ORAL LANGUAGE DEVELOPMENT IN ESL AND EL1 STUDENTS WITH AND WITHOUT READING DISABILITIES

by

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A thesis submitted in conformity with the requirements for the degree of Master of Arts
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Abstract

This study examined the oral language abilities of 100 English as-a-second-language (ESL) and 50 English as-a-first-language (EL1) students in grade 5 with and without reading disabilities. Students with reading disabilities were further divided into two groups: poor decoders and poor comprehenders. A MANOVA was conducted to determine the effect of language group and reading group on the students’ cognitive and linguistic skills. The ESL students demonstrated delays in receptive vocabulary as measured by the PPVT, but were comparable to EL1 students on all other measures. Significant differences were found between reading groups for both language groups. Normal readers performed significantly better than poor decoders and poor comprehenders on all of the oral language measures. The poor decoders performed significantly better than poor comprehenders on an oral language task assessing listening comprehension. This research demonstrates that students with reading difficulties also have difficulties in oral language proficiency, regardless of second language status.
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INTRODUCTION

Reading is a complex process and the development of reading ability requires the coordination and integration of various skills, including those necessary for decoding and language comprehension. Research into reading disabilities has long focused on difficulties with decoding and there is much evidence to support the role of phonological awareness in decoding skills, especially in the early primary grades (Goswami & Bryant, 1990; Lovett et al., 2008; Storch & Whitehurst, 2002). However, some researchers (Bishop, 1991; Storch & Whitehurst, 2002, Tunmer & Nesdale, 1985; Nation & Snowling, 1998, 2000) warn against over-emphasizing the role of phonological awareness, noting that reading development and acquisition is complicated and that other components of oral language, such as semantic and syntactic abilities, play a key role in reading development. To better understand the acquisition of efficient reading it is important to explain how the various components related to reading development – oral language, word reading, and reading comprehension – come together and interact.

The present study examined the oral language skills of English as a second language (ESL) and English as a first language (EL1) students in grade 5 with and without reading disabilities. In order to distinguish between types of reading difficulties, the students with reading disabilities were split into two groups – poor decoders (poor decoding, but average to good comprehension) and poor comprehenders (average to good decoding but poor comprehension). These groups fit with what Gough and Tunmer (1986) call the “simple view of reading”, which posits that reading comprehension is made up of two skills: decoding and language comprehension. Decoding involves the visual and visual-phonological mapping skills that are necessary to successfully derive word meanings from
print representations. Language comprehension involves a variety of language skills including vocabulary, syntax, semantics, and pragmatics. The simple view of reading provides a general framework for explaining how the different types of reading difficulties (poor decoding vs. poor comprehending) can occur as a result of a breakdown in either the ability to decode, the ability to comprehend language, or both.

Although the simple view of reading explains a great deal about reading skill, there have been suggestions that it can be improved upon by incorporating other underlying cognitive components (such as processing speed, working memory) and the quality of lexical representation (Braze, Tabor, Shankweiler, & Menci, 2007). Perfetti and Hart’s (2002) lexical quality hypothesis focuses on the role of the quality of word knowledge in the reading process, with the conjecture that skilled reading depends heavily on high-quality lexical representation. For example, the knowledge of syntactic-semantic relationships among words can facilitate printed word recognition when decoding cues are weak. As students progress to higher grades, there is more of a focus on reading for understanding and these syntactic-semantic relationships become more important in facilitating text comprehension.

Research supports the idea that language comprehension plays a greater role in the higher grade levels (Catts, Fey, Tomblin, & Zhang, 2002; Catts, Adlof, & Ellis-Weismer, 2006). These studies found that word recognition makes more of a contribution to reading comprehension than listening comprehension in the early primary grades but that by the fourth grade language comprehension abilities (measured by listening comprehension) played a greater role in reading ability. Catts et al. (2006) found that late-emerging poor readers make their debut after the primary grades with the emergence of listening comprehension deficits as the prevalent problem. This makes sense, as the demands of
reading are greater in the higher grade levels as the focus shifts from word recognition to breadth and depth of vocabulary skills, grammar and discourse, and text comprehension. Furthermore, there is a noticeable shift in teaching that occurs in the middle elementary school grades as the focus on learning to read changes to reading to learn, in which texts make up much of the learning experience in the classroom (Chall, 1996).

Poor readers have often been grouped together in research studies, but over the past few years there has been a differentiation into poor decoder and poor comprehender subtypes. Research shows that poor decoders have phonological-based difficulties, but otherwise intact reading or listening comprehension skills (Shaywitz, 2003; Snowling & Hayiou-Thomas, 2005). In contrast, the poor comprehenders have intact phonological skills but deficits in reading and listening comprehension (Cain, Oakhill, & Bryan, 2000; Catts et al., 2006). Furthermore, studies have shown that language skills are also affected in poor readers. Poor comprehenders have been linked with deficits in vocabulary, syntactic processing, understanding figurative language, text integration and monitoring skills, and inferencing ability (Nation, Clarke, Marshall, & Durand, 2004). Poor decoders have also been shown to have deficits in syntactic processing, sentence comprehension, and vocabulary (Hagtvet, 2003; Wiseheart, Altmann, Park, & Lomardino, 2009).

It is clear that oral language skills are hampered in poor readers. What is not clear and what the present study aims to provide insight into is to what degree oral language skills are affected in poor decoders and poor comprehenders and whether these difficulties are manifested in a similar manner in the poor decoder and poor comprehender groups in ESL and EL1 populations.
Oral Language Skills: Syntax, Vocabulary, and Listening Comprehension

Oral language is crucial to a child’s literacy development, including listening, speaking, reading and writing skills. Children acquire literacy skills from a foundation of spoken language (Nation & Snowling, 2000). In monolingual children, oral language skills develop before children learn how to read, and research suggests that this is a critical skill that can provide the foundations for learning to read (Chall, 1996). The semantic and syntactic components of oral language do not play a significant role in the early primary years (when phonological awareness takes precedence) but are more relevant and a significant component of reading ability in the higher grade levels when reading comprehension is the focus in the learning environment (Sachtschneider, Francis, Carlson, Fletcher, & Foorman, 2004; Storch & Whitehurst, 2002). Since fluent reading requires that word meanings be integrated at the sentence and text level and ongoing comprehension is monitored, sensitivity to the syntactic and semantic aspects of language can be viewed as necessary for literacy development (Nation & Snowling, 2000). The present study focuses on three elements of oral language abilities – syntax, vocabulary, and listening comprehension – that have been given much support in the literature as being strongly connected to reading comprehension abilities of monolingual children.

Poor readers, defined by their weak word reading ability, have consistently demonstrated impairments on tasks of syntactic awareness, understanding syntactically complex sentences, and the ability to produce syntactically correct sentences (Byrne, 1981; Gottardo, Stanovich, & Siegel 1996); moreover, poor readers make more grammatical errors in spontaneous speech than control children (Scarborough, 1990; Tunmer, Nesdale, & Wright, 1987). Syntactic awareness is a metalinguistic skill and refers to the ability to
manipulate and reflect on the grammatical structure of language. Performance on measures of syntactic awareness has been shown to improve with age and reading ability (Cain, 2007). Syntactic awareness has been hypothesized to relate both to word reading and reading comprehension. It is thought to aid word recognition skills by allowing a reader to use the syntactic constraints of a sentence to decode unfamiliar words (Tunmer, 1989; Tunmer & Hoover, 1992; Nation & Snowling, 2000). It aids reading comprehension by facilitating sentence and text level integration and monitoring skills (Tunmer & Bowey, 1984). Cain (2007) found that the relationship between syntactic awareness and reading comprehension is indirect and it is mediated by vocabulary, grammatical knowledge, and memory.

Penning and Raphael (1991) investigated the simple and complex syntactic abilities of poor comprehenders and normal readers in grade six. The findings indicated that the poor comprehender group was limited in their ability to use complex sentence structures. The authors suggest that syntactic difficulty, especially for processing complex sentences, should be a potential source of comprehension difficulty for poor comprehenders. In fact, research shows that poor decoders have difficulties in written complex sentence formulation, which requires the use of syntactic knowledge (Wiseheart et al., 2009). This indicates that syntactic comprehension deficits may be characteristic of poor decoders as well as poor comprehenders. What is unclear is how the deficits displayed by poor comprehenders and poor decoders relate to each other. In order to pick up on the subtle differences in syntactic abilities between the poor reader groups, there is a need to investigate a range of syntactic abilities – from simpler to more complex structures – as well as to explore other cognitive processing factors (e.g., memory) that may play a role.
The interplay between syntax and vocabulary in both listening and reading comprehension is highlighted in the work done by Hagtvet (2003). He explored the relationship between decoding and comprehension in both oral and written modalities in a group of nine-year-old monolingual students, who were classified as good, average, or poor readers, on the basis of their decoding skills. Poor decoders consistently scored lower than the average and good decoders on all comprehension tasks, suggesting that there is a high degree of interdependence between listening comprehension, reading comprehension, and decoding. The pattern of results showed that although there were moderate to high correlations between all language measures in both the oral and written modalities, the extent to which language skill contributed to variance in comprehension scores varied with the task demands. Vocabulary (and to a smaller extent phonemic awareness), was related to tasks that required retelling the gist of a story, whereas syntax and phonemic awareness were related to the cloze tasks assessing comprehension. Furthermore, this same pattern held up after controlling for decoding and IQ, suggesting that the underlying language skills have a unique impact on reading comprehension beyond IQ and decoding, and that decoding ability can be seen as acting as a mediator between oral language and reading comprehension.

