

Evaluating Lexical Quality in Writing in First and Second Language Learners

by

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BA, The University of British Columbia, 2004

BEd, The University of British Columbia, 2006

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Supervisory Committee

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Abstract

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Research has consistently shown that ESL students lag behind their EL1 peers in English oral vocabulary skills. Despite this lag in English vocabulary skill development and the important role that vocabulary plays in key models of English writing development, recent results indicate that for ESL children becoming both orally proficient and literate in English since kindergarten, their writing achievement is on par with EL1 students. To date, no research has examined the lexical quality of ESL students' writing across various measures, and in relation to oral vocabulary. This study examines (1) how EL1 and ESL children's writing compares on different indices of lexical quality, and (2) whether there is an association between oral vocabulary knowledge and lexical quality in the writing of EL1 and ESL children. Results indicate that, in contrast to the differences in their respective levels of oral receptive vocabulary, EL1 and ESL children are using vocabulary of roughly the same quality in their writing. However, results did suggest that there are different patterns of associations between different vocabulary measures based on language group.

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Introduction

The purpose of this study was to examine lexical quality (i.e. quality of vocabulary) in the writing of first (EL1) and second language (ESL) learners and the relation between lexical quality in writing and in oral language. Being able to write well is an important skill necessary for success in school and in life for all children. However, models that explain second language writing development do not yet exist. We do know that ESL children consistently lag behind their native speaking classmates on measures of oral English vocabulary, even after several years of immersion in English language and literacy instruction (Geva, Yaghoub-Zadeh, & Schuster, 2000; Jean & Geva, 2009; Limbos & Geva, 2001; Wade-Woolley & Siegel, 1997). Given the important role of vocabulary in key models of first language (L1) writing development, it is vital that we understand the role that oral vocabulary plays in the writing process of ESL children.

Oral and Written Language

Understanding writing requires understanding its association with oral language. Although we learn to understand and speak language long before we learn to write, the four different language systems (aural, oral, reading, and writing) develop in parallel ways, with each one affecting the development of the others (Abbott & Berninger, 1993; Berninger, 2000). As a result, children with well-developed oral language skills generally become strong writers, and children who struggle with oral language often experience difficulties with writing (Berninger, 2000; Shanahan, 2006). Although much of the research on the interplay between oral language and writing comes from studies of atypical learners, this work provides valuable insights into the connections between oral and written language.

The Role of Vocabulary in Theories of Writing

Drawing on more extensive research that has been conducted in study of writing in English-speaking monolinguals allows us to consider vocabulary's importance in the writing process. Empirically supported models of first language English writing provide frameworks that inform the process of writing and the role of different cognitive and linguistic resources that are used during this process. Vocabulary consistently plays an important role in each of these major theories of writing. In Berninger's functional writing system (Berninger & Amtmann, 2003), writers simultaneously draw on different cognitive and linguistic sub-skills and processes in a working memory architecture in order to transcribe "oral language into visible language" (Berninger, 2000, p. 67). As part of this complex cognitive process, writers utilise word specific knowledge (orthographic, phonological, morphological, and syntactic) to produce text. Vocabulary knowledge is one important component necessary to the writer. Within Flower and Hayes's (1981) model, writing is a goal directed activity that involves skills in planning, translating, and revising that are utilized continually through the composition process. During translation, the writer draws from their long-term memory and renders experiences, ideas, and sensory images into written text. The writing process is facilitated by vocabulary since the writer selects words to express ideas or sensory representations in writing. For each of these theories, writing requires the utilization of different knowledge drawn from their long-term memory. Bereiter and Scardamalia (1987) discuss two key types of knowledge: content knowledge, which is specific knowledge about the topic of the written text, and discourse knowledge, which relates to understanding of genre and the writing process. Well-developed vocabulary skills play an important role in each of these two knowledge

types. Since each topic involves specialized vocabulary, writers use their vocabulary to express content knowledge. Likewise, research has indicated that vocabulary is an important feature of different text genres, and that an individual's use of vocabulary varies depending on the type of writing being produced (Olinghouse & Wilson, 2012).

