Sentence Recall and Single Word Reading in Monolingual Children and Same-Age English Language Learners With and Without Parental Concerns About Language Development

Application de tâches de répétition de phrases et de lecture de mots chez des enfants unilingues et des enfants en train d'apprendre l'anglais comme langue seconde, dont les parents s'inquiètent ou non du développement du langage

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Abstract

This is a preliminary study that examined the utility of English sentence recall and single word and nonword reading tasks for distinguishing monolingual children and English Language Learners (ELLs) whose parents were or were not concerned about their language development. A total of 1,253 children ranging in age from 6;0-9;11 (years; months) completed tests of sentence recall and single word and nonword reading. Their parents also declared whether or not their first language was English and if there were any concerns about language development. Based on parents' responses, we identified four groups: (1) monolingual, no concerns; (2) monolingual, with concerns; (3) ELLs, no concerns; and (4) ELLs, with concerns. Monolingual groups had significantly higher scores on the sentence recall task than ELL groups. However, ELL groups scored significantly higher on the single word and nonword reading tasks than monolingual groups. Single word and nonword reading differentiated children with or without parental concerns about language development regardless of monolingual/bilingual status. Comparing performance on oral language and single word and nonword reading tasks may provide key information to consider when assessing ELLs.

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Abrégé

La présente étude préliminaire a examiné l'utilité d'une tâche de répétition de phrases, d'une tâche de lecture de mots et d'une tâche de lecture de non-mots pour distinguer les enfants unilingues des enfants en train d'apprendre l'anglais comme langue seconde, dont les parents s'inquiètent ou non du développement du langage. Au total, 1 253 enfants âgés entre de 6;0 et 9;11 (année; mois) ont complété une tâche de répétition de phrases, une tâche de lecture de mots et une tâches de lecture de non-mots. Les parents de ces enfants ont également été amenés à déclarer si la langue maternelle de leur enfant était l'anglais et s'ils avaient des inquiétudes à propos du développement du langage de leur enfant. À partir des réponses fournies par les parents, quatre groupes ont été identifiés : (1) enfants unilingues et dont les parents ne s'inquiètent pas du développement du langage, (2) enfants unilingues et dont les parents s'inquiètent du développement du langage, (3) enfants en train d'apprendre l'anglais comme langue seconde et dont les parents ne s'inquiètent pas du développement du langage et (4) enfants en train d'apprendre l'anglais comme langue seconde et dont les parents s'inquiètent du développement du langage. Les groupes d'enfants unilingues ont obtenu des scores significativement plus élevés que les groupes d'enfants en train d'apprendre l'anglais comme langue seconde à la tâche de répétition de phrases. Par contre, les groupes d'enfants en train d'apprendre l'anglais comme langue seconde ont obtenu des résultats significativement plus élevés que les groupes d'enfants unilingues aux tâches de lecture de mots et de non-mots. Les tâches de lecture de mots et de non-mots ont permis de différencier les enfants dont les parents s'inquiétaient du développement du langage de ceux dont les parents ne s'inquiétaient pas du développement du langage, et ce, quel que soit le statut langagier de l'enfant (unilingue ou bilingue). Comparer la performance des enfants à des tâches de langage oral et à des tâches de lecture de mots ou de non-mots pourrait donc fournir des renseignements clés à prendre en considération lors de l'évaluation des enfants en train d'apprendre l'anglais comme langue seconde.

Children with Developmental Language Disorder (DLD; also known as specific language impairment; Bishop, Snowling, Thompson, & Greenhalgh, 2017) struggle to learn language despite otherwise typical neurological and socioemotional development, and average educational and experiential opportunities (Leonard, 2014). Another group of school-age children with limited language ability compared to their peers is children receiving instruction in a language other than their first language (L1). These children learn the language of instruction as a second language (L2)—typically English in most parts of Canada and in the United States—and can be referred to as English Language Learners (ELLs). Identifying children with DLD among ELLs can present a challenge. A large body of research indicates that standardized test performance in L2 does not distinguish children with and without DLD among ELLs who are in the process of learning English as a second language (e.g., Paradis, 2005). ELLs may score poorly on such "knowledge-based" measures because of low levels of exposure to L2 or to each of their languages. On the other hand, "processing-dependent" measures—that is, measures of the underlying cognitive processes supporting language—may be less influenced by the language-specific prior knowledge of ELLs by probing the abilities supporting language learning. Interestingly, recent evidence from typical groups suggests that ELLs do not differ from their monolingual peers on measures tapping perceptual-cognitive skills, which are one component of basic word-decoding skills (Oller, Pearson, & Cobo-Lewis, 2007). The present study extended this work by examining the utility of sentence recall and single word and nonword reading tasks in distinguishing between monolingual and ELL groups whose parents were or were not concerned about language development.