Hagtvet’s (2003) study provides important insight into the oral language abilities of poor decoders with difficulties in phonemic awareness. However, he acknowledges that his poor decoder group encompassed a heterogeneous array of readers, as it comprised those students below the 33rd percentile on a composite of word reading and nonword reading scores. Furthermore, there was no attempt to control for poor comprehender status. It may be the case that poor comprehenders and poor decoders were grouped together in Hagtvet’s group of poor decoders. In order to fully grasp the implications of oral language skills on
reading ability, it is important to separate out the poor decoders from the poor comprehenders. This is one issue that the present study intended to remedy by subdividing the students into poor decoders, poor comprehenders, and normal readers.

Recent research has highlighted the importance of oral vocabulary in reading comprehension (Biemiller & Boote, 2006; Ouellette, 2006; Ouellette & Beers, 2010). Semantic weakness has been shown to be associated with poor reading comprehension in children (Nation et al., 2004) and neuro-imaging studies now provide further evidence that semantic weakness affects reading comprehension (Landi & Perfetti, 2007). Sénechal, Ouellette, and Rodney (2006) reported that vocabulary provides unique variance to reading comprehension beyond the contribution of listening comprehension for grade 3 students. This indicates that the broad construct of listening comprehension, which is often thought to encompass all language or linguistic comprehension and knowledge, may obscure the more relevant aspects of oral language in reading. It is important to evaluate various aspects of linguistic comprehension, such as vocabulary, separately, to gain a more concise picture of how various aspects of oral language abilities play a role in reading comprehension.

The work by Ouellette and Beers (2010) did look into the contribution that oral vocabulary makes to reading comprehension by examining the relationship between word reading skills, listening comprehension, oral vocabulary, and reading comprehension across age groups that differed in reading proficiency. They found that in grade one, oral vocabulary did not predict reading comprehension beyond measures of phonological awareness, irregular word recognition, and listening comprehension. However, by grade six, oral vocabulary was found to predict reading comprehension even when these other variables were accounted for. The overall pattern of results showed that, in support of Catts et al.,
(2002, 2006), there was an increasing importance placed on oral vocabulary and listening comprehension and a diminished role of decoding when explaining reading comprehension as children age and become more proficient readers. Other research has found similar results (Verhoeven & Van Leeuwe, 2008), suggesting that as children develop better word-decoding skills, their reading comprehension may become constrained primarily by inadequate vocabulary and listening comprehension skills. Vocabulary and listening comprehension appear to be essential factors for building word-to-text integration during reading comprehension. Children with reading comprehension difficulties often display weaknesses in drawing inferences after reading texts or listening to orally presented material (Cain, Oakhill, Barnes, & Bryant, 2001; Cain & Oakhill, 2006; Catts et al., 2006). Therefore, it is important to differentiate between factual and inferential based questions on tasks of listening comprehension. Furthermore, it is important to investigate whether all types of poor readers have difficulties with inferencing or if this is restricted to the poor comprehenders.

Further support for the role of oral language abilities in reading comprehension comes from research with children that display specific language impairments (SLI). SLI refers to a developmental language disorder in which a child displays a marked delay in language development with no obvious accompanying condition such as neurological damage, mental retardation, or hearing impairment (Leonard, 1998). Children with SLI lag behind their peers in language production and language comprehension, which can lead to learning and reading difficulties in school (Bishop & Snowling, 2004). There is ample research that shows that monolingual children with language impairments have poor reading skills (Catts et al., 1999; Kelso, Fletcher, & Lee, 2007; Nation et al., 2004) and that poor oral language skills at the preschool level are associated with greater risk of developing dyslexia
(Scarborough, 1990). This has led to speculation that there is an overlap between reading failure and spoken language impairment.

Nation et al. (2004) employed DSM-IV and ICD-10 criteria as well as criteria that have been used in other SLI studies (Catts et al., 2002; McArthur, Hogben, Edwards, Heather, & Mengler, 2000). They found that a substantial number of children with specific reading comprehension impairment also met the criteria for SLI. The study by Nation et al. (2004) highlights the close relationship between reading comprehension difficulties and poor language abilities. The authors were quick to point out that not all children who are poor comprehenders will have significant language difficulties; likewise, not all children with SLI will be poor comprehenders.

Although it is common to make references to deficits in early language development as being predictive of later reading difficulties, the question of whether language deficits in older children are a cause or consequence of poor decoding skills and/or poor reading comprehension remains a topic of debate (Bishop & Snowling, 2004; Snowling & Hayiou-Thomas, 2006). Further research exploring the relationship between reading and language impairments is needed to fully understand how these two impairments interrelate. Moreover, it is important to begin to explore this issue with regard to ESL children who develop their literacy skills in a language that is different from the home language

**Language and Literacy Development in English as a Second Language Learners**

Basic literacy skills have been found to develop in a similar manner for both native English speakers and second language learners (Chiappe, Siegel, Wade-Woolley, 2002; Geva, 2006). Language and literacy research with ESL students has found that phonological awareness, and working memory are the strongest and most consistent predictors of accurate
word reading skills and explain more unique variance than do aspects of English oral language proficiency such as vocabulary and grammatical skills (Da Fontoura & Siegel, 1995; Geva & Siegel, 2000; Gottardo, Yan, Siegel, & Wade-Woolley, 2001). The majority of the research has been conducted with young ESL students in the primary grades, with a focus on basic decoding skills. The consensus of this research is that oral language proficiency skills do not add substantially to the variance in accurate basic reading skill in ESL children (Geve & Siegel, 2000; Geva & Yaghoub Zadeh, 2006). Geva and Yaghoub Zadehn (2006) found that grade two ESL and EL1 children can perform at the same level in basic reading skills, such as word recognition, word attack, and word reading fluency. Similar results are reported by Lesaux and Siegel (2003), who examined the literacy skills among a group of ESL and EL1 children from kindergarten through to the second grade. Research findings indicated that the ESL students had caught up, and in some cases performed even better than their monolingual English-speaking peers on tasks measuring word reading and fluency.

Although ESL children may not differ from their EL1 peers on basic decoding skills, this is not the case for reading comprehension. ESL children are consistently behind EL1 children despite many years of schooling in English. Current research has demonstrated that EL1 students have better vocabulary skills than their ESL counterparts and that vocabulary is a contributing factor to this gap in reading comprehension between ESL and EL1 students (August, Carlo, Dressler, & Snow, 2005; Farnia & Geva, 2010; Gottardo, Collins, Baciu, & Gebotys, 2008). There is evidence to show that various aspects of oral language proficiency play a substantial role in the reading comprehension skills of English as L2 (second language) learners. Dufva and Voeten (1999) report that there were high correlations between English reading comprehension and oral vocabulary in native Finnish speaking
students in the third grade. Likewise, Carlisle, Beeman, and Shah’s (1996) research with Mexican American adolescents found that performance on two different aspects of oral language proficiency — English listening comprehension and vocabulary — explained 50 percent of the variance in English reading comprehension scores. Droop and Verhoeven (2003) reported that decoding and reading comprehension appear to develop as independent skills from the third grade on, and that various components of oral language proficiency play a critical role in reading comprehension development of Dutch in immigrant students. Specifically, vocabulary and morphosyntactic skills exerted a direct influence on reading comprehension abilities of the minority Dutch children of Turkish or Moroccan background. More recently, Swanson, Rosston, Gerber, and Solari (2008) provided additional replication for the finding that vocabulary and syntax were the best predictors of reading skills for ESL children in grade three, and that this relationship was stronger for reading comprehension than it was for decoding ability.

It is clear that English oral language skills play an important role in the reading comprehension skills of L2 students. It is also clear that L2 students have poorer oral language skills than their monolingual counterparts. However, not as much is known about the oral language skills of ESL students that have reading disabilities. The current study is designed to examine the oral language proficiency profiles of different groups of readers in the ESL population. From the limited studies available, ESL students with reading disabilities show the same difficulties in phonological processing, syntactic awareness, and working memory as English monolingual students with reading disabilities (Abu Rabia & Siegel, 2002; Da Fontoura & Siegel, 1995; Geva, Yaghoub Zadeh, & Schuster, 2000). Lovett et al. (2008) implemented a phonologically based remediation program for struggling
ESL and monolingual English students in grades 2-8. The outcome results suggest that the same principles of explicit phonologically-based intervention are effective for struggling readers irrespective of language status. In fact language status made no difference; instead, it was the students that were more language-impaired who demonstrated greater rate of improvement after remediation.

The research of Da Fontoura and Siegel (1995) suggests that children who have reading problems in one language also demonstrate reading problems in their other language. They found that reading disabled ESL readers with Portuguese as their first language show the same difficulties with phonological processing, working memory, and syntactic skills as disabled readers in English. Furthermore, Geva et al. (2000) demonstrated that young ESL and EL1 at-risk readers with low phonological processing skills had very similar learning profiles on many cognitive and linguistic measures. This suggests that there are similarities in the profiles of reading-disabled ESL and monolingual English speaking students.

Research is needed into how learning disabilities manifest themselves in the ESL student populations. There have been problems with both under-identification (Limbos & Geva, 2001) and over-identification (Cummins, 1991) of ESL students in the school system. Furthermore, research on ESL students demonstrating comprehension deficits is lacking. Part of the reason for this is the fact that these difficulties are often likely to be overlooked or attributed to their second-language status (Limbos & Geva, 2001), especially given the fact that in general ESL students are not exposed to the English language to the same degree that their native English peers are. It is necessary to disentangle poor language due to ESL status from poor language due to either a reading or language impairment. Investigating the oral language abilities in poor decoders, poor comprehenders, and normal readers in the ESL
population should shed some light on how oral language abilities relate to reading profiles, and the extent of similarities and differences between ESL and EL1 students with different reading deficits. This is vital in order to provide the appropriate instruction and support for struggling ESL students in the classrooms who on the surface may appear to have similar difficulties but in fact have different cognitive and oral language profiles.

