراہم کرے گی۔ ہمیں امید ہے کہ یہ تحقیق ہمیں اس اہم سوال کے بارے میں زیادہ سمجھ حاصل کرنے میں مدد کرے گی۔
اگر آپ کے ذہن میں کوئی سوال ہے یا اس تحقیق کے بارے میں مزید معلومات چاہتے ہیں تو آپ محقق یا اس کے سپروائزر (فراہم کی گئی تفصیلات دیکھئے) سے رابطہ کر سکتے ہیں۔

What will happen if my child takes part?

The researcher would come to visit your child at school and on this occasion, the researcher would look at literacy progress associated with Reading Recovery, such as comprehension in reading. The activities would involve matching written words with pictures; reading different passages and answering questions relating to the passages, in order to demonstrate comprehension of the story. The children will be seen individually in a quiet area of the school and the two sessions would last no more than 45 minutes. The activities have been successfully used with children aged 6-7 years in previous research and they will not affect your child in any way. Many children enjoy them.

اگر میرا بچہ حصہ لیتا ہے تو کیا ہو گا؟
محقق اسکول میں آپکے بچے سے ملنے آئیں گے اور اس موقع پر، محقق ریڈنگ ریکووری سے منسلک خواندگی کی ترقی مثلاً پڑھنے میں فہم کا معائنہ کریں گے۔ اس میں مندرجہ ذیل سرگرمیاں شامل ہیں: الفاظ کو تصاویر کے ساتھ ملانا، مختلف حصوں کو پڑھنا اور حصوں پر متعلق سوالات کا جواب دینا، وغیرہ تاکہ معلوم ہو کہ بچے نے کہانی کی سمجھ کا مظاہرہ کیا ہے۔ بچوں کو اسکول کی ایک پرسکون جگہ پر انفرادی طور پر دیکھا جائے گا اور اس میں دو سیشن جن کا دورانیہ زیادہ سے زیادہ 45 منٹ کا ہو گا شامل ہیں۔ ان سرگرمیوں کا استعمال ایک گزشتہ تحقیق میں 6-7 سال کی عمر کے بچوں کے ساتھ کامیابی سے کیا گیا ہے اور یہ کسی بھی طرح سے آپ کے بچے کو اثر انداز نہیں کرے گا۔ بہت سے بچے ان سرگرمیوں سے لطف اندوز ہوتے ہیں۔

What happens to the results of the study?

The results of the study will be kept strictly confidential. Children will be identified by a code number and all information and results will be kept in a locked filing cabinet in the researcher's room. When the study is finished, a summary will be given to the school and will be available to interested families.

تحقیق کے نتائج کا کیا ہوگا؟
تحقیق کے نتائج کو انتہائی خفیہ رکھا جائے گا۔ بچوں کی ایک کوڈ نمبر
کے ذریعے شناخت کی جائے گی اور تمام معلومات اور نتائج کو محقق
کے کمرے میں بند الماری میں رکھا جائے گا۔ جب تحقیق ختم ہو گی
تو اس کا ایک خلاصہ اسکول کو دیا جائے گا اور دلچسپی رکھنے والے
خاندانوں کے لیے دستیاب ہوگا۔

Who is conducting the research?

The research project is being organised by Charlotte Clancy of the Department of Education at the University of Oxford. The research project is being supervised by Professor Kathy Sylva and Dr. Victoria Murphy. The study has received ethical approval through the University of Oxford's ethical clearance process for research involving participants and the researcher has full police clearance to work with children.