School-age children with DLD struggle to understand and produce language as well as their age peers (Dale, Price, Bishop, & Plomin, 2003). In general, the language deficits in English-speaking children with DLD may affect all areas of language including phonology, morphosyntax, and semantics. Difficulties with grammatical morphology are particularly marked in DLD, and have been described as a hallmark deficit in DLD (Leonard, Eyer, Bedore, & Grela, 1997). Similarly, ELLs who are in the early stage of developing their L2 (within the first 2 years in particular) tend to show limited vocabulary and grammatical abilities (Tabors, 2008). Nevertheless, the limited language ability of typically developing English Language Learners (TD ELLs) is considered to be part of the normal process of an incomplete L2 acquisition (Paradis, 2005). In fact, the language development patterns of children with DLD and those who are ELLs largely parallel the developmental patterns of younger, English-speaking, monolingual children (Paradis, Genesee, & Crago, 2011).

As a result of the similarity in linguistic features characterizing the expressive language of children with DLD and those who are ELLs, differentiating these groups in assessment can be challenging. Indeed, Paradis (2005) found no differences between TD ELLs and same-age monolingual children with DLD in accuracy rates and error patterns in the spontaneous and elicited speech subtests of the Test of Early Grammatical Impairment (Rice & Wexler, 2001). One of the challenges in assessment is that many of the assessment tools used by speech-language pathologists (S-LPs), such as standardized language tests that assess vocabulary, grammar, or syntax, are knowledge-based measures; that is, they tap prior knowledge and experience. Research suggests that it can take about five years for ELLs to gain English proficiency comparable to that of monolingual peers (Hakuta, Butler, & Witt, 2000). Indeed, the use of English standardized tests to assess ELLs is a well-recognized problem in education (Bedore, Peña, Gillam, & Ho, 2010; Paradis et al., 2011), due to the associated increased risk of over-identification of learning disabilities or "mistaken identity" (Cummins, 2000; Gutiérrez-Clellen, 1996; Klingner & Artiles, 2003; National Research Council, 2002).

It could be argued that assessment in the child's first language would be the best assessment approach to evaluating the child's language skills. Nevertheless, assessing ELLs in either of their languages may increase the risk of misdiagnosis of DLD in ELLs (Bedore & Peña, 2008). Indeed, several studies have suggested that ELLs' poor performance on knowledge-based linguistic measures across languages may reflect the reduced frequency of exposure in each of their spoken languages (Peña, Gillam, Bedore, & Bohman, 2011). As a result, even assessments of ELLs in their stronger language could underestimate abilities (Peña et al., 2011). Completing assessment in each language to which the child has been exposed and considering the "sum" of these skills holds potential (Peña, Bedore, & Kester, 2016) but is a huge challenge for S-LPs to implement given the diverse first-language background of ELLs (Paradis, Schneider, & Duncan, 2013). Another problem with such an approach is that it would place high demands on the development of tests in various languages that include bilingual children in the norming samples.

As might be expected, research attention has focused on markers known to be highly sensitive for differentiating monolingual groups with and without DLD with the idea that such measures may be equally sensitive to the differences between children with DLD and ELLs. For example, numerous studies have shown that monolingual children with DLD perform poorly on sentence recall tasks compared to typically developing children (Conti-Ramsden, Botting, & Faragher, 2001; Redmond, 2005). Sentence recall requires immediate repetition of auditory sentences (Archibald & Joanisse, 2009); different versions of this task have been included as a primary subtest of many standardized language assessment batteries (e.g.,

the Clinical Evaluation of Language Fundamentals-Fourth edition; Semel, Wiig, & Secord, 2003). Research has shown that sentence recall tasks tap phonological short-term memory (Conti-Ramsden et al., 2001; Willis & Gathercole, 2001), linguistic abilities (Botting & Conti-Ramsden, 2003; Eadie, Fey, Douglas, & Parsons, 2002), or both (e.g., Archibald & Joanisse, 2009; Conti-Ramsden et al., 2001). It should be noted that only a few studies have focused on ELLs' performance on sentence recall tasks, especially with regard to their performance in relation to children with DLD. Evidence from typically developing research, however, indicates that performance on sentence recall tasks are affected by the existing language knowledge of ELLs, particularly by lexical and morphosyntactic knowledge (Chiat et al., 2013). Indeed, lower performances have been reported for TD ELLs (with L1 Turkish) when compared to monolingual peers in sentence recall tasks completed in English (Chiat et al., 2013). Sentence recall has been examined in other languages in recent work (Armon-Lotem & Meir, 2016), and the results have indicated that the use of monolingual cut-off points for diagnosing DLD in bilingual children yielded inadequate diagnostic accuracy.