The current study was designed to investigate the role of oral language skills in children who have a reading disability and/or who are learning English as a second language and to compare them with their monolingual peers. There has been a great deal of research showing that monolingual poor readers demonstrate deficits in oral language skills, such as listening comprehension, vocabulary, and syntax. However, what is not clear from the research is how these oral language difficulties manifest themselves in specific types of poor readers (poor decoders vs. poor comprehenders). Furthermore, there is even less research available that investigates the oral language abilities of ESL learners with these specific types of reading disabilities. The aim of the current research study is to fill this gap in the literature by providing some insights into the oral language abilities of EL1 and ESL learners with poor decoding or poor comprehension skills. Traditionally, research has focused either on poor decoders or poor comprehenders, and researchers have typically assessed vocabulary, listening comprehension, or morpho-synactic skills as an index of the construct of oral language proficiency, but to date an in-depth examination of various components of oral language proficiency in monolingual and ESL children with different reading profiles is lacking. An important aspect of this study is that the same measures are used for the ESL/EL1 groups as well as for the poor decoder/poor comprehender/normal reader groups.
This allows for more systematic and relevant comparisons to be made between and within groups.

**Research Questions**

The current study examined the cognitive and oral language skills of ESL and EL1 students who were normal readers, poor decoders or poor comprehenders. The research questions that were addressed included:

a) How do ESL students compare to their EL1 peers with regards to their cognitive and oral language abilities?

b) Do students with reading difficulties have different cognitive or oral language profiles compared to normally developing readers? Furthermore, does type of reading difficulty (poor decoder vs. poor comprehender) make a difference?

c) Do ESL students with reading disabilities differ from EL1 students with reading disabilities in terms of their cognitive or oral language abilities?

**METHODOLOGY**

**Participants**

The research study followed a cross-sequential design in which four consecutive cohorts of students were followed from grade 1 to grade 6. Data collection was carried out over a 10-year period, beginning in 1996. The sample was drawn from twelve schools in four different school boards in a large multicultural Canadian metropolis. The schools were located in regions with relatively low to middle socioeconomic status areas. The ESL students had to be living in Canada for at least 4 months to ensure that they had some exposure to English language and literacy instruction. Information gathered from school
files as well as interviews with the classroom teachers was used to validate each child’s language status.

The overall sample for the present study consisted of 178 children in grade 5, 57 native speakers of English (EL1) and 121 English as a second language (ESL) speakers. The grade 5 students had a mean age of 10.8 years. This sample was taken from a previous longitudinal study that examined writing development in grades 4 to 6 among different reading groups (Ndlovu & Geva, 2008). The current study used the same criteria to categorize children into reading groups (see below). Please see Table 1 for a breakdown of the various groups of students within the overall sample. The ESL and EL1 students came from the same classes. The ESL students came from six different language groups: Portuguese, Punjabi, Tamil, Urdu, Chinese, and Russian.

ESL students who have recently immigrated to Canada from non-English speaking countries or have limited English language proficiency are placed in regular classrooms and receive withdrawal ESL instructions at their schools. The withdrawal support is given by teachers with ESL specialist training and consists of daily 30 to 40 minutes of English language instruction. ESL students receive instruction in ESL classes for up to 2 years. In the regular classroom, all instruction takes place in English with EL1 peers. Teachers make appropriate program and curriculum adaptations and accommodations for the ESL students. At the beginning of the study, when students were in grade 1, many participants in the ESL group were in these withdrawal classes for 1 to 2 years. The ESL students in grade 5 were in the regular classroom only.
Reading Groups Defined

The grade 5 sample was subdivided into three reading groups: Normal Readers, Poor Decoders, and Poor Comprehenders taken from Ndlovu and Geva’s (2008) longitudinal study. The conceptualization of Poor Decoders and Poor Comprehenders is based on Gough and Tunmer’s (1986) simple view of reading model. The 30th percentile was chosen as a cut-off point for poor readers, and children who scored above the 40th percentile were considered normal readers. Using a score above the 40th percentile for normal readers allowed a clearer distinction between children who fall into the average to above-average range, ensuring that they represent a skilled reading group. Children who scored between the 31st and 40th percentiles were eliminated from the analysis in order to allow for distinct reading groups.

A decoding composite score was established to identify Poor Decoders. The rationale for establishing a composite score was that both real word and pseudoword decoding are necessary to effectively assess a child’s overall decoding ability. The decoding composite was calculated by combining the children’s pseudoword decoding and real-word reading raw scores. An independent-samples t test revealed no significant group differences between EL1 and ESL children on the decoding composite, \( t = 0.19, p = .85 \). Levene’s Test of the Equality of Variances was not significant, therefore equal variances can be assumed. Since there were no differences between language groups, the children who scored below the 30th percentile of the whole sample on the decoding composite measure were identified as Poor Decoders. Based on this criterion, a group of 57 students was identified as being Poor Decoders: 20 EL1 students and 37 ESL students.

There were significant group differences between EL1 and ESL groups on reading comprehension scores, \( t = 2.42, p = .016 \). Equal variances could be assumed since Levene’s
Test for the Equality of Variances was not significant. Because the EL1 students scored significantly higher than the ESL students on the reading comprehension task, two separate cut-off points were established in order to avoid over-identifying ESL students whose English proficiency may affect their reading comprehension as Poor Comprehenders. Students were identified as Poor Comprehenders relative to their language group. Therefore, students who scored at or below the 30th percentile on reading comprehension relative to their language group, and above the 40th percentile on the decoding composite score relative to the whole sample were identified as Poor Comprehenders. Based on this criterion, a group of 22 students was identified as being Poor Comprehenders: 7 EL1 students and 15 ESL students.

Normal readers were defined as those students who scored above the 40th percentile on the decoding composite score relative to the whole sample and reading comprehension score relative to their language group. A group of 71 students were identified as being Normal Readers: 23 EL1 students and 48 ESL students. By defining the three reading groups in this way, 28 students fell between the 31st and 40th percentiles and were excluded from the analyses.

Measures

Cognitive Measures

Nonverbal Reasoning. A test of nonverbal intelligence, the Raven’s Standard Progressive Matrices (RAVEN; Raven, Court, & Raven, 1983), was used to evaluate children’s nonverbal reasoning ability. Children were shown an incomplete pattern or matrix and then asked to choose from a set of 5 or 6 pictures, the one picture piece that would
complete the matrix. Children were able to either point to the missing piece or say the number corresponding to the missing piece.

**Working Memory.** A test of working memory, the Digit Span Backwards subtest of the Weschler Intelligence Scale for Children – Third Edition (WISC III; Weschler, 1991), was used to assess children’s ability to retain and manipulate information. Children are orally given progressively longer sequences of numbers and asked to repeat them in the reverse order that they are heard. For practice, children are presented with a series of 2 digits and then during testing the 2-7 digit items are presented.

**Phonological Awareness.** An adapted version of the test of phonological awareness, the Rosner Test of Auditory Analysis Skills (TAAS; Rosner & Simon, 1971), was used to determine the children’s ability to identify and manipulate sounds within words. In order to minimize the effect of vocabulary knowledge, only high frequency words (e.g., sunshine, leg) were included as the initial stimuli and target responses in this task. The items increase in difficulty and the task begins with elision items that require children to delete a morpheme in compound words (e.g., say “sunshine”, now say it again but don’t say “shine”), delete a phoneme from one syllable words (e.g., say “leg”, now say it again but don’t say /l/), and finally to delete single phonemes in consonant blends (e.g., say “stand”, now say it again but don’t say /t/). There were 25 items in total that could be either scored as correct or incorrect for a raw score total out of 25. (Cronbach alpha: ESL = .92; EL1 = .89)

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1 CTOPP did not exist at the beginning of this research project. However, the CTOPP is based on this older versions of phonological awareness and therefore the same construct is being measured in the current study.
Rapid Automatized Naming\textsuperscript{2} (RAN). The Rapid Automatization Naming Test (RAN; Denckla & Rudel, 1976), was used to measure the speed and accuracy of children’s retrieval of letter names. Children were presented with a series of 50 letters (5 letters repeated randomly 10 times) and were required to say the letter names aloud as quickly as they can. The children were timed on how quickly they completed the task and any miscues were recorded. The amount of time in seconds it takes a child to name all 50 letters is taken as the total raw score.

\textbf{Oral Language Measures}

\textbf{Receptive Vocabulary.} A test of verbal comprehension, the Peabody Picture Vocabulary Test- Revised (PPVT-R; Dunn & Dunn, 1981), was used to assess children’s oral language proficiency. Children were required to choose from a group of four pictures, the one picture that best depicts a target word read aloud by the examiner (e.g., point to the picture that shows “sleeping”). The PPVT-R consists of 175 items, including nouns, verbs, and adjectives. The PPVT-R is considered to be a reliable and valid test of receptive vocabulary and reliability coefficients range from .52 to .90.