The development of an adequate vocabulary when learning a second language (L2) has also been argued to be necessary for academic achievement. In outlining his Threshold Hypothesis, Cummins (1979) posits that second language learners must reach a "lower level" threshold in both their first and second languages in order to avoid possible cognitive and academic disadvantages (and to incur cognitive and academic advantages) as a result of their bilingualism. As language demands increase in later grades, this "lower" threshold increases and requires more than a "surface" fluency; children must possess more cognitive aspects of language, such as abstract concepts, vocabulary, and the relations among words. Given the important connection between oral and written language (Berninger, 2000; Shanahan, 2006), lower levels of oral language proficiency in the second language may put ESL children at risk of experiencing writing difficulties.

Oral Language and Spelling.

There is reason to believe that the effect of oral vocabulary on a student's writing may be mediated in part by their spelling. Researchers have demonstrated that there is an important association between oral vocabulary and spelling skills (Ehri, 1987; Ehri & Rosenthal, 2007). Also, the important contribution of spelling skills to overall writing ability is well-documented (e.g. Berninger & Amtmann, 2003). Unsurprisingly, research has found that spelling is an important predictor of writing quality for both EL1 and ESL

children, although both language groups may not rely on spelling to the same degree (Harrison, Goegan, Heayn, Jalbert, Sinclair, & Spurling, 2012; Harrison, Goegan, Heayn, Jalbert, Sinclair, & Spurling, 2013; Harrison, Goegan, McManus, & Spurling, 2014; Harrison, Ogle, & Keilty, 2013).

Oral Language and Word- vs. Text-level Reading in ESL Children

Word-level reading. Research has provided important information about the relative importance of oral vocabulary to word-level reading skills. Studies have shown that, with adequate literacy instruction, ESL children are able to achieve comparable results in word level reading (Chiappe & Siegel, 1999; Geva, Yaghoub-Zadeh & Schuster, 2000; Lesaux & Siegel, 2003) and spelling (Wade-Woolley & Siegel, 1997). Additionally, research has shown that phonological processing and working memory play a much greater role in the development of word-level reading skills than oral language components like vocabulary and syntactic knowledge (Geva, 2006; Geva, Yaghoub-Zadeh & Schuster, 2000). Phonological skills are considered to be the most important predictor of word-level reading, even when these skills have been developed in their first language; research has shown increased evidence for the cross-linguistic transfer of phonological skills in children (e.g., Gottardo, Yan, Siegel, & Wade-Woolley, 2001) and adults (e.g., Harrison & Krol, 2006).

Reading Comprehension. Less is known about the importance of oral vocabulary in the development of reading comprehension for ESL children. Reading comprehension and writing production are both text-level skills that rely on similar, interconnected processes (Fitzgerald & Shanahan, 2000). In the same way that children must be able to become fluent in their ability to decode sounds and words in order to

comprehend the meaning of a text, writers must likewise become fluent in their lower-level writing skills (transcription) in order to be able to create written meaning.

Therefore, both reading comprehension and writing theoretically rely on the development of proficient oral language skills, but little empirical research exists that definitively identifies the role of oral language skills in the development of either reading comprehension or writing skills in ESL children.

As is the case with writing, there is no unifying theory that outlines how children develop reading comprehension in their second language. Vocabulary is accepted to be a key component of effective reading comprehension for English speaking monolinguals, and research has indicated that vocabulary appears to be important to English reading comprehension for ESL children; however, its role is less well understood than in the case of English L1 reading comprehension.