Given the limitations in knowledge-based assessments, such as sentence recall tasks, attention has turned to the use of processing-based markers found to have high sensitivity to individual differences in language. The investigation of the cognitive processes underlying DLD have implicated deficits in general cognitive processes such as deficits in processing speed, temporal integration, and working memory (Miller, Kail, Leonard, & Tomblin, 2001; Windsor & Kohnert, 2004). To date, the majority of ELL studies that have examined processing-dependent measures have focused on ELLs' performance on nonword repetition measures (e.g., Thorn & Gathercole, 1999). Nonword repetition shows a very high level of diagnostic accuracy in identifying English-speaking children with DLD (e.g., Archibald & Gathercole, 2007; Dollaghan & Campbell, 1998; Graf Estes, Evans, & Else-Quest, 2007). Given that nonword repetition does not employ known lexical items, it has been proposed as a relatively pure measure of phonological short-term memory (Gathercole, 2006). Available evidence, however, clearly shows that even previous sublexical phonological knowledge and experience can influence performance on nonwords similar in structure to an individual's native language (Thorn & Gathercole, 1999). Indeed, better performance has been reported for typically developing monolingual English-speaking children than ELLs on a nonword repetition test designed to follow the phonotactic rules of English (Thorn & Gathercole, 1999). Similarly, a language-specific advantage on an "English" nonword repetition test was evident in the works of Kohnert, Windsor, and Yim (2006) and Windsor, Kohnert, Lobitz, and Pham (2010), who found higher scores for a monolingual typically developing children English-speaking group than for either TD ELLs or a monolingual English-speaking with DLD group (and no difference between the latter two groups). Although nonword repetition may be a less biased assessment tool than most knowledge-based standardized tests, as suggested by Paradis et al. (2013), it is clear that nonword repetition performance may still be influenced by children's experience with the target language.

Certain language-related measures known to be highly sensitive to language abilities may also be less dependent on ELLs' language-specific knowledge by directly tapping the ability underlying language learning. For example, reading impairment is strongly associated with the language difficulties experienced by children with DLD (Snowling, Bishop, & Stothard, 2000; Stothard, Snowling, Bishop, Chipchase, & Kaplan, 1998). In particular, deficits in phonological awareness that are strongly related to word reading (Lafrance & Gottardo, 2005) are commonly reported for children with DLD. It has been suggested that the perceptual-cognitive skills supporting written word decoding can be shared across languages, and such tasks may be sensitive to the learning strengths of ELLs over children with DLD (Paradis et al., 2011). This idea is in keeping with the Common Underlying Proficiency theory of Cummins (1996), which holds that skills and metalinguisic knowledge acquired while learning one language support the learning of other languages. For example, phonological awareness skills known to be strongly related to word reading (Lafrance & Gottardo, 2005) have been found to be transferred from one language to another (Chitiri, Sun, Willows, & Taylor, 1992; Wade-Woolley & Geva, 2000). With regard to TD ELLs, at least equivalent performance when compared to monolingual peers has been reported for both English basic word decoding skills (Oller et al., 2007) and English phonological awareness (Bialystok, Majumder, & Martin, 2003; Bruck & Genesee, 1995; Campbell & Sais, 1995; Jackson, Holm, & Dodd, 1998). It may be that assessment measures of phonological awareness and basic word reading skills in English would be sensitive to the language learning strengths of TD ELLs even when they score poorly on other language measures. This notion is particularly interesting given that poor phonological awareness and reading impairment are commonly associated with DLD, as previously mentioned (Snowling et al., 2000; Stothard et al., 1998). As a result, such measures would be expected to reveal deficits in at least some of ELLs with DLD (Catts, Adlof, Hogan, & Ellis Weismer, 2005). It may be, then, that measures of single word and nonword reading have good potential and may help for differentiating typically developing children from DLD, whether monolingual or ELL (Cobo-Lewis, Eilers, Pearson, & Umbel, 2002; Verhoeven, 1994). The extent to which such measures could distinguish TD ELLs and struggling ELLs was addressed in the current work.

Of course, one important purpose in finding an adequate method of assessing the language abilities of

ELLs is to identify those whose ability to learn language is impaired while not overidentifying those whose abilities are typical. By accurately identifying ELLs with DLD as early as possible, appropriate intervention can be provided. As mentioned previously, however, assessment using knowledge-based measures, such as standardized language tests can lead to overidentification (Cummins, 2000; Gutiérrez-Clellen, 1996; Klingner & Artiles, 2003; National Research Council, 2002), and processing-based measures are not consistently employed in current practice. It has been suggested that consideration of sociocultural factors can be very informative when assessing ELLs (Peña et al., 2011). Indeed, results of two recent studies indicate that a parent questionnaire on ELLs' first language development consisting of information on early milestones, current first language abilities, behaviour patterns and activity preferences, and family history was a good discriminator between TD ELLs and ELLs with DLD (Paradis, Emmerzael, & Duncan, 2010; Paradis et al., 2013). Interestingly, data regarding parent concerns have also been found to be valid and useful as one element in the diagnostic process for identifying DLD in monolingual children (Ellis Weismer & Evans, 2002; Klee, 2008; Rice, Taylor, & Zubrick, 2008).