\textbf{Listening Comprehension.} The Listening to Paragraphs subtest from the Clinical Evaluation of Language Fundamentals – Third Edition (CELF-3; Semel, Wigg, & Secord, 1995), was used to assess children’s receptive oral language skills. Children listened to a story paragraph read aloud to them and then answered a set of five questions designed to evaluate their understanding of the story they heard. The question types include: main idea, detail, sequence, inference, and prediction. The test is made up of four short narratives that

\textsuperscript{2} CTOPP did not exist at the beginning of this research project. However, the CTOPP is based on this older version of rapid automatized naming and therefore the same construct is being measured in the current study.
gradually increase in complexity. Children answered the questions orally and their responses were recorded verbatim. Responses are scored either a 0 or 1 and the number of correctly answered questions represents the child’s raw score. The CELF-3 is considered to be a valid and reliable test and reliability coefficients range from .45 to .95.

**Syntactical Awareness.** The Formulated Sentences subtest from the Clinical Evaluation of Language Fundamentals – Third Edition (CELF-3; Semel, Wigg, & Secord, 1995) was used to assess children’s expressive oral language and syntactical awareness skills. Children were asked to create a sentence, using an orally presented target word, in the context of a stimulus picture that was presented at the same time. This test contains 22 items that require children to progressively create more complex sentences. Stimulus words include nouns, verbs, adjectives, conjunctions, and phrases. Scoring involves a 3 point scale, where a score of 2 represents a complete sentence that is semantically and syntactically correct with logical structure, a score of 1 represents a complete sentence with one or two deviations in syntax or semantics, and a score of 0 represents an incomplete sentence and incorrect structure. A total raw score is calculated with the maximum score out of 44.

**Reading Measures**

**Pseudoword Decoding.** The Word Attack subtest from the Woodcock Reading Master Test – Revised (WRMT-R; Woodcock, 1987) was used to evaluate children’s ability to read nonwords using appropriate grapheme-phoneme correspondence rules. The test is made up of 42 increasingly complex items which are not real words in English but conform to typical English orthography.

**Real Word Reading.** The Reading subtest from the Wide Range Achievement Test – Third Edition (WRAT-3; Wilkinson, 1993) was used to assess children’s ability to identify
and decode age-appropriate words. The test consists of 42 items (including nouns, verbs, adjectives, and prepositions) that increase in difficulty as the test progresses. The WRAT-3 is considered to be a reliable and valid test and reliability coefficients range from .85 to .95.

**Reading Comprehension.** The reading comprehension subtest from the Gates-MacGintie Reading Test (GMRT; MacGintie & MacGinitie, 1992) was used to assess children’s understanding of narrative and expository text. The grade 5 students were given Level D 5/6 (Form 4) corresponding to their grade level. The 48 item test consists of several short passages, including both narrative and expository, followed by a series of multiple-choice questions. Children were given the test in a 35 minute timed period and required to read the passages silently and fill in their answers on a protocol sheet.

**Procedure**

The data reported here are part of a larger study that investigated various cognitive, language, and academic skills of ESL and EL1 students from Grade 1 to 6. The focus here is on the oral language abilities of ESL and EL1 students at a particular point in time- Grade 5. Participants were recruited by sending a letter explaining the research and a consent form to the home of all the EL1 and ESL children in participating schools. At the beginning of the testing sessions, verbal assent was also obtained from the participating children. The testing sessions took place in a quiet area in the children’s schools by trained graduate students and research assistants. The children were either tested individually or in groups depending on the nature of the tasks. There were four testing sessions each of which was an average of 30 minutes in length. At the completion of each testing session, the children were given stickers for their participation.
Measures were scored by trained graduate students and research assistants. Interrater reliability was determined for two of the tasks that required scorer judgement – the CELF formulated sentences task and the CELF listening to paragraphs task. Both tasks were double-scored and a third rater was brought in to settle any discrepancies in 100% of the sample in the formulated sentences task, and 33% of the sample in the listening to paragraphs task. Rater 1 and 2 scores for each of the 22 items on the formulated sentences task had a 96.8% agreement rate on 20% of the ESL sample and a 95.0% agreement on 20% of the EL1 sample. On the listening to paragraphs task, rater 1 and 2 scores for each of the 20 items had a 99.3% agreement rate on 20% of the ESL sample and a 99.0% agreement rate on 20% of the EL1 sample.

**RESULTS**

The purpose of this study was to examine the cognitive and oral language abilities of EL1 and ESL students and how the type of reading ability (normal readers, poor decoder, and poor comprehender) may affect these cognitive and oral language abilities. Standardization samples are based on EL1 populations and therefore do not reflect the ESL students. Therefore, raw scores were used in the analyses in order to be able to compare the ESL and EL1 groups. For both the cognitive and oral language measures, a multivariate analysis of variance (MANOVA) was conducted with language status (EL1, ESL) and reading group (Normal Reader, Poor Decoder, Poor Comprehender) as between subject variables. Cases with missing data were excluded from the analyses. Pairwise comparisons were completed to determine where the significant differences lay.
Language Status and Cognitive and Oral Language Abilities

The first objective of this study was to compare the cognitive and oral language abilities between EL1 and ESL students. As can be seen in Table 2, the ESL students performed similarly to their EL1 peers on the cognitive measures, with the exception of the rapid automatized naming task. The language status by reading group interaction on the rapid automatized naming measure revealed that the EL1 poor decoders performed significantly better than the ESL poor decoders. Similar results were found with the oral language tasks, as shown in Table 3. Again, the ESL students performed in a similar manner to their EL1 peers, with the exception of the receptive vocabulary task. The results showed that EL1 students had significantly higher vocabulary scores than ESL students. On the syntactical awareness and listening comprehension measures there were no significant differences between the language groups.

A further objective of the study was to determine whether there were differences in the cognitive and oral language abilities of ESL and EL1 students that were normal readers, poor decoders, and poor comprehenders. As can be seen in Table 2 and 3, the results obtained indicate that overall, the ESL cognitive and oral language profiles to a large extent mirror those of their EL1 peers within each reading group. There were no significant interactions between language group and reading group on any of the oral language measures.

Reading Group and Cognitive and Oral Language Abilities

The second objective of this study was to compare the cognitive and oral language abilities between normal readers, poor decoders, and poor comprehenders. The results obtained showed this to be a significant component of the study, in that there were many
differences found between the reading groups on the cognitive and oral language measures (see Table 2 and 3).

The normal readers performed better than both poor decoders and poor comprehenders on nonverbal reasoning. Normal readers also performed better than the poor decoders on the working memory measure. On the RAN task, both normal readers and poor comprehenders scored significantly better than the poor decoders. Finally, poor comprehenders and normal readers had solid phonological awareness skills that were significantly better than the poor decoders. Overall, the poor decoders displayed more pervasive cognitive deficits than the poor comprehenders when both groups were compared with the normal readers.

There were significant differences in the reading groups with normal readers outperforming both the poor decoders and poor comprehenders on the receptive vocabulary measure. Although there were no significant differences between the poor decoders and poor comprehenders, there was a trend showing that the poor decoders have slightly better vocabulary scores than the poor comprehenders. On the syntactical awareness and listening comprehension measures there were significant differences between reading groups. Normal readers significantly outperformed both poor decoders and poor comprehenders on the syntactical awareness and listening comprehension tasks. Furthermore, poor decoders had significantly better scores than the poor comprehenders on the listening comprehension task. Although, there were no significant differences between the poor decoders and poor comprehenders on the syntactical awareness task, there was a trend showing that the poor comprehenders had slightly better scores than the poor decoders.
Qualitative Investigation into Oral Language Abilities

Given that there were no differences between the ESL and EL1 language groups on the measures of syntactical awareness and listening comprehension, the syntactical awareness and listening comprehension tasks were subdivided to examine subtle differences and explore different concepts and abilities within each task.

The syntactical awareness task, which required children to orally create a sentence using a target word and stimulus picture, was subdivided into simple and complex items (see Appendix A) based on the nature of the target word and how that target word would be used to construct simple or complex sentences. The target words consisted of nouns, verbs, adjectives, conjunctions, and phrases. A simple sentence was defined as containing one clause, one main verb or noun, or one adverbial clause. For example, “The children are playing videogames.” In this case, the noun “children” is the target word and requires a simple sentence to be composed. A complex sentence was defined as having more than one clause, more than one main verb, or phrases. For example, “Although the boy has a broken arm, he is still able to ride his skateboard.” In this case, the subjunctive conjunction “although” is the target word and forces a complex sentence to be composed. The definitions for simple and complex sentences were taken from previous research in which both sentence types were explored in children with specific language impairments (Marinellie, 2006). Items consisting of subjunctive conjunctions represented the majority of the complex items, as they require students to create complex sentences. For the purpose of this study, items consisting of conjunctive adverbs were also deemed to be complex items, as they imply dependence on the preceding sentence to fully make sense (e.g., “I was wearing open-toed shoes. However, I decided to mow the lawn.”) The items consisting of parts of speech
(nouns, verbs, adjectives) and the more simple coordinating conjunctions (e.g., and) were
deemed the simple items, as they require students to construct simple or simple compound
sentences. This resulted in 7 simple target words taken from the original task for a simple
sentences raw score out of 14 and 10 complex target words taken from the original task for a
complex sentences raw score out of 20.

The listening comprehension task, which required children to orally answer questions
based on story narratives, was subdivided into inferential and factual items (see Appendix
B). The original task consisted of 5 question types for each of the four passages: main idea,
detail, sequence, inference, and prediction. The inferential questions consisted of those in
which the answer could not be found directly in the passage; Rather the child had to predict
or infer based on the information provided. This included the prediction and inference
questions from each passage. Across the 4 texts there were 8 items that involved inference.
The factual questions targeted information that had been explicitly stated in the passage. This
included the main idea, detail, and sequence questions from each passage, which made the
factual raw score out of 12.