Research suggests that lower proficiency in English oral language may put ESL children at a disadvantage when it comes to developing strong reading comprehension skills. However, findings are varied. Many studies have found that ESL children struggle with reading comprehension (Beech & Keys, 1997; Carlisle & Beeman, 2000; Geva & Farnia, 2012; Lesaux, Koda, Siegel, & Shanahan, 2006), possibly as a result of under-developed English oral language skills (Babayigit, 2012). On the other hand, further studies have found no difference between ESL and EL1 children when it comes to reading comprehension (Ball, 2003; Lesaux, Lipka, and Siegel, 2006).

Several studies involving children of different ages and linguistic backgrounds have demonstrated positive correlations between oral language and English reading comprehension (e.g., Geva, 2006). Fewer studies have specifically examined the relative

role that vocabulary plays in ESL reading comprehension. Proctor, Carlo, August, and Snow (2005) addressed this question in a study involving grade 4 Spanish speaking ESL children and found that L2 vocabulary contributed significantly to L2 comprehension, both directly and indirectly through its contribution to L1 listening comprehension, which also in turn contributed to L2 reading comprehension. More recently, Babayigit (2012) examined the contribution of oral language skills to the reading and listening comprehension of 9- to 10- year old EL1 and ESL children in England. Results of this study indicated that oral language, as measured by vocabulary and morphosyntactic skills (i.e., the ability to repeat increasingly complex sentences), were the most powerful unique predictors of reading and listening comprehension skills. Additionally, oral language skills explained differences in reading comprehension scores found between language groups.

In a study of reading comprehension difficulties among EL1 and ESL students, Lesaux and Kieffer (2010) outline three different profiles of comprehension difficulties that emerged from their research (slow word callers, who exhibited above average pseudo-word reading accuracy but below average vocabulary and fluency; globally impaired readers, who performed below average on all language and reading measures; and automatic word callers who exhibited above average pseudo-word reading accuracy and below average vocabulary, but average reading fluency). Language group (i.e., EL1 or ESL) was a statistically significant predictor of whether children were classified as struggling readers, with ESL students being more likely to experience difficulties. However, ESL status (i.e., whether children were EL1 or ESL) did not predict membership in any profile of reading difficulty over the other (i.e., did not play a role in

determining why they would experience difficulties with reading comprehension), suggesting that like EL1 children, ESL children struggle with reading comprehension for a different reasons as outlined by their skill profiles. These reasons include low vocabulary, poor fluency, and poor pseudo-word decoding. Some patterns did exist across all three skill profiles, indicating that there were some consistent difficulties observed for all struggling readers. These difficulties all related to under-developed oral language skills, including low oral vocabulary (i.e., PPVT-4) and low semantic working memory (assessed using a measure of semantic association which asked students to verbally repeat words while also ordering them in abstract categories).

Similarly, Geva and Farnia (2012) examined predictors of reading comprehension in EL1 and ESL children in grades 2 and 5. They found that vocabulary in grade 2 was strongly associated with reading comprehension in grade 5 for both EL1 and ESL children.

Overall, research suggests that vocabulary contributes to the development of strong reading comprehension skills for ESL children, although whether ESL children are therefore at greater risk for reading difficulties is still somewhat unclear. There is a need for continued research that helps to elucidate the role that oral vocabulary plays in the development of text level literacy skills such as reading comprehension, but also in writing, which has been even more understudied (Geva, 2006; Shanahan, 2006).

Summary. Recent research on the development of literacy skills among ESL children has shown that ESL children are not at a disadvantage when it comes to word-level reading and spelling skills, and that ESL children experience word reading difficulties for the same reasons as EL1 children. Less research has addressed the same

questions in regards to reading comprehension, a more complex and multifaceted text-level skill. Research to date, however, suggests that L2 oral language skills play a greater role in the development of reading comprehension skills than word-level reading skills for ESL children, and that under-developed English oral language skills may potentially disadvantage ESL children. Reading comprehension and writing are inter-related processes that are similar in that they are both text-level literacy skills that require the student to first automatize word-level literacy skills to become competent readers and writers. Therefore, the above research which indicates that vocabulary plays an important role in reading comprehension for ESL children further suggests that oral vocabulary is most likely important to the development of strong writing skills for ESL students.