Given the shortcomings of knowledge-based measures in differentiating the language performance profiles of children with DLD and ELLs, it is important to examine the diagnostic power of language-related measures, such as single word and nonword reading tasks, which tap perceptual-cognitive skills potentially sensitive to the learning strengths of ELLs over children with DLD. In the present study, school-age children whose parents either indicated no concerns or concerns regarding their child's language development, and who were either monolingual English speakers or learning English as an additional language, were compared on measures of sentence recall and basic word decoding skills. Given its high sensitivity in discriminating language-specific knowledge in monolingual children, English sentence recall was included as a knowledge-dependent language measure (Archibald & Joanisse, 2009). As such, a bias in favour of the monolingual group was expected, resulting in lower scores for the TD ELLs than monolingual groups. Further, sentence recall was not expected to differentiate the TD ELLs from the monolingual DLD group, especially in the early stages of learning. The measures of word and nonword reading, however, were considered to tap phonological awareness, which is in turn dependent on phonological processing. As such, word and nonword reading was considered a proxy processing-dependent measure. We expected at least equivalent performance by typically developing monolingual children and ELLs.

Method

Participants

All of the children were participating in a larger study investigating language, memory, and academic achievement in children (Archibald, Oram Cardy, Joanisse, & Ansari, 2013). The study took an epidemiological approach by inviting all senior kindergarten to Grade 4 children (i.e., all children 5 to 9 years of age) from 34 elementary schools in London, Ontario, and surrounding areas to participate. The present study focused on children between the ages of 6;0 and 9;11 from this database because the 5-year-olds did not complete the word and nonword reading tasks. A total of 1,253 (649 boys, 604 girls) school-age children participated, with a mean age of 7 years (all: M = 7;3 [7.25], SD = 1.10, range = 6;0–9;11; boys: M = 7;3 [7.25], SD = 1.10, range = 6;0–9;11; girls: M = 7;2 [7.17], SD = 1.10, range = 6;0–9;11). Complete data were available for all but 156 children who did not complete the word reading and nonword reading tasks.

Participant groups. Participant groups were formed based on a questionnaire completed by a parent or guardian of each child in the study. Two questions on the questionnaire were relevant to this grouping: In one question ("Have you ever been concerned about this child's language development?"), parents declared whether they were (or had ever been) concerned about their child's language development by circling "YES" or "NO." Given the lack of a "gold standard" in identifying children with DLD in bilingual groups, the parents' response to this question was used to identify groups with concerns about language development. Parents also indicated whether English was the first language learned by their child by circling "YES" or "NO" in response to the question "Is English the first language your child learned?" If they answered "NO," parents were asked to list any other languages spoken in the home. Response to this question was used to decide whether the child was a native-English monolingual speaker or an English Language Learner (ELL). Based on responses to these two questions, four groups were identified: (1) monolingual, no concerns (n = 902, boys = 459, age: M = 7;2 [7.17], SD = 1.24); (2) monolingual, with concerns (n = 201, boys = 72, age: M = 7;1 [7.08], SD = 1.31); (3) ELLs, no concerns (n = 92, boys = 51, age: M = 7;5 [7.42], SD = 1.27); and (4) ELLs, with concerns (n = 58, boys = 22, age: M = 7;1 [7.08], SD = 1.26). Table 1 shows the number of participants within each study group across four age bands (6, 7, 8, and 9 years old), and the percent with parental concerns about language for the monolingual and ELL groups. A total of 35 languages were reported as the home language for the ELLs sample in the present study.

Table 1. Number of Participants Within Each Study Group Across Four Age Bands (6, 7, 8, and 9 years old) and Percent With Parental Concerns About Language for Monolingual and ELL Groups

	Participant Group					
Age (in years)	Monolingual No Concerns	Monolingual Concerns	% Concerned for Monolinguals	ELLs No Concerns	ELLs Concerns	% Concerned for ELLs
	n	*n*		*n*	*n*	
6	297	57	16%	35	13	27%
7	236	51	18%	18	15	45%
8	201	60	23%	23	12	34%
9	168	33	16%	16	18	53%
Total	902	201	18%	92	58	39%

Note. ELLs = English Language Learners.

Procedure

Each child was tested individually in a quiet room in his or her school. In a single 10-minute session, each child completed the sentence recall task and single word and nonword reading tasks. These data constituted the first visit of the study. Additional measures completed later in the study are not reported here. Parents completed the parent questionnaire at the time that they provided consent for their child to participate. All tasks were administered by trained research assistants who completed a scoring reliability test against four standard cases prior to data collection.

Sentence recall task. Sentences were taken from Redmond (2005). Participants were asked to immediately repeat 16 sentences, each composed of 10 words (10 to 14 syllables) and with an equal number of active and passive sentences. This task has been found to have high sensitivity and specificity for DLD (Archibald & Joanisse, 2009). Sentences were presented via a digital audio recording of an adult female in fixed order. Sentences were scored online by a research assistant using a 3-point scoring system (2 = correct; 1 = one to three errors; 0 = four or more errors). Omissions, additions, or substitutions of words, or changes in word forms, were considered errors. Participants could achieve a maximum score of 32.

Single word reading. Two measures tapping phonological processing were employed, the Sight Word Efficiency and the Phoneme Decoding Efficiency subtests of the *Test of Word Reading Efficiency* (Torgesen, Wagner, & Rashotte, 1999). In the published test manual, high test-retest reliability was reported for both subtests (Sight Word Efficiency = .93; Phoneme Decoding Efficiency = .94). For each test, participants read aloud as many items as possible within 45 seconds from a list that progressed in difficulty. The Sight Word Efficiency, or the word reading measure, consisted of phonetically regular and irregular words (maximum score = 104), and the Phoneme Decoding Efficiency, or the nonword reading measure, contained nonwords such as "bave" (maximum score = 63). The total number of correctly read words and nonwords was scored. As per the test instructions, correctly read words and nonwords were considered those read within 3 seconds and corresponding to the indicated test glossary.