Table 4 displays the descriptive statistics and MANOVA results for these subdivided
measures. The results show that there were no effects due to language status or any
interactions between language status and reading group on the simple / complex sentence
items on the syntactical awareness task or on the factual / inferential items on the listening
comprehension task. The differences in performance on both tasks were found solely
between reading groups. In the simple sentences syntactical awareness task, the normal
readers significantly outperformed the poor decoders. While in the complex sentences
syntactical awareness task, the normal readers significantly outperformed both the poor decoders and poor comprehenders.

On the factual items of the listening comprehension task, the normal readers performed significantly better than the poor decoders and poor comprehenders and there was a trend showing that the poor decoders performed better than the poor comprehenders. The same, but stronger, pattern was found with regard to the inferential items of the listening comprehension task. The normal readers outperformed the other reading groups, and the poor decoders obtained significantly higher scores than the poor comprehenders.

Furthermore, a MANCOVA was performed to evaluate the possible influence of working memory on the children’s performance on the subdivided syntactical awareness and listening comprehension tasks. Both of these tasks required the children to hold a great deal of information in mind in order to perform the task successfully. Digits span- backwards was entered as the covariate with language status and reading group as the fixed factors and factual and inferential listening comprehension and simple and complex sentence syntactical awareness as the dependent variables. The MANCOVA was significant for reading group on the factual listening comprehension questions, $F(2, 143)=12.040, p=.000$, inferential listening comprehension questions, $F(2, 143)=13.502, p=.000$, simple sentences syntactical awareness, $F(2, 143)=5.410, p=.005$, and complex sentences syntactical awareness, $F(2, 143)=18.832, p=.000$. Follow up tests indicated that the significant differences between the reading groups were exactly the same as those found with the original MANOVA.
DISCUSSION

Language Status, Cognitive and Oral Language Abilities

The first objective of this study was to evaluate the similarities and differences between ESL and EL1 students on the basis of their cognitive and oral language abilities. Overall, it appears that for ESL students who have attended school in an English-speaking environment since Grade 1, on the whole, the language status did not matter by Grade 5. That is, the cognitive measures and syntactical awareness and listening comprehension skills were similar among ESL and EL1 students.

There was a language status difference on the rapid automatized naming task showing that EL1 students were significantly faster than the ESL students in naming the letters in a quick and efficient manner. However, interaction comparisons revealed that this difference was restricted to the poor decoder group, with ESL poor decoders performing significantly worse than EL1 poor decoders. It would be disingenuous to discuss this as an ESL/EL1 difference as the normal readers and poor comprehenders in each language group performed similarly. The fact that this difference was restricted to poor decoders could be attributed to weak working memory and rapid automatized naming in general. Furthermore, some researchers subsume rapid automatized naming under phonological skills (Felton & Brown, 1990; Shaywitz, 2003), which has been shown to be a well-established area of deficit for poor decoders. The added measure of having English as a second language could be that much more taxing on the cognitive resources of these ESL poor decoders.

The EL1 students significantly outperformed their ESL peers on the receptive vocabulary task. Despite the fact that the ESL students have been receiving English language instruction in the Canadian English-speaking school system since Grade 1, they still lagged
behind their EL1 counterparts in this area. Previous research has established that ESL students, despite being proficient and equal to EL1 students in other cognitive and word level reading skills, lag behind EL1 students in vocabulary development indicating that there are distinct language differences between the ESL and EL1 groups (August et al., 2005; Farnia & Geva, in press, 2010; Jean & Geva, 2009; Kieffer & Lesaux, 2008).

The fact that there was no difference in syntactical awareness or listening comprehension ability between the language groups may indicate that for ESL students these are types of skill that can be developed and mastered over time. It appears as though language processing, comprehension and the mechanics of language in general are all skills that the ESL children have become proficient in over the years. However, vocabulary is a different type of skill in that it is more open-ended and favours EL1 students; one can always learn new words, so the chance of mastering this type of skill is more limiting for the ESL students given that they are not exposed to new words to the same degree as their EL1 peers.

The results of this study provide further support for the need to provide vocabulary interventions for ESL students in order to further enhance and develop both their vocabulary proficiency and their reading comprehension skills. As vocabulary skills have been shown to be closely related to reading comprehension ability (Verhoeven & Van Leeuwe, 2008), it is important to focus on developing and enhancing this area for the ESL students in order to try to close the gap that remains despite many years of schooling in the English school system. This is even more important at the higher-grade levels when the focus of school becomes more textbook-based and transitions from learning to read to reading to learn (Chall, 1996; Biemiller, 2010), and the lag in vocabulary of the ESL students may be more subtle.
A further objective of this study was to determine whether ESL students with reading disabilities differ from EL1 students with reading disabilities in their cognitive and oral language profiles. The results showing that ESL students performed similarly to EL1 students on the nonverbal, working memory, phonological awareness, listening comprehension and syntactical awareness measures held true even when comparing ESL students with reading disabilities to EL1 students with reading disabilities. This indicates that similar cognitive processes are involved in reading disabilities regardless of language status and that they can be assessed reliably even when vocabulary skills of ESL students are lower than their EL1 peers.

Research has shown that normally developing ESL students make rapid progress in their decoding skills in the early grades (Gottardo et al., 2008) and that decoding and phonological skills can develop in advance of their oral language proficiency (Geva, 2006; Geva & Siegel, 2000; Geva, et al., 2000; Gottardo, 2002; Limbos & Geva, 2001). Given that ESL decoding and phonological awareness skills are equivalent to their EL1 peers after just a few years of schooling in English, it is a good indication that ESL students who display limited decoding and phonological awareness skills have underlying reading disabilities. It is often the case that the difficulties ESL students display at school are misattributed to their second-language status (Limbos & Geva, 2001). It is even more challenging to identify ESL students who are poor comprehenders due to the fact that their vocabulary and reading comprehension skills are generally weaker than EL1 students to begin with. Results of this study suggest that poor comprehension in ESL students may not reflect merely lack of language skills due to their language status, but for some students there are underlying general language comprehension deficits. Given that the cognitive and linguistic abilities of
ESL students are similar to those of their EL1 peers, deficits in reading and/or oral language skills should be given the same degree of attention or support that an EL1 students displaying the same weaknesses would be given. The current study adds to this body of literature by showing that when ESL students have had sufficient exposure to the societal language, they are comparable to their EL1 peers. Therefore, the focus should not be limited to language status but on the reading or oral language difficulties and profiles displayed by the ESL students.

**Reading Group and Cognitive and Oral Language Abilities**

This study allows for a number of conclusions to be made concerning oral language abilities in children with reading disabilities. First of all, language status does not appear to play a role in the cognitive and oral language profiles of poor decoders and poor comprehenders. The results are the same regardless of language status. Second, there appear to be distinct differences in both the cognitive and oral language abilities of the poor decoders and poor comprehenders.

The poor decoders consistently demonstrated pervasive cognitive weaknesses in areas such as working memory, phonological awareness and rapid automatized naming. This fits in nicely with the phonological deficit hypothesis (Snowling, 2001) in that the difficulty that this group experiences lies in the representation, storage and retrieval of speech sounds. Regardless of language status, as suggested by Perfetti and Hart’s (2002) lexical quality hypothesis, high quality word representations are bonded through phonology, orthography, and semantics and a threat to any of these areas leads to difficulties in identifying or accessing words from memory. The phonological deficits that the poor decoders display may make it difficult for them to access required words from memory, which can then lead to
difficulty with language and literacy tasks, such as reading. Kibby et al. (2004) looked at how children with dyslexia performed on a working memory task designed to evaluate Baddely’s (1986) working memory model. The results demonstrated that children had intact central executive and visuospatial functioning but showed a weakness in phonological loop functioning compared to normal controls. The syntactic and semantic tasks in the current study require higher-level thinking skills that may be taxing on the poor decoders’ limited working memory resources. This may help to explain some of the weaknesses that the poor decoders displayed in the tasks evaluating syntactical awareness, vocabulary and listening comprehension.

The poor decoders were the lowest-performing group on the syntactical awareness task, and this held true even when investigating the performance more qualitatively on the simple and complex sentences on this task. In this task, the students had to hold certain words or phrases in memory, use context cues (given in the form of a picture scenario), and orally compose a syntactically correct sentence. Even though the working memory measure used in this task did not affect performance, there is still a possibility that the nature of the task was too taxing on the memory and processing abilities of the poor decoders regardless of sentence complexity.

Wiseheart et al. (2009) found that after controlling for working memory, group differences between adult dyslexics and controls on a complex sentence comprehension task were eliminated. This task required participants to look at two line drawings and a sentence on a computer screen and choose the picture that matched the sentence. Wiseheart et al. concluded that working memory plays a significant role in sentence comprehension among dyslexics, which has a direct effect on syntactic processing. The authors argue that this
means that dyslexics do not have a specific deficit in syntactic processing, but have a more
generalized deficit in working memory, which is secondary to underlying processing deficits
in phonological and rapid naming skills that also affect word reading ability.

In the current study, the results of the syntactical awareness task stayed the same
despite covarying for working memory. This may indicate that the working memory
measure used did not fully evaluate the working memory abilities of the poor decoders and
poor comprehenders. In fact, the digit span – backwards task that was used places more
emphasis on rote memory than on the processing component of working memory and it
requires the memorization of non-meaningful information. Research has shown that poor
comprehenders have normal short-term memory skills and normal digit spans – both forward
and backward, but show difficulties on memory tasks that require the simultaneous
processing and storage of information or on verbal memory tasks that place a heavy burden
on semantic processing skills (Nation, Adams, Bowyer-Crane, & Snowling, 1999; Oakhill,
Yuill, & Parkin, 1986). A more sensitive measure of working memory for meaningful
information is needed to fully understand what kind of role working memory might play in
language comprehension.