یہ تحقیق کون کر رہا ہے؟
یہ تحقیق آکسفورڈ یونیورسٹی میں محکمہ تعلیم کی طلبہ شارلٹ کلانسی
کر رہی ہیں۔ اس تحقیق کی نگرانی پروفیسر کیتھی سلوا اور ڈاکٹر
وکتوریہ مرفی کر رہے ہیں۔ اس تحقیق اور اس میں شامل شرکاء کو
آکسفورڈ یونیورسٹی کی جانب سے اخلاقی منظوری حاصل ہے اور
محقق کو پولیس کی طرف سے بچوں کے ساتھ کام کرنے کی مکمل
منظوری حاصل ہے۔

If you would like to discuss the project with the researcher, please don't hesitate to contact:

Researcher: Charlotte Clancy

Address: Department of Education, University of Oxford, 15 Norham Gardens, Oxford, OX2 6PY

Email: charlotte.clancy@education.ox.ac.uk **Telephone:** 07852571608

Supervisors: Professor Kathy Sylva and Dr. Victoria Murphy

Address: Department of Education, University of Oxford, 15 Norham Gardens, Oxford, OX2 6PY

Email: kathy.sylva@education.ox.ac.uk and victoria.murphy@education.ox.ac.uk

If we are unable to answer your queries, you may also contact Dr Lars-Erik Malmberg, Head of IDREC for the Department of Education, at the following: Department of Education, University of Oxford, 15 Norham Gardens, OX2 6PY, UK Telephone: (+44) 01865-274047. Email: lars-erik.malmberg@education.ox.ac.uk.

Parental consent form – Urdu translation

UNIVERSITY OF OXFORD DEPARTMENT OF EDUCATION

15 Norham Gardens, Oxford OX2 6PY
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Director Professor Anne Edwards

Reading Recovery: investigating differential effects on the literacy development of young children for whom English is an additional language in comparison to their native speaking peers.

ریڈنگ ریکوری: نوجوان بچوں کے جن کے لئے انگریزی ان کے
آبائی ساتھیوں کے مقابلے میں ایک اضافی زبان ہے میں خواندگی کے
فروع پر مختلف اثرات کی تحقیق

Consent form for parents

والدین کی رضامندی کا فارم

This research study aims to investigate the differential effects on the literacy development of native English speaking children and children who have English as an additional language in the Reading Recovery programme. This is a study undertaken by Charlotte Clancy, graduate student on the doctoral programme, at the Department of Education, University of Oxford.

اس تحقیق کا مقصد آبائی انگریزی بولنے والے بچوں اور ان بچوں کی
جن کی انگریزی ایک اضافی زبان ہے میں خواندگی کے فروع پر
اثرات کا مطالعہ کرنا ہے۔ یہ تحقیق شارلٹ کلانسی جو کہ محکمہ تعلیم،
آکسفورڈ یونیورسٹی میں ایک ڈاکٹریٹ پروگرام پر گریجویٹ طالبہ ہیں
کر رہی ہیں۔

Please tick the boxes to indicate your agreement and consent:

براہ مہربانی باکس میں اپنی اجازت اور رضامندی کا اظہار کرنے کے
لئے نشان لگائیں :

1. I/we have read and understood the information sheet about this study and have had the opportunity to ask questions. ☐

۱. میں / ہم نے اس تحقیق کے بارے میں معلوماتی دستاویز پڑھ اور سمجھ
لی ہے اور ہمیں اس کے بارے میں سوالات پوچھنے کا موقع ملا تھا۔ ☐

2. I/we understand that I/we can withdraw from the study without consequence at any time, simply by informing the researcher of this decision. ☐

۲. میں / ہم سمجھتے ہیں کہ میں / ہم کسی بھی وقت محقق کو اس تحقیق سے بلا اثر باہر نکلنے کے لیے مطلع کر سکتے ہیں۔
☐

3. I/we agree to allow my child's pre-test and post-test literacy records, made by the Reading Recovery Teacher Leader, to be shared with the researcher. ☐

۳. میں / ہم میرے / ہمارے بچے کے ریڈنگ ریکوری کے رہنما استاد کی طرف سے بنائے گئے ٹیسٹ سے پہلے اور ٹیسٹ کے بعد کے خواندگی کے ریکارڈ، محقق کو بتانے کی اجازت دیتا/دیتی ہوں۔
☐

4. I/we understand that my child will not be identified in any write-up of the research. ☐

۴. میں / ہم سمجھتے ہیں کہ اس تحقیق سے متعلق کسی بھی مقالے میں میرے / ہمارے بچے نشاندہی نہیں کی جائے گی۔
☐