Parent questionnaire. In addition to the questions described above relating to language concerns and language status, the parent questionnaire also included questions related to maternal level of education. Maternal level of education is considered to be a good proxy for socioeconomic status (Golberg, Paradis, & Crago, 2008; Oller & Eilers, 2002). Parents were asked to check the highest level of education attained by the child's mother. The descriptors included *some high school, completed high school, some college, completed college, some university,* and *completed university*. Responses were transposed to a 3-point scale, with 1 corresponding to *some/completed high school*, 2 to *some/completed college*, and 3 to *some/completed university*. This question was optional, and was completed by 991 of the parents

in the study. Importantly, available data indicate that the groups were well matched in terms of maternal education (monolingual no concerns: *n* = 699, maternal education: *M* = 2.29, *SD* = 0.72; monolingual concerns: *n* = 169, maternal education: *M* = 2.15, *SD* = 0.75; ELLs no concerns: *n* = 74, maternal education: *M* = 2.30, *SD* = 0.91; ELLs concerns: *n* = 49, maternal education: *M* = 2.15, *SD* = 0.91).

Statistical Analysis

Group performance on the sentence recall, word reading and, nonword reading measures were compared using an Analysis of Variance (ANOVA) with Bonferroni-adjusted post hoc pairwise comparisons where appropriate. Critical p-value was set at $p < .05$, and adjusted when appropriate for multiple comparisons. Simple effects were investigated within significant interactions using *t* tests.

Results

Group Differences in Sentence Recall

Table 2 and Figure 1 provide descriptive statistics for the sentence recall raw scores for the four study groups. The groups without parental concerns regarding language development had higher scores, as did the monolingual groups. In addition, scores increased across developmental bands for both monolingual and ELL groups.

In order to compare the groups of interest, a three-factor ANOVA with Bonferroni-adjusted post hoc pairwise comparisons was completed on the sentence recall raw scores as a function of language status (monolingual vs. ELLs), parent concerns (no concerns vs. concerns), and age (6-, 7-, 8-, and 9-year-olds). All main effects were significant: language status, $F(1, 1237) = 46.47$, $p < .05$, $\eta_p^2 = .036$; parent concerns, $F(1, 1237) = 49.98$, $p < .05$, $\eta_p^2 = .039$; and age, $F(3, 1237) = 55.94$, $p < .05$, $\eta_p^2 = .119$. Significant interactions were found between language status and concerns, $F(1, 1237) = 5.22$, $p < .05$, $\eta_p^2 = .004$; language status and age, $F(3, 1237) = 2.81$, $p < .05$, $\eta_p^2 = .007$; and language status, concerns, and age, $F(3, 1237) = 3.44$, $p < .05$, $\eta_p^2 = .008$. The interaction between concerns and age was not significant, $F(3, 1237) = 1.45$, $p > .05$. With regard to the main effects, significantly higher scores were found for the monolingual than ELL groups (monolingual: *M* = 22.91, *SE* = 0.26; ELLs: *M* = 18.66, *SE* = 0.56), and for the groups without than with parental concerns (no concerns: *M* = 22.99, *SE* = 0.37; concerns: *M* = 18.58, *SE* = 0.49). There was also a general trend for increases with age (see Table 2).

Importantly, the main effects in this analysis were characterized by significant interactions. In addition, the interactions between language status and parent concerns and between language status and age were characterized by the three-way interaction between language status, age, and concerns. In order to unpack this three-way interaction, groups of interest were examined in pairwise comparisons. First, the monolingual and ELL groups without concerns were compared across age groups. Between-group analyses revealed significant differences due to higher scores for the monolingual than ELL groups without concerns at 7 and 8 years ($p < .005$, both cases) but not 6 and 9 years ($p > .05$, both cases). Interestingly, the numerical values of the means for the two 9-year-old groups were within 0.84 of each other. Thus, the oldest and youngest children in the no concerns group did not differ based on language status, although group differences based on language status occurred for the middle groups (7- and 8-year-olds). Effect size calculations for this comparison were also greatest for the middle groups (7- and 8-year-olds; 6 years: *d* = 0.26; 7 years: *d* = 0.67; 8 years: *d* = 0.58; 9 years: *d* = 0.20). According to Cohen (1988), effect sizes lower than 0.2 are considered small, whereas effect sizes between 0.2 and 0.5 are considered medium in size.

Next, the developmental patterns for the monolingual and ELL groups with concerns were compared. Between-group analyses indicated that there was a significant group difference at ages 6 and 8 years ($p < .05$, both cases), but not 7 and 9 years ($p > .05$, both cases). Effect size calculations for this comparison were also greatest for ages 6 and 8 years (6 years: *d* = 1.50; 7 years: *d* = 0.32; 8 years: *d* = 0.78; 9 years: *d* = 0.47). As can be seen in Figure 1, the monolingual concerns group showed a strong linear trend towards improvement whereas the ELL concerns group had a non linear increase across the age bands studied.