The listening comprehension and vocabulary skills of poor decoders are also affected
by their cognitive weaknesses. The poor decoders did not perform as well as the normal
readers on the factual or inferential listening comprehension tasks. However, they
outperformed the poor comprehenders on the inferential listening comprehension task. In
general, the listening comprehension task required the students to hold a lot of information in
memory and then to answer questions about the information they were to remember. This
type of task is particularly taxing on the poor decoders’ working memory and processing
skills. Furthermore, the poor decoders had weaker vocabulary skills compared to the normal readers. A lack of exposure to vocabulary due to their difficulties with reading may hamper their ability to fully understand the listening comprehension passages that were presented to them.

Given the phonological weaknesses the poor decoders display, Shankweiler et al.’s (1992) phonological processing limitation hypothesis may help to explain where the breakdown is occurring in the poor decoders. This hypothesis posits that there is a unidirectional flow of information from phonological processing upward through syntactic and semantic processing and that one of the main responsibilities of the executive component of working memory is to relay linguistic information up through the system. Therefore, a deficit in phonological processing would impede the transfer of information to higher levels in the system and would impede higher-level cognitive processes. This may include difficulties in encoding the information, as not all of the information may be able to be transferred and stored effectively.

Further support for the phonological processing limitation hypothesis comes from Gottardo et al., (1996), who assessed phonological sensitivity, verbal working memory, and syntactic processing in third-grade children. They found that only phonological sensitivity had any specificity as a predictor of decoding and word recognition and that the variance explained by syntactic processing was largely shared with phonological sensitivity or shared with phonological sensitivity and verbal working memory. This fits in nicely with the results from the current study. The poor decoders have significant weaknesses in their cognitive abilities, in particular a phonologically-based weakness, and these weaknesses lead to difficulties in other areas of functioning, such as oral language skills.
Poor decoders often have a more limited amount of exposure to texts and reading because of their struggles with basic word recognition or decoding and the effort they need to expend in order to do this type of task (Roberts, Torgesen, Boardman, & Scammacca, 2008). There is a reciprocal relationship between vocabulary and reading comprehension (Verhoeven & Van Leeuwe, 2008; Jitendra, Edwards, Sacks, & Jacobson, 2004). The more one reads, the more words one learns; and the more words one knows, the more one is able to understand the text. In their struggles with decoding, the poor decoders are not being exposed to as many words as their normal reading peers are and they are focusing all of their cognitive resources on trying to decode the text. This leaves limited resources available to fully comprehend the text and the vocabulary contained within it. This is not to discount the likelihood of real cognitive deficits associated with poor decoding, but rather that lack of exposure exacerbates the difficulties that poor decoders experience.

The poor comprehenders in this study did not display the cognitive weaknesses that the poor decoders had. In line with other studies (Cain et al., 2000; Nation et al., 2004), there was no evidence that poor comprehenders had difficulties with phonological processing. This may indicate that the difficulties that the poor comprehenders had with the oral language measures must be attributed to a different process. In general, the results of this study support the research evidence that suggests that the difficulties experienced by poor comprehenders are part of a general language comprehension impairment (Kelso et al., 2007; Nation et al., 2004, Nation & Frazier Norbury, 2005).

The current study demonstrated that regardless of home language background, the poor comprehenders had significant weaknesses in vocabulary, syntactical awareness, listening comprehension, and higher level aspects of language in general. They had more
difficulty when forming more complex sentences and making inferences from narrative passages. Their intact phonological system allows for accurate decoding or word recognition skills but their reading comprehension is constrained by limitations in their oral language skills. It is this broad language level weakness that affects the poor comprehenders’ ability to understand texts. This is an important finding as research has struggled with the question of whether or not the difficulties that the poor comprehenders display are specific to the domain of reading comprehension or whether it is more reflective of general difficulties with language (Nation & Frazer Norbury, 2005). This is an even more important finding for the ESL population considering that language deficits are often misattributed to ESL status.

In line with previous research (Cain & Oakhill, 2006; Oakhill, Hartt, & Samols, 2005; Catts et al., 2006), it is clear that ESL and EL1 poor comprehenders have pervasive difficulties in comprehending and producing language. They find it difficult to comprehend and integrate factual information as well as to make textual-based inferences. They are challenged when the task requires more semantic as well as more syntactic processing, which was demonstrated on the complex sentence syntactical awareness task. Further weaknesses in vocabulary and word knowledge may have limited their understanding of the listening comprehension passages or their ability to produce more complex sentences on the syntactical awareness task. Research has also found that poor comprehenders tend to have weak text integration and text monitoring strategies (Oakhill, et al., 2005; Snowling, 2001; Snowling & Hayiou-Thomas, 2006). Although, these aspects were not investigated in the current study, they are important components to keep in mind when evaluating the performance of the poor comprehenders on this particular task.
Overall, poor comprehenders appear to have more severe problems than poor decoders on tasks that require increased language-processing demands. Nation and Snowling (2000) suggest that weak syntactic awareness may constrain the comprehension-monitoring and integration processes that are essential for successful comprehension. The more complex sentences in the syntactical awareness task also required a broader and deeper knowledge of vocabulary, as the target words are more semantically advanced in the complex sentences (e.g., “children” or “and” are target words in the simple sentences task and “whenever” or “otherwise” are target words in the complex sentences task). The poor comprehenders’ weakness in vocabulary combined with poor comprehension monitoring and integration (as previous research suggests) may have constrained their syntactical awareness performance in the more complex sentences. Based on their research with monolingual children, Nation et al. (2004) maintain that poor comprehenders’ oral language difficulties involve lexical weaknesses (vocabulary), difficulties with morphosyntax, and difficulties in interpreting non-literal language and that weaknesses in these non-phonological aspects of language restrict the poor comprehenders’ reading comprehension ability. The current results extend these observations to ESL learners. They underscore the fact that poor comprehenders’ underlying cognitive skills such as phonological awareness and working memory are intact or equivalent to those of the normal readers, but reading comprehension and oral language skills are significantly weaker then their reference group. This is indicative of a more generalized weakness with language processing.

**Reading Group and Connections to Specific Language Impairments**

The concurrent oral language and reading deficits found in this study speaks to the fact that there are strong connections between the behaviours exhibited by students with
specific language impairments and reading disabilities and that this connection can be identified in ESL as well as EL1 students. What remains unclear is the specific nature of the relationship between SLI and reading disabilities and how it develops. Is it that deficits in language skills bring about reading difficulties or do difficulties in reading lead to difficulties in oral language abilities? Further longitudinal research with English monolingual and ESL learners is needed to explore the origins of reading and oral language difficulties and determine any causal pathways.

One difficulty in exploring this avenue of research is that the etiology of dyslexia and SLI may be diverse even though at the behavioural level they appear to be the same. In their research with two populations of dyslexic children - those with dyslexia only and those with both dyslexia and SLI – Scuccimarra et al. (2008) suggest that in cases where reading and language disorders coexist, the language impairment may emerge at a later stage of cognitive development where it is more evident in interfering with reading comprehension. This may help to explain the “hidden language impairments” that Nation et al. (2004) refer to when they discuss their research findings that a substantial minority of children with reading disabilities were also found to have specific language impairment, even though they had not been diagnosed previously with a reading disability or language impairment previously. This highlights the fact that serious reading and language difficulties are not always apparent in children who have average to strong phonological and word reading abilities. These children may go unnoticed in the classroom until the higher grade levels when there is a greater emphasis placed on reading comprehension, which forces these difficulties to emerge. This is an even more salient point for the ESL population. These children have an even higher
chance of being overlooked in the classroom because their difficulties are most often attributed to their ESL status.

Although the current study did not use student populations that were identified as having SLI, it is informative to discuss the weak oral language skills that poor decoders and poor comprehenders displayed and how this fits in with the SLI and reading disability research that has been limited to monolinguals to date. Currently there are four models that discuss the overlap between dyslexia and SLI. The older severity model (Tallal, 2004) views the disorders as falling on a continuum of severity with mildly affected individuals showing reading impairments only and the more severely affected showing mixed SLI and dyslexia disorders. The newer models (Bishop & Snowling, 2004; Catts et al., 2005; Pennington, 2006) are similar in that they employ a multidimensional aspect. Bishop and Snowling’s (2004) model includes a phonological and non-phonological language dimension. An impairment in either dimension or both can lead to SLI. An impairment in the phonological dimension could also lead to dyslexia, and an impairment in the nonphonological dimension only could lead to a reading disability characterized by poor comprehension. The model proposed by Catts et al. (2005) also suggests that a non-phonological language deficit underlies SLI and that poor phonology is primarily associated with reading than with language impairments. This implies that the disorders are distinct. Finally, Pennington’s (2006) model states that complex developmental disorders arise from multiple risk and protective factors and that comorbidity results from some of these risk factors being shared by different disorders. Given that ESL students perform lower than EL1 students in reading comprehension and vocabulary, being ESL in itself could be considered a risk factor. These ESL weaknesses could exacerbate the same difficulties or weaknesses that are found in
reading disabilities or SLI. Stated differently, one can be ESL and SLI, but being ESL does not mean that one also has SLI. The challenge to clinicians and researchers is how to tease apart these two scenarios. In the present study this was addressed by defining poor comprehension within each language group so as not to over-identify ESL children with reading disabilities.