5. I/we agree to allow my child to participate in an oral literacy task. ☐

۵. میں / ہم اپنے بچے کو زبانی خواندگی کے کام میں حصہ لینے کے لئے اجازت دیتا/دیتی ہوں۔
☐

6. I/we know who to contact should I/we have questions following participation in this study. ☐

۶. میں / ہم جانتے ہیں کہ اس تحقیق سے متعلق سوالات کے لیے کس سے رابطہ کیا جائے۔
☐

7. I/we understand that this project has been reviewed by and received ethical clearance through the University of Oxford Central University Research Ethics Committee. ☐

۷. میں / ہم سمجھتے ہیں کہ اس تحقیق کا آکسفورڈ یونیورسٹی کی مرکزی یونیورسٹی ریسرچ اقدار کمیٹی نے جائزہ لیا ہے اور اخلاقی منظوری دی ہے۔
☐

I/we agree to participate in this study.

میں / ہم اس تحقیق میں حصہ لینے کے لئے رضامند ہیں۔

Name: _____

نام

Date: _____

تاریخ

Signature: _____

دستخط

Researcher: _____

محقق

Date: _____

تاریخ

Signature: _____

دستخط

Please now return the form to your child's teacher, thank you.

براہ مہربانی یہ فارم اپنے بچے کے استاد کو واپس کر دیں، شکریہ

Parental Information sheet – simplified Chinese translation
UNIVERSITY OF OXFORD
DEPARTMENT OF EDUCATION

15 Norham Gardens, Oxford OX2 6PY
Tel: +44(0)1865 274024 Fax: +44(0)1865 274027
general.enquiries@education.ox.ac.uk www.education.ox.ac.uk

Director Professor Anne Edwards



儿童识读能力研究

家长信息说明

您孩子所在的学校同意参与牛津大学的一项研究，旨在探究阅读辅助项目对母语为英语的儿童与英语为第二语言的儿童的识读能力产生的作用。我诚邀您的孩子参与。请您先阅读以下信息，以便了解该研究项目的目的和参与过程。

研究的目的何在？

该研究项目旨在探究阅读辅助项目对英语为母语的儿童和英语为第二语言的儿童的识读能力发展产生的不同作用。该研究项目的重要性在于它有助于我们进一步了解不同语言背景的儿童的识读能力是如何发展的。我们希望该研究项目有助我们更加了解这一重要课题。

如果您有任何问题或希望了解更详细的信息，可以联系研究者本人或她的导师（附联系信息）。

我的孩子如何参与？

研究者将造访您孩子的学校，调查阅读辅助项目所带来的识读能力方面的进步，例如阅读理解。您的孩子将参与的活动包括：文字与图片配对；阅读几段文字并回答相关问题，以测试其对故事的理解程度。研究者将与您的孩子在学校中安静的场所内单独会面，两次会面总共不会超过45分钟。该研究项目所采用的测试活动在之前对6至7岁儿童的研究中成功使用，它们不会对您的孩子产生任何影响。事实上，许多孩子都乐于参与这些活动。

研究结果如何处理？

该研究项目的结果将被严格保密。每一位孩子将用一个代码来标识，所有信息和研究结果会被保存在研究者上锁的档案柜中。该研究项目结束后，研究结果将会送达学校，任何有兴趣了解研究结果的家长也可获取相关信息。

如您需要向研究者了解关于该研究项目的情况，请联系：

研究者：Charlotte Clancy

地址：Department of Education, University of Oxford, 15 Norham Gardens, Oxford, OX2 6PY

Email: charlotte.clancy@education.ox.ac.uk 电话 07852571608

导师：Kathy Sylva教授，Victoria Murphy博士

地址：Department of Education, University of Oxford, 15 Norham Gardens, Oxford, OX2 6PY

Email: kathy.sylva@education.ox.ac.uk and victoria.murphy@education.ox.ac.uk

如我们无法回答您的询问，您可以联系教育系IDREC主任Lars-Erik Malmberg博士，联系方式如下：
Department of Education, University of Oxford, 15 Norham Gardens, OX2 6PY, UK 电话(+44) 01865-274047. Email: lars-erik.malmberg@education.ox.ac.uk.