Finally, the developmental patterns for the monolingual concerns group and the ELL no concerns group were compared. Between-group analyses indicated that there were no significant differences between groups for each age band ($p > .05$, all cases). Numerically, the greatest difference in the two groups occurred at age 9. Effect size calculations for this comparison were also greatest for the oldest group (6 years: *d* = 0.01; 7 years: *d* = -0.02; 8 years: *d* = 0.11; 9 years: *d* = 0.33).

To summarize the results for the group comparisons, monolingual English-speaking children, those without parental concerns regarding language, and older children achieved higher sentence recall scores. Additionally, there were no significant differences based on language status for the groups without parental concerns in the youngest and oldest (6- and 9-year-old) groups only. The ELL group with parental concerns started with extremely low scores and showed a nonlinear increase across age bands. Finally, the monolingual concerns and ELL no concerns group did not differ at all age bands studied, although the effect size was greatest for the oldest group with higher scores for the ELLs with no concerns.

Group Differences in Word Reading and Nonword Reading

Descriptive statistics for the word reading and nonword reading raw scores for the four study groups are shown in tables 3 and 4, respectively. The monolingual groups and those with parental concerns regarding language development had lower scores. In addition, scores increased across the age bands studied.

Separate three-factor ANOVAs with Bonferroni-adjusted post hoc pairwise comparisons were completed on the raw word reading scores and nonword reading scores as a function of language status (monolingual vs. ELLs), parent concerns (no concerns vs. concerns), and age (6-, 7-, 8-, and 9-year-olds). Starting with word reading, all main effects were significant: language status, $F(1, 1081) = 4.33$, $p < .05$, $\eta_p^2 = .004$; parent concerns, $F(1, 1081) = 25.44$, $p < .05$, $\eta_p^2 = .023$; and age, $F(3, 1081) = 113.72$, $p < .05$, $\eta_p^2 = .240$. No significant interactions were found; $F < 1.6$, $p > .05$ in all cases. The same pattern was found for nonword reading with significant main effects in all cases: language status, $F(1, 1081) = 13.19$, $p < .05$, $\eta_p^2 = .012$; parent concerns, $F(1, 1081) = 33.79$, $p < .05$, $\eta_p^2 = .030$; and age, $F(3, 1081) = 68.76$, $p < 0.05$, $\eta_p^2 = .160$. Again, none of the interactions were significant; $F < 1.6$, $p > .05$ in all cases.

The main effects confirmed that the scores for monolingual groups were significantly lower than for ELL groups for both word reading (monolingual: $M = 44.84$, $SE = 0.65$; ELLs: $M = 47.98$, $SE = 1.36$) and nonword reading (monolingual: $M = 20.88$, $SE = 0.47$; ELLs: $M = 24.84$, $SE = 0.98$). Similarly, the groups with no parental concerns achieved significantly higher scores than those with parental concerns for both word reading (without concerns: $M = 50.21$, $SE = 0.90$; with concerns: $M = 42.60$, $SE = 1.21$) and nonword reading (without concerns: $M = 26.03$, $SE = 0.65$; with concerns: $M = 19.69$, $SE = 0.87$). The main effect of age revealed a significant increase with each increase in age band for word reading (6 years: $M = 25.21$, $SE = 1.58$; 7 years: $M = 42.96$, $SE = 1.45$; 8 years: $M = 53.55$, $SE = 1.48$; 9 years: $M = 63.90$, $SE = 1.51$) and nonword reading (6 years: $M = 12.09$, $SE = 1.14$; 7 years: $M = 19.48$, $SE = 1.05$; 8 years: $M = 26.19$, $SE = 1.07$; 9 years: $M = 33.67$, $SE = 1.09$).

Table 2. Descriptive Statistics for Sentence Recall Raw Scores Across Age Groups

Age (in years)	Participant Group							
	Monolingual No Concerns		Monolingual Concerns		ELLs No Concerns		ELLs Concerns	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
6	19.16	7.92	17.14	8.73	17.00	8.54	6.00	5.73
7	24.15	6.06	19.82	7.15	20.00	6.29	17.40	7.66
8	26.40	4.76	23.18	6.79	22.26	8.72	17.08	8.66
9	27.90	4.43	25.55	5.23	27.06	3.73	22.50	7.51

Note. ELLs = English Language Learners.