The current study appears to support Bishop and Snowling’s (2004) model best as the language difficulties that the poor decoders and poor comprehenders displayed were attributed to different pathways: the phonological route and the nonphonological language route (including semantic, syntactic, and discourse levels of processing). This is an important finding in that students with oral language deficits, regardless of whether or not they meet SLI criteria, can be differentiated into two pathways – the phonological and nonphonological – each with distinct etiologies and therefore a separate set of implications for intervention. It could be that a severity continuum exists for both the phonological and nonphonological language routes and at the extreme ends oral language difficulties translate into a diagnosis of SLI. At any rate, oral language difficulties and reading disabilities are definitely linked and exploring the ways in which this linkage occurs is important in both understanding how these disorders develop and how to provide the best kind of support to these students. It is important to remember that these linkages also apply to the ESL population given the similarities between the cognitive and linguistic abilities found in this study. Of course it may be more difficult to identify these connections in the ESL population given that their difficulties tend to be attributed to their ESL status or lack of exposure to English at home.
Research Implications

While ESL – EL1 status did not matter, reading group did. The poor decoder and poor comprehender groups had similar profiles regardless of whether they spoke English as a second language. This suggests that it is important for educators to focus on the reading difficulties rather than language status in these middle grade students ESL students and that the language difficulties or weaknesses displayed by the ESL students are more attributable to the poor decoder and poor comprehender groups. This point becomes more salient when considering the fact that the ESL students in this study who are part of the normal reading group are doing quite well and were able to match their EL1 normal reading peers on the cognitive and linguistic measures, with the exception of vocabulary. This supports previous arguments (Limbos & Geva, 2001; Lovett et al., 2008; Ndlovu, 2010) that it is imperative to use similar assessment and intervention strategies for ESL and EL1 students that are struggling readers. The findings from this study imply that ESL students who begin an English-speaking education at a young age should match their EL1 peers on the majority of oral language, cognitive, and literacy measures by the middle grades. The exceptions to this include a lower performance on measures of vocabulary and reading comprehension. However, these delays are mild and more significant delays, especially in comparison with other ESL children with similar educational histories in these or any other areas should be indicative of an underlying disability and necessitate further investigation.

This study clearly supports the fact that there are distinct types of reading difficulties and these exist among ESL students just the way they do among monolingual EL1 students, and that timely identification and intervention strategies need to be geared towards the etiology of the disorder regardless of home language. It is evident that the students
struggling with word decoding have specific cognitive deficits underlying their reading and oral language abilities and it is performance on these component processes that should be used as indices of underlying difficulties. Certain types of reading or language difficulties can often go unnoticed in a classroom until later grade levels. There is a need for educators to be aware of these “hidden” impairments and screening measures need to be developed and used in the classroom to identify these at-risk students. Poor comprehenders, and even more so poor comprehenders who are ESL, are especially prone to go unnoticed until the later grade levels. This has implications for educators as well as assessment and intervention strategies. It is only when students are tested that the underlying difficulties with language and reading are revealed. Teachers need to be aware of the different types of poor readers and the fact that poor comprehenders often slip under the radar. Frequent screening measures on aspects of oral language and reading skills that poor comprehenders are known to have difficulty with, such as vocabulary, making inferences, and listening comprehension, may help to elucidate these difficulties at an earlier age and increase the potential for successful intervention strategies. Early intervention is key in order to provide these struggling students with strategies to support their learning.

Considering the interconnected and reciprocal relationships between vocabulary, reading comprehension, and listening comprehension, all of these abilities should be emphasized during reading instruction, especially for students with reading disabilities. Vocabulary instruction should be provided throughout the elementary school years and not just in the early primary grades. In fact, current research (Biemiller, 2010; Ebbers & Denton, 2008) stresses that explicit vocabulary training is needed to build up a large sight vocabulary and to automatically access word meanings, which aids in comprehension. Teachers could
incorporate this explicit vocabulary training into pre-reading activities in which difficult words from the text are identified and discussed before any reading takes place.

**Future research and limitations**

Although this study provides important insights into second language oral language development and reading disabilities, it is important to draw attention to a few limitations. The EL1 students had a much smaller sample size than the ESL students and the subdivided reading groups also led to small and unequal sample sizes, which reduced the statistical power for this investigation. Larger sample sizes would be helpful in future studies. Also, in the current study the poor readers were subdivided into poor decoders and poor comprehenders. It would be helpful to include a mixed poor reader group: poor decoders and poor comprehenders in future studies. The limited sample size of the current study made it difficult to create a group consisting of this type of struggling reader. The current study used middle grade ESL students that had started their schooling in English. It would be interesting to see what kind of results would be obtained if the same study was replicated with more recent ESL newcomers in the middle grades.

This study made an effort to include multiple measures in order to assess oral language abilities, however, more sensitive oral language measures would be helpful in future studies. The formulated sentences task used to assess syntactical awareness in the current study was a complex task that was taxing at the semantic, syntactic, and memory level. The students were required to hold a great deal of information in mind, use the verbal and visual cues given and orally produce a syntactically correct sentence. It may be helpful for future research to separate these components out and assess them individually. Furthermore, as memory was involved in many of the oral language tasks in the current
study, it would be ideal for future studies to incorporate more memory tasks, especially verbal working memory tasks, to evaluate what kind of role memory plays in the oral language and literacy abilities of the various language and reading groups.

The current study provides a snap shot of what the oral language and literacy abilities of ESL and EL1 students looked like at a particular point in time – Grade 5. Longitudinal studies are needed to fully understand how oral language and literacy skills develop and how difficulties in language and/or reading are manifested as students move from primary to middle grades. This would also help elucidate the current uncertainty in the research regarding SLI and reading disabilities – whether they are separate or linked disorders. Finally, longitudinal studies would be able to provide important insight into the best type of intervention or strategies that should be given to struggling students at various points in time regardless of language status.
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Psychological Corporation.


Table 1

Demographic Characteristics of the Overall Sample

<table>
<thead>
<tr>
<th></th>
<th>Poor Decoders</th>
<th>Poor Comprehenders</th>
<th>Normal Readers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N = 57; 38%)</td>
<td>(N = 22; 15%)</td>
<td>(N = 71; 47%)</td>
<td>(N = 150)</td>
</tr>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>28</td>
<td>49%</td>
<td>6</td>
<td>27%</td>
</tr>
<tr>
<td>Female</td>
<td>29</td>
<td>51%</td>
<td>16</td>
<td>73%</td>
</tr>
<tr>
<td>Language Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL1</td>
<td>20</td>
<td>35%</td>
<td>7</td>
<td>32%</td>
</tr>
<tr>
<td>ESL</td>
<td>37</td>
<td>65%</td>
<td>15</td>
<td>68%</td>
</tr>
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</table>
Table 2
Descriptive Statistics and MANOVA for Cognitive Measures by Language Group and Reading Group

<table>
<thead>
<tr>
<th>Language Group</th>
<th>Nonverbal Reasoning</th>
<th>Working Memory</th>
<th>RAN</th>
<th>Phonological Awareness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Normal Readers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL1 M(SD) n=23</td>
<td>39.61 (8.32)</td>
<td>4.74 (1.18)</td>
<td>22.09 (5.33)</td>
<td>23.00 (2.09)</td>
</tr>
<tr>
<td>ESL M(SD) n=48</td>
<td>36.46 (7.90)</td>
<td>5.25 (1.97)</td>
<td>20.92 (4.17)</td>
<td>23.23 (2.00)</td>
</tr>
<tr>
<td><strong>Poor Decoders</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL1 M(SD) n=20</td>
<td>31.95 (9.98)</td>
<td>4.50 (1.43)</td>
<td>21.85 (4.39)</td>
<td>15.20 (5.69)</td>
</tr>
<tr>
<td>ESL M(SD) n=37</td>
<td>34.49 (7.61)</td>
<td>3.95 (1.31)</td>
<td>27.27 (7.21)</td>
<td>15.89 (5.31)</td>
</tr>
<tr>
<td><strong>Poor Comprehenders</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL1 M(SD) n=7</td>
<td>29.57 (7.23)</td>
<td>5.57 (1.27)</td>
<td>18.71 (2.56)</td>
<td>21.86 (5.34)</td>
</tr>
<tr>
<td>ESL M(SD) n=15</td>
<td>30.00 (7.37)</td>
<td>4.80 (1.47)</td>
<td>20.60 (3.52)</td>
<td>21.53 (3.18)</td>
</tr>
<tr>
<td><strong>F (language)</strong></td>
<td>0.001</td>
<td>0.768</td>
<td>3.970*</td>
<td>0.066</td>
</tr>
<tr>
<td><strong>F (reading group)</strong></td>
<td>9.503**</td>
<td>4.399*</td>
<td>8.065**</td>
<td>54.610**</td>
</tr>
<tr>
<td><strong>F (language X reading group)</strong></td>
<td>1.761</td>
<td>2.158</td>
<td>5.685*</td>
<td>0.126</td>
</tr>
<tr>
<td><strong>Language (EL1 vs. ESL)</strong></td>
<td>ns</td>
<td>ns</td>
<td>EL1&gt;ESL</td>
<td>ns</td>
</tr>
<tr>
<td><strong>Reading Group (PD vs. PC vs. NR)</strong></td>
<td>NR&gt;PD</td>
<td>NR&gt;PD</td>
<td>NR&gt;PD</td>
<td>NR&gt;PD</td>
</tr>
<tr>
<td></td>
<td>NR&gt;PC</td>
<td>PC&gt;PD</td>
<td>PC&gt;PD</td>
<td>PC&gt;PD</td>
</tr>
<tr>
<td><strong>Language X Reading Group</strong></td>
<td>ns</td>
<td>ns</td>
<td>EL1 PD&gt;ESL</td>
<td>PD</td>
</tr>
</tbody>
</table>