研究人员是谁？

该研究项目由牛津大学教育系的Charlotte Clancy组织，由Kathy Sylva教授和Victoria Murphy博士指导。该研究项目已由牛津大学科研伦理委员会审批通过，研究者已获得对儿童进行研究的权限。

Parental Consent form – simplified Chinese translation

UNIVERSITY OF OXFORD DEPARTMENT OF EDUCATION

15 Norham Gardens, Oxford OX2 6PY
Tel: +44(0)1865 274024 Fax: +44(0)1865 274027
general.enquiries@education.ox.ac.uk www.education.ox.ac.uk

Director Professor Anne Edwards

阅读辅助研究：探究阅读辅助项目对母语为英语的儿童和英语为第二语言的儿童的识读能力发展所产生的不同作用。

家长同意书

该研究项目旨在探究阅读辅助项目对母语为英语的儿童和英语为第二语言的儿童的识读能力发展所产生的不同作用。研究者为牛津大学教育系博士生Charlotte Clancy。

如您同意以下说明，请在方框内打钩：

- 1.我/我们已阅读并了解该研究项目的相关信息，并有机会询问相关问题。 ☐
- 2.我/我们了解只需通知研究者，即可随时退出该研究项目，不需承担任何后果。 ☐
- 3.我/我们同意由阅读辅助项目的老师对我/我们的孩子在研究测试前和研究测试后的识读能力所作的记录可以与研究者共享。 ☐
- 4.我/我们了解我/我们孩子的身份不会在任何的书面研究报告中被透露。 ☐
- 5.我/我们同意让我/我们的孩子参与口头识读能力的测试。 ☐
- 6.我/我们了解在参与该研究项目的过程中，如有任何问题可以与谁联系。 ☐
- 7.我/我们了解该研究项目经由牛津大学科研伦理委员会审批并通过。 ☐

我/我们同意参与该研究项目。

姓名：_____

研究者：_____

日期：_____

日期：_____

签名：_____

签名：_____

请将表交还您孩子的老师，谢谢合作。





UNIVERSITY OF OXFORD
DEPARTMENT OF EDUCATION

15 Norham Gardens, Oxford OX2 6PY
Tel: +44(0)1865 274024 Fax: +44(0)1865 274027
general.enquiries@education.ox.ac.uk www.education.ox.ac.uk

Director Professor Anne Edwards

兒童識讀能力研究

家長資訊說明

您孩子所在的學校同意參與牛津大學的一項研究，旨在探究閱讀輔助專案對母語為英語的兒童與英語為第二語言的兒童的識讀能力產生的作用。我誠邀您的孩子參與。請您先閱讀以下資訊，以便瞭解該研究項目的目的和參與過程。

研究的目的何在？

該研究項目旨在探究閱讀輔助項目對英語為母語的兒童和英語為第二語言的兒童的識讀能力發展產生的不同作用。該研究項目的重要性在於它有助於我們進一步瞭解不同語言背景的兒童的識讀能力是如何發展的。我們希望該研究項目有助我們更加瞭解這一重要課題。

如果您有任何問題或希望瞭解更詳細的資訊，可以聯繫研究者本人或她的導師（附聯繫資訊）。

我的孩子如何參與？

研究者將造訪您孩子的學校，調查閱讀輔助項目所帶來的識讀能力方面的進步，例如閱讀理解。您的孩子將參與的活動包括：文字與圖片配對；閱讀幾段文字並回答相關問題，以測試其對故事的理解程度。研究者將與您的孩子在學校中安靜的場所內單獨會面，兩次會面總共不會超過45分鐘。該研究項目所採用的測試活動在之前對6至7歲兒童的研究中成功使用，它們不會對您的孩子產生任何影響。事實上，許多孩子都樂於參與這些活動。