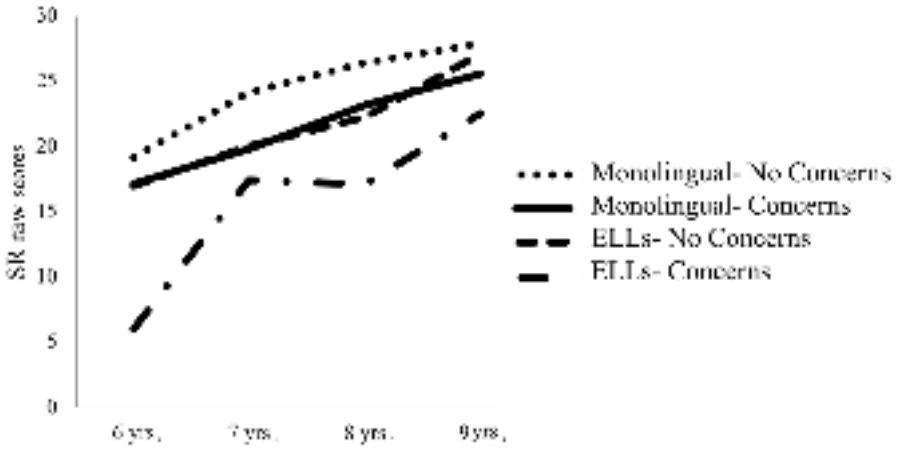

Figure 1. Overall mean sentence recall raw scores for the four groups: (1) monolingual, no parental concerns; (2) monolingual, with concerns; (3) ELLs, no concerns; (4) ELLs, with concerns.

Although the main effects clearly indicate that status as an ELL resulted in higher scores, we sought to confirm that the effect held even between the ELLs without concerns group and the monolingual with concerns group. Indeed, in simple *t* tests, a significant advantage was found for the ELLs without concerns on both the tests of word reading, $t(149.48) = -2.83$, $p < .05$; and nonword reading, $t(131.18) = -4.87$, $p < .05$. Effect size calculations between the ELLs without concerns group and the monolingual with concerns group were medium for word reading ($d = 0.37$), and large for nonword reading ($d = 0.67$). It should be noted that maternal education was similar across all four groups, and is therefore unlikely to account for any group differences on test performance.

Discussion

This study compared the English sentence recall and single word and nonword reading performance of 6- to 9-year-old children who were either monolingual or English Language Learners (ELLs), and whose parents either did or did not report concerns regarding their child's language development. Results revealed a complex interaction for scores on the sentence recall task dependent on all three factors: the child's language status, concerns for language development, and age. For children without concerns, scores were significantly higher for the monolingual than ELL groups for the 7- and 8-year-olds but not the youngest (6 years) and oldest (9 years) age groups studied, with mean group scores at 9 years of age being virtually identical. Although the monolingual groups with or without parental concerns about language development scored higher on the sentence recall task, significant differences between the monolingual and ELL groups with concerns occurred nonlinearly across the developmental range studied (i.e., at 6 and 8 but not 7 and 9 years) due to nonlinear performance increments in the ELLs but not the monolingual groups. Importantly, there was no significant difference in sentence recall scores for the monolingual group with concerns about language development and the ELL group without concerns. The pattern of findings for the single word and nonword reading tasks was simpler: significantly higher scores were evident for both ELLs and those without concerns about language development. In addition, scores increased incrementally across the age range studied. Of particular interest is the finding that the ELLs without concerns scored higher than the monolingual with concerns group.

Generally speaking, the results of the present study revealed higher scores on sentence recall for monolingual than ELL groups and on word and nonword reading for ELLs than monolingual groups. The higher performance of the monolingual groups on the knowledge-dependent oral language task—sentence recall—is not surprising, and replicates many previous studies (e.g., Armon-Lotem & Meir, 2016; Chiat et al., 2013). Interestingly, however, this higher pattern of performance was no longer evident in the oldest group, the 9-year-olds. The finding of a multilingual advantage on the reading tasks adds to the growing evidence that ELLs may be at some advantage on phonological tasks given their exposure to phonologically different language systems (Kang, 2012; Marinova-Todd, Zhao, & Bernhardt, 2010).

The present study examined the clinical utility of sentence recall and single word and nonword reading in differentiating DLD from poor language performance due to additional language learning with, in the current case, groups identified based on a parent's indication of

Table 3. Descriptive Statistics for Word Reading Raw Scores (Number of Words Read Correctly) Across Age Groups

Age (in years)	Participant Group							
	Monolingual No Concerns		Monolingual Concerns		ELLs No Concerns		ELLs Concerns	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
6	28.23	17.91	17.53	17.13	32.19	23.36	22.90	12.76
7	47.12	16.05	38.53	16.51	46.28	19.74	39.94	15.83
8	58.60	12.27	46.87	17.69	56.83	18.88	51.92	10.67
9	64.41	11.18	57.42	15.09	68.06	9.49	65.72	10.21

Note. ELLs = English Language Learners.