*Note. *p = < .05, **p = < .01, ns = non-significant
NR = Normal Reader, PD = Poor Decoder, PC = Poor Comprehender
Table 3
Descriptive Statistics and MANOVA for Oral Language Measures by Language Group and Reading Group

<table>
<thead>
<tr>
<th></th>
<th>Receptive Vocabulary</th>
<th>Syntactical Awareness (0-44)</th>
<th>Listening Comprehension (0-20)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Normal Readers</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL1 M(SD) n=23</td>
<td>115.52 (7.39)</td>
<td>32.39 (4.64)</td>
<td>14.47 (3.22)</td>
</tr>
<tr>
<td>ESL M(SD) n=48</td>
<td>107.67 (13.24)</td>
<td>30.85 (4.64)</td>
<td>12.00 (4.12)</td>
</tr>
<tr>
<td><strong>Poor Decoders</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL1 M(SD) n=20</td>
<td>102.45 (14.06)</td>
<td>25.35 (7.45)</td>
<td>10.50 (5.55)</td>
</tr>
<tr>
<td>ESL M(SD) n=37</td>
<td>96.89 (16.20)</td>
<td>23.76 (4.82)</td>
<td>10.35 (3.56)</td>
</tr>
<tr>
<td><strong>Poor Comprehenders</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL1 M(SD) n=7</td>
<td>103.00 (5.94)</td>
<td>26.86 (5.37)</td>
<td>7.57 (3.50)</td>
</tr>
<tr>
<td>ESL M(SD) n=15</td>
<td>97.47 (11.07)</td>
<td>24.00 (6.11)</td>
<td>8.27 (3.35)</td>
</tr>
<tr>
<td><strong>F (language)</strong></td>
<td>5.995*</td>
<td>3.544</td>
<td>0.666</td>
</tr>
<tr>
<td><strong>F (reading group)</strong></td>
<td>13.476**</td>
<td>27.043**</td>
<td>15.383**</td>
</tr>
<tr>
<td><strong>F (language X reading group)</strong></td>
<td>0.879</td>
<td>0.888</td>
<td>0.173</td>
</tr>
<tr>
<td><strong>Language (EL1 vs. ESL)</strong></td>
<td>EL1&gt;ESL</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td><strong>Reading Group (PD vs. PC vs. NR)</strong></td>
<td>NR&gt;PD</td>
<td>NR&gt;PD</td>
<td>NR&gt;PD</td>
</tr>
<tr>
<td></td>
<td>NR&gt;PC</td>
<td>NR&gt;PC</td>
<td>NR&gt;PC</td>
</tr>
<tr>
<td></td>
<td>PD&gt;PC</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Language X Reading Group</strong></td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
</tbody>
</table>

*Note. *p = ≤ .05, **p = ≤ .01, ns = non-significant
NR = Normal Reader, PD = Poor Decoder, PC = Poor Comprehender
Table 4
Descriptive Statistics and MANOVA for Oral Language Measures Subdivided into Item Type by Language Group and Reading Group

<table>
<thead>
<tr>
<th></th>
<th>Simple Sentences – Syntactical Awareness (0-16)</th>
<th>Complex Sentences – Syntactical Awareness (0-20)</th>
<th>Factual – Listening Comprehension (0-12)</th>
<th>Inferential – Listening Comprehension (0-8)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Normal Readers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL1 M(SD) n=23</td>
<td>12.09 (1.00)</td>
<td>13.30 (3.24)</td>
<td>8.30 (2.08)</td>
<td>6.17 (1.59)</td>
</tr>
<tr>
<td>ESL M(SD) n=48</td>
<td>11.81 (1.65)</td>
<td>12.69 (2.84)</td>
<td>6.85 (2.32)</td>
<td>5.15 (2.09)</td>
</tr>
<tr>
<td><strong>Poor Decoders</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL1 M(SD) n=20</td>
<td>10.40 (2.33)</td>
<td>9.70 (3.96)</td>
<td>5.90 (3.51)</td>
<td>4.55 (2.46)</td>
</tr>
<tr>
<td>ESL M(SD) n=37</td>
<td>10.70 (2.34)</td>
<td>9.03 (2.81)</td>
<td>5.78 (2.31)</td>
<td>4.57 (1.85)</td>
</tr>
<tr>
<td><strong>Poor Comprehenders</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL1 M(SD) n=7</td>
<td>10.71 (2.29)</td>
<td>10.86 (2.79)</td>
<td>4.86 (2.54)</td>
<td>2.71 (1.38)</td>
</tr>
<tr>
<td>ESL M(SD) n=15</td>
<td>11.67 (1.95)</td>
<td>9.00 (3.51)</td>
<td>45.87 (1.81)</td>
<td>3.40 (1.92)</td>
</tr>
</tbody>
</table>

| F (language)         | 0.738                                         | 2.917                                         | 1.157                                  | 0.077                                    |
| F (reading group)    | 7.489**                                       | 20.989**                                      | 12.242**                               | 13.643**                                 |
| F (language X reading group) | 0.830                                      | 0.313                                         | 1.304                                  | 1.793                                    |

| Language (EL1 vs. ESL) | ns                                           | ns                                           | ns                                     | ns                                       |
| Reading Group (PD vs. PC vs. NR) | NR>PD                                      | NR>PD                                        | NR>PD                                  | NR>PD                                    |
|                        | NR>PC                                        | NR>PC                                        | NR>PC                                  | PD>PC                                    |
| Language X Reading Group | ns                                          | ns                                           | ns                                     | ns                                       |

Note. *p = < .05, **p = < .01, ns = non-significant
NR = Normal Reader, PD = Poor Decoder, PC = Poor Comprehender
Appendix A
Simple and Complex Sentence Target Words for the Formulated Sentences Task

<table>
<thead>
<tr>
<th>Simple</th>
<th>Complex</th>
</tr>
</thead>
<tbody>
<tr>
<td>finally</td>
<td>instead</td>
</tr>
<tr>
<td>children</td>
<td>before</td>
</tr>
<tr>
<td>gave</td>
<td>while</td>
</tr>
<tr>
<td>third</td>
<td>whenever</td>
</tr>
<tr>
<td>and</td>
<td>until</td>
</tr>
<tr>
<td>younger</td>
<td>if</td>
</tr>
<tr>
<td>or</td>
<td>although</td>
</tr>
<tr>
<td></td>
<td>unless</td>
</tr>
<tr>
<td></td>
<td>however</td>
</tr>
<tr>
<td></td>
<td>otherwise</td>
</tr>
</tbody>
</table>

³ Phrases were not included in the subdivision into simple and complex target words of the formulated sentences task. Furthermore, “because” and “either” were not included as they did not fit neatly into either category; both these words could be considered to fall into both categories depending on the use.
Appendix B
Factual and Inferential Items for the Listening Comprehension Task

<table>
<thead>
<tr>
<th>Factual Items</th>
<th>Inferential Items</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Passage 1</strong></td>
<td><strong>Passage 1</strong></td>
</tr>
<tr>
<td>What was Eliza planning as she waited for the bus? (M)</td>
<td>What was going to live in the terrarium? (I)</td>
</tr>
<tr>
<td>Who owned the fish tank? (D)</td>
<td>What was Eliza going to do with the sack? (P)</td>
</tr>
<tr>
<td>What did Eliza need to do before she could get the fish tank? (S)</td>
<td><strong>Passage 2</strong></td>
</tr>
<tr>
<td><strong>Passage 2</strong></td>
<td>What happened to the building during winter break? (I)</td>
</tr>
<tr>
<td>What did Carlos see on his way to school each day? (M)</td>
<td>Where do you think the principal was going? (P)</td>
</tr>
<tr>
<td>Why didn’t Carlos see the building site for 2 ½ weeks? (D)</td>
<td><strong>Passage 3</strong></td>
</tr>
<tr>
<td>What did the workers do after the cement foundation was finished? (S)</td>
<td>Why did Pepper turn around and run in the opposite direction? (I)</td>
</tr>
<tr>
<td><strong>Passage 3</strong></td>
<td>What do you think happened after Gabe took Pepper back to the house? (P)</td>
</tr>
<tr>
<td>Why did Gabe call Pepper to come home? (M)</td>
<td><strong>Passage 4</strong></td>
</tr>
<tr>
<td>What two things was Gabe holding when Pepper saw him? (D)</td>
<td>What caused the forest fire?</td>
</tr>
<tr>
<td>What did pepper do after he saw Gabe? (S)</td>
<td>What was the bear going to do next? (P)</td>
</tr>
<tr>
<td><strong>Passage 4</strong></td>
<td><strong>Passage 4</strong></td>
</tr>
<tr>
<td>Why was the bear sniffing the ground? (M)</td>
<td>What was going to live in the terrarium? (I)</td>
</tr>
<tr>
<td>What was the last thing the bear had eaten? (D)</td>
<td>What was Eliza going to do with the sack? (P)</td>
</tr>
<tr>
<td>What did the bear do before he fell asleep? (S)</td>
<td><strong>Passage 2</strong></td>
</tr>
</tbody>
</table>

*Note: M = main idea, D = detail, S = sequence, I = inference, P = prediction*