ESL Writing Development

Less research has examined the development of reading comprehension skills among ESL children than with EL1 children. Even fewer studies to date have examined the development of writing skills in ESL populations (Geva, 2006; Lesaux & Geva, 2006; Lesaux, Koda, Siegel, & Shanahan, 2006). However, initial research has found that, despite lower English oral language skills such as vocabulary and syntax, ESL children, especially children who began formal literacy and oral English instruction in kindergarten, are not in fact at a greater risk of writing difficulties than their native-English speaking peers (Ball, 2003; Harrison, Ogle, & Keilty, 2013; Harrison, Goegan, Heayn, Jalbert, Sinclair, & Spurling, 2013; Harrison, Goegan, McManus, & Spurling, 2014). Ball (2003) examined the relationship between word- and text- level skills as well as the contribution of cognitive and language processes to reading and writing in EL1 and ESL children. EL1 and ESL children performed comparably on reading, writing, and

cognitive measures. However, ESL children underperformed relative to EL1 students on measures of receptive vocabulary (PPVT-4) and syntactical judgment (a task measuring understanding of rules of syntax). Multiple sequential regressions were conducted to examine the contribution of different cognitive and language processes to both word-level (decoding and spelling) and text-level (comprehension and story construction) reading and writing. Composite scores were used to increase the power of the analyses. Cognitive ability (Test of Auditory Analysis Skills, Rapid Automatized Naming, sequencing, and working memory) accounted for the largest amount of variance in both word-level reading and writing for both EL1 and ESL students. Oral language proficiency (a composite score of receptive and expressive vocabulary, syntax, listening comprehension, and sentence memory) accounted for the most variance in text-level reading (comprehension) for both EL1 and ESL children. However, the oral language proficiency composite also explained most of the variance for EL1 children in text-level writing (story construction) but not for ESL children. For the ESL children, there was a larger amount of unexplained variance in their writing. Thus, oral language proficiency accounted for more of the variance, above and beyond cognitive ability, in reading comprehension for both EL1 and ESL children, but only for EL1 children in writing. Although EL1 children appear to be drawing significantly on their oral vocabulary skills to help them write, ESL children are not drawing on these skills. It is likely, then, that given the larger proportion of unexplained variance in their writing, ESL children are instead relying more on different cognitive or linguistic skills to produce writing of comparable quality. Although there is a need for analyses that more specifically examine the role of individual variables, rather than a composite of measures, these results

indicate that there are differences between EL1 and ESL children in the relative contribution of oral language skills.

Harrison, Ogle, and Keilty, 2013 conducted a study examining the contribution of different key processes to the writing of ESL children in Kindergarten. ESL children performed comparably on measures of early reading, spelling, and writing, but below their EL1 classmates on English oral vocabulary and syntax. Similar to results found by Ball, this study suggests that although ESL children have underdeveloped oral language skills in comparison to EL1 children, their writing achievement is comparable to that of their EL1 peers. For EL1 and ESL beginning readers and writers, phonological awareness, reading, and transcription skills (i.e., spelling and handwriting fluency) were found to be the best predictors of writing, rather than oral language.

A study involving grade 3 EL1 and ESL children (Harrison, Goegan, McManus, & Spurling, 2014) also found that ESL children underperformed relative to EL1 students on measures of oral vocabulary and syntactic awareness but demonstrated no differences on measures of writing. On the other hand, some key differences were found between EL1 and ESL students in the skills and components that predicted writing ability, particularly relating to oral language. One component that the authors examined was the role of text generation (i.e., vocabulary, lexical access, syntactic awareness) in predicting the quality of the “content and structure” of writing, which was assessed using scoring criteria from the Wechsler Individual Achievement Test – 2nd edition (WIAT-II). The criteria that made up the content and structure score included the quality of examples provided, the sentence structure and linking expressions, as well as the use of vocabulary in each written paragraph. For EL1 children, the most significant predictors of content

and structure were vocabulary and syntactic awareness. In contrast, lexical access (rapid naming) and syntax predicted content and structure scores for ESL students, but not vocabulary.