Table 4. Descriptive Statistics for Nonword Reading Raw Scores (Number of Words Read Correctly) Across Age Groups

	Participant Group							
Age (in years)	Monolingual No Concerns		Monolingual Concerns		ELLs No Concerns		ELLs Concerns	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
6	12.64	9.68	7.95	9.21	17.30	14.32	10.50	7.81
7	22.40	11.35	16.00	9.45	22.83	12.20	16.69	9.54
8	28.58	11.53	19.93	11.58	33.00	14.57	23.25	11.40
9	33.67	11.09	25.88	11.72	32.81	10.74	37.33	13.61

Note. ELLs = English Language Learners.

concerns about language development. In fact, all three measures differentiated groups with and without parental concerns regarding the child's language development with higher scores achieved by children for whom parents expressed not having had any concerns about language development. The results are consistent with findings that parental reports add useful information when identifying early DLD in ELLs (Paradis et al., 2010, 2013). It is important to note, however, that ELL studies that have used parental reports—such as the work of Paradis et al. (2010, 2013)—have used comprehensive parent questionnaires on ELLs' first language development consisting of information on early milestones, current first language abilities, behaviour patterns and activity preferences, and family history. Interestingly, parental concerns did not differentiate our youngest (6-year-old) group who was monolingual, but they did differentiate the corresponding ELL group. It may be that our broad questions (e.g., "Are you concerned about your child's language?" and "Have you ever been concerned about your child's language?") were not sensitive or specific enough to identify poor language in our youngest group of monolingual children or ELLs. Furthermore, the high percentage of parents of ELLs (39% overall) who reported being concerned suggests that these questions may be sensitive but not specific. In the present study, we were particularly interested in whether the study measures could discriminate groups based on both parental concerns and language status. The sentence recall task clearly discriminated the top performing group, the monolingual group without concerns about language development, and the lowest performing group, the ELLs with parental concerns about language development. However, the performance of the monolingual group with concerns and the ELLs without concerns did not differ. For the reading measures, however, performance was discriminated based on either language status or parental concerns. As a result and importantly, the performance of the ELLs without concerns differed from both the monolingual and ELL groups with concerns. Thus, the performance of ELLs without concerns was reliably differentiated from the remaining study groups on single word and nonword reading tasks, but not the sentence repetition task.

ELLs present a particular challenge for identifying DLD because their limited language skills in the early stages of learning might reflect DLD or the need for more learning time to reach mastery of the language. On oral language measures, ELLs tend to score in the range considered to reflect DLD in monolingual children, as was the case in many previous studies (e.g., Paradis, 2010; Paradis, Rice, Crago, & Marquis, 2008) and in the present study. Such a pattern does not assist in differentiating TD ELLs who need more learning time from ELLs with DLD. The available evidence suggests that tasks that tap perceptual-cognitive skills rather than knowledge-dependent oral language measures hold promise for differentiating these groups. However, it must be noted that there is considerable individual variation in the rate at which children acquire a second language. Notably, there are many important factors that can lead to individual differentiation among ELLs (Paradis, 2007; Saunders & O'Brien, 2006).

Study Limitations

There are several limitations to the present study. Foremost, parents' concerns about their child's language development were used to identify monolingual speakers and ELLs with atypical language development. There is little doubt that using English standardized tests for monolingual children and assessing ELLs in their dominant language would provide a more valid and reliable means of identifying children with and without DLD. Further complicating the issue is that there was a large heterogeneous sample

of children in this study with various L1 backgrounds. Unfortunately, there are no "gold standard" tests to assess ELLs from multiple L1 backgrounds (Peña & Fiestas, 2009). Although the use of the parental questionnaire was justified, the questionnaire was gathered through a single written question brought home by the child from school. The results show that approximately 39% of the ELLs had parents who stated that they were at some point concerned about the language development of their child compared to 18% of parents in the monolingual English-speaking group. It is possible that parents of ELLs had difficulty reading the questionnaire, or interpreted the question differently than was intended. Future research could provide translated questions administered by trained personnel to be sure that parents understand the intent of the question.

In addition, although a large body of research has provided strong evidence of the relationship between phonological processing and reading (Catts, 1989), more direct measures of phonological processing would be useful in follow-up studies. Another limitation of the study is the lack of the information about important factors that can affect L2 acquisition and second language learning performance for our sample. For example, no information regarding the children's age when first exposed to English was collected. Studies show that children's age of exposure to English can affect performance in many aspects of language—for example, vocabulary size (Golberg et al., 2008) and grammatical morpheme development (Jia & Fuse, 2007). Moreover, information about the ELLs' previous experiences and daily use of their L1 and L2 was also unavailable. Certainly, such information might affect the performance of ELLs.

Conclusion

This study examined whether English sentence recall and single word and nonword reading tasks differentiated school-age groups based on parental concerns about language development and status as either a monolingual English speaker or an ELL. The primary finding of this study was that the sentence recall performance of ELLs without parental concerns about language development and monolingual children with parental concerns about language development overlapped throughout the 6- to 9-year-old age range studied. Furthermore, the more accurate performance of monolingual children over ELLs with and without parental concerns on sentence recall tasks can persist for at least four years. On the other hand, ELLs achieved higher single word and nonword reading scores than monolingual peers. Also, single word and nonword reading differed for children with or without parental concerns, regardless of monolingual/bilingual status. Furthermore, the advantage of ELLs over monolingual groups on single word and nonword reading persisted over the early school years. The findings suggest that single word and nonword reading hold promise as tasks that may differentiate ELLs with DLD from those who need more time to acquire the language.

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