研究結果如何處理？

該研究項目的結果將被嚴格保密。每一位孩子將用一個代碼來標識，所有資訊和研究結果會被保存在研究者上鎖的檔案櫃中。該研究專案結束後，研究結果將會送達學校，任何有興趣瞭解研究結果的家長也可獲取相關資訊。

研究人員是誰？

該研究項目由牛津大學教育系的Charlotte Clancy組織，由Kathy Sylva教授和Victoria Murphy

如您需要向研究者瞭解關於該研究項目的情況，請聯繫：

研究者：Charlotte Clancy

地址：Department of Education, University of Oxford, 15 Norham Gardens, Oxford, OX2 6PY

Email: charlotte.clancy@education.ox.ac.uk 電話: 07852571608

導師：Kathy Sylva教授，Victoria Murphy博士

地址：Department of Education, University of Oxford, 15 Norham Gardens, Oxford, OX2 6PY

Email: kathy.sylva@education.ox.ac.uk and victoria.murphy@education.ox.ac.uk

如我們無法回答您的詢問，您可以聯繫教育系IDREC主任Lars-Erik Malmberg博士，聯繫方式如下：
Department of Education, University of Oxford, 15 Norham Gardens, OX2 6PY, UK 電話:(+44) 01865-274047.Email: lars-erik.malmberg@education.ox.ac.uk.

博士指導。該研究項目已由牛津大學科研倫理委員會審批通過，研究者已獲得對兒童進行研究的許可權。

Parental Consent form – traditional Chinese translation

UNIVERSITY OF OXFORD DEPARTMENT OF EDUCATION

15 Norham Gardens, Oxford OX2 6PY
Tel: +44(0)1865 274024 Fax: +44(0)1865 274027
general.enquiries@education.ox.ac.uk www.education.ox.ac.uk



Director Professor Anne Edwards

閱讀輔助研究：探究閱讀輔助項目對母語為英語的兒童和英語為第二語言的兒童的識讀能力發展所產生的不同作用。

家長同意書

該研究項目旨在探究閱讀輔助項目對母語為英語的兒童和英語為第二語言的兒童的識讀能力發展所產生的不同作用。研究者為牛津大學教育系博士生Charlotte Clancy。

如您同意以下說明，請在方框內打鉤：

- 1.我/我們已閱讀並瞭解該研究項目的相關資訊，並有機會詢問相關問題。 ☐
- 2.我/我們瞭解只需通知研究者，即可隨時退出該研究項目，不需承擔任何後果。 ☐
- 3.我/我們同意由閱讀輔助項目的老師對我/我們的孩子在研究測試前和研究測試後的識讀能力所作的記錄可以與研究者共用。 ☐
- 4.我/我們瞭解我/我們孩子的身份不會在任何的書面研究報告中被透露。 ☐
- 5.我/我們同意讓我/我們的孩子參與口頭識讀能力的測試。 ☐
- 6.我/我們瞭解在參與該研究項目的過程中，如有任何問題可以與誰聯繫。 ☐
- 7.我/我們瞭解該研究項目經由牛津大學科研倫理委員會審批並通過。 ☐

我/我們同意參與該研究項目。

姓名: _____

研究者: _____

日期: _____

日期: _____

簽名: _____

簽名: _____

請將該表交還您孩子的老師，謝謝合作。

Parental Information sheet – Polish translation

UNIVERSITY OF OXFORD DEPARTMENT OF EDUCATION



15 Norham Gardens, Oxford OX2 6PY
Tel: +44(0)1865 274024 Fax: +44(0)1865 274027
general.enquiries@education.ox.ac.uk www.education.ox.ac.uk

Director Professor Anne Edwards

Badanie umiejętności czytania i pisania¹ u dzieci.

Informacje dla rodziców.

W porozumieniu z Uniwersytetem w Oksfordzie szkoła twojego dziecka zgodziła się wziąć udział w badaniu sprawdzającym umiejętności pisania i czytania u dzieci, których język angielski jest językiem ojczystym oraz u dzieci, które posługują się językiem angielskim jako dodatkowym. Celem tego badania jest sprawdzenie jaką rolę w rozwoju tych sprawności u dzieci odgrywają zajęcia wspomagające². Chciałabym zaprosić Pana/ Pani dziecko do udziału w tym badaniu. Mam nadzieję, że Państwo się zgodzą, ale najpierw bardzo proszę o zapoznanie się z informacjami, które wyjaśnią cele tego badania i jego przebieg.

Co ma na celu to badanie?

Celem tego badania jest skontrolowanie efektu jaki zajęcia wspomagające mają na uczniach, których język angielski jest językiem ojczystym jak i na dzieciach, które posługują się językiem angielskim jako dodatkowym. Takie badanie jest ważne ponieważ pozwala ono na lepsze zrozumienie jak dzieci rozwijają umiejętność czytania. Mamy nadzieję, że to badanie pomoże nam lepiej zrozumieć ten proces.

Jeśli ma Pan/ Pani pytania lub chce Pan/Pani uzyskać dalsze informacje na ten temat bardzo proszę o kontakt z badaczem lub jego promotorem (informacja na dole strony).

Co się stanie jeśli moje dziecko weźmie udział?

Badacz odwiedzi Twoje dziecko w szkole i sprawdzi postęp w rozumieniu tekstu czytanego u Twojego dziecka. Zadania polegać będą na dopasowaniu wyrazów do obrazków, czytaniu oraz odpowiadaniu na pytania do tekstu, tak aby sprawdzić zrozumienie tego tekstu. Dzieci będą poddawane badaniu indywidualnie w jednej z klas w szkole, a badanie zajmie nie dłużej niż 45 minut i odbędzie się podczas dwóch spotkań. Takie zadania używane były poprzednio podczas badań dzieci w wieku 6- 7 lat i nie mają one wpływu na Twoje dziecko. Wiele dzieci bawi się bardzo dobrze podczas takiego badania.

¹ literacy

² Reading Recovery programme

Co się stanie z wynikami tego badania?

Wyniki tego badania są poufne. Każdemu dziecku zostanie nadany numer identyfikacyjny, a dane osobowe będą trzymane w zamkniętej szafie w biurze pracownika naukowego. Kiedy studium będzie już skończone jego wyniki będą udostępnione szkole oraz zainteresowanym rodzinom.

Kto przeprowadza to badanie?

Studium to jest prowadzone przez Charlotte Clancy z Wydziału Edukacji na Uniwersytecie w Oksfordzie. Promotorem tego badania jest Profesor Kathy Sylva oraz Dr Victoria Murphy. Badacz posiada pozwolenie na pracę z dziećmi, a studium to uzyskało pozytywną opinię etyczną na badania z udziałem dzieci.

Jeśli chce Pan/ Pani uzyskać więcej informacji bardzo proszę o kontakt:

Badacz: Charlotte Clancy

Adres: Department of Education, University of Oxford, 15 Norham Gardens, Oxford, OX2 6PY

Email: Charlotte.clancy@education.ox.ac.uk

Telefon: 07852571608

Promotorzy: Profesor Kathy Sylva oraz Dr Victoria Murphy

Adres: Department of Education, University of Oxford, 15 Norham Garden, Oxford, OX2 6PY

Email: kathy.sylva@ education.ox.ac.uk oraz victoria.murphy@ education.ox.ac.uk

Jeśli nie będziemy w stanie odpowiedzieć na Pani/ Pana pytanie, proszę o kontakt z Dr Lars-Eric Malmberg, kierownikiem IDREC na Wydziale Edukacji, pod adresem: Department of Education, University of Oxford, 15 Norham Gardens, OX2 6PY, UK Telephone: (+44) 01865-274047. Email: lars-erik.malmberg@education.ox.ac.uk.

Parental Consent form – Polish translation

UNIVERSITY OF OXFORD DEPARTMENT OF EDUCATION



15 Norham Gardens, Oxford OX2 6PY
Tel: +44(0)1865 274024 Fax: +44(0)1865 274027
general.enquiries@education.ox.ac.uk www.education.ox.ac.uk

Director Professor Anne Edwards

Badanie wpływu zajęć wspomagających czytanie³ na ogólny rozwój umiejętności czytania i pisania⁴ u dzieci, których język angielski jest językiem ojczystym oraz u dzieci, które posługują się językiem angielskim jako dodatkowym.

Formularz zgody dla rodziców.

To badanie ma na celu zbadanie efektu zajęć wspomagających na rozwój umiejętności pisania i czytania u dzieci, których język angielski jest językiem ojczystym oraz u dzieci, które posługują się językiem angielskim jako dodatkowym. Badanie to przeprowadza Charlotte Clancy, doktorantka na Wydziale Edukacji Uniwersytetu w Oksfordzie.

Proszę zaznaczyć pole (☑) jeśli Pan/ Pani zgadza się i/lub udziela zgody na :

1. Przeczytałem/łam i zrozumiałem/łam informacje dotyczące tego badania oraz miałem/łam możliwość zadania pytań. ☐
2. Rozumiem, że mam prawo wycofać swoją zgodę bez żadnych konsekwencji i w każdej chwili, informując badacza o swojej decyzji. ☐
3. Zgadzam się, aby kierujący zajęciami wspomagającymi, udostępnił pracownikowi naukowemu wyniki testów umiejętności pisania i czytania mojego dziecka. ☐
4. Rozumiem, że dane osobowe mojego dziecka nie zostaną upublicznione w pracy naukowej. ☐
5. Zgadzam się na udział mojego dziecka w ustnym badaniu umiejętności czytania. ☐
6. Wiem z kim się skontaktować jeśli zechcę zadać pytanie dotyczące tego badania. ☐
7. Rozumiem, że to badanie uzyskało pozytywną opinię etyczną Uniwersytetu w Oksfordzie. ☐

Zgadzam/y się na udział w badaniu.

Imię i Nazwisko: Badacz:

Data: Data:

Podpis: Podpis:

Proszę o przekazanie tego formularza nauczycielowi. Dziękuję.

³ Reading Recovery programme

⁴ Literacy

Appendix 12 – ANOVA analyses performed on transformed data

The following ANOVA analyses were conducted on (square root) transformed data, and serve to exemplify the similarities in the F statistics reported in the ANOVA analyses reported in the main body of the thesis, which were conducted on untransformed data.

A mixed ANOVA was conducted with one Between-Subjects variable (group) and one Within-Subjects variable (time) to compare scores on the BAS word reading assessment at two points - Time 1, prior to the children participating in RR, and Time 2 following completion of the programme. The F -test statistic showed that there was no significant main effect of language status, $F(1,98) p = 1$, ns, partial $\eta = .001$. There was a significant main effect of time on the children's scores, $F(1,98) = 461.12, p < .001$, partial $\eta = .82$, with both groups showing an increase in scores between Time 1 and Time 2. There was a significant interaction effect between time and language status where, $F(1, 98) = 4.77, p < .05$, partial $\eta = .04$, indicating that scores on the BAS word reading measure were differentially affected by time for both groups of children. These results are similar to those reported on untransformed data in Chapter 4.

A mixed ANOVA was conducted with one Between-Subjects variable (group) and one Within-Subjects variable (time) to compare scores on the WIAT reading comprehension measure at two time points - Time 1, prior to the children participating in RR, and Time 2 following completion of the programme. The F -test statistic showed that there was not a significant main effect of language status, $F(1,98) p .269$, ns, partial $\eta = .012$. There was a significant main effect of time on the children's scores, $F(1,98) = 345.83, p < .001$, partial $\eta = .77$. There was no interaction effect between time and the language status of the children, $F(1, 98) = .144, p .705$, ns, partial $\eta = .001$. These results are in line with the results reported on untransformed data in Chapter 4.