One of the components used in assigning each paragraph a score for content and structure included the quality of vocabulary used in writing. Therefore, it is interesting that oral vocabulary was not a predictor of content and structure for ESL children. In other words, it is interesting that oral vocabulary did not predict a score that included written vocabulary. A *t*-test was therefore performed by the authors to compare only the scores for written vocabulary that contributed to the overall content and structure scores for EL1 and ESL students. This *t*-test revealed that differences in the scores of written vocabulary were not significant. However, since the vocabulary score was part of a larger score for content and structure, written vocabulary itself was measured using a 0-3 point ranking. Therefore, it is likely that range restriction may have impacted whether this analysis could detect any potentially significant differences that may have existed. This particular finding raises questions about how EL1 and ESL children are making use of vocabulary in their writing, and whether any possible differences their written vocabulary can help to elucidate the role that oral vocabulary has in predicting writing quality for EL1 and ESL children. In order to answer these questions, it is necessary to measure the quality of written vocabulary being used by EL1 and ESL children in a more detailed way.

The study also examined the contributions of text generation (vocabulary, lexical access, and grammatical awareness) and transcription (a composite score of spelling and handwriting fluency), to overall writing. More overall variance was explained for EL1

children, with transcription, vocabulary, and syntactic awareness all contributing to overall writing ability. For ESL children, however, transcription but not vocabulary or syntax predicted overall writing. Again, results suggest that oral vocabulary is contributing to writing for EL1 children, but not for ESL children, a finding that is likely relevant in explaining why ESL students are performing comparably to EL1 students in writing despite consistently achieving lower scores on measures of oral vocabulary.

Similar patterns were found in a study conducted with EL1 and ESL children in grade 4 (Harrison, Goegan, Heayn, Jalbert, Sinclair, & Spurling, 2013). Again, although ESL children performed below EL1 children on measures of receptive vocabulary, ESL children performed comparably on measures of writing performance. A difference was also found in the relative contributions of language variables to writing performance between EL1 and ESL children. Although oral vocabulary and syntax were significant predictors of writing performance for the EL1 group, phonological processing and working memory predicted writing performance for the ESL group.

Summary. Research to date examining writing skills among EL1 and ESL children suggests that, despite lower vocabulary and syntactic skills than EL1 children, ESL children are achieving at similar levels in writing as EL1 children. Research also suggests that ESL children are drawing on a different collection of processes when writing. Specifically, the relative importance of vocabulary (and other oral language skills) to writing may differ for EL1 and ESL children. This is likely because their oral vocabulary and syntactic knowledge are under-developed in relation to their EL1 peers. It is interesting that, given the relationship between oral vocabulary and writing, ESL children are producing written texts of similar quality as their EL1 peers. A more detailed

analysis of how ESL children are using vocabulary in their writing may provide insight into the role that oral vocabulary is playing in their writing development.

Evaluating Lexical Quality in Writing

Initial research on the writing processes and skills of ESL children has thus far considered the contributing role of different important cognitive and linguistic variables to overall writing quality. However, no studies to date have specifically examined the lexical quality (i.e., the quality of vocabulary) in the writing of ESL children.

Vocabulary, when assessed, is often one component of global measures of writing quality. For example, a commonly used norm-referenced measure of writing, the Test of Written Language – 3rd edition (TOWL-III; Hammill & Larsen, 1996) includes a rating scale with a limited range (e.g., 0-3), to assess written vocabulary quality based on whether the vocabulary used is “rich” and “mature” or “sparse” and “immature”. This score is then included in an overall composite, rather than providing a separate index of written vocabulary. Likewise, the rubric used to assess writing in the WIAT-II (The Psychological Corporation, 2002), another commonly used research tool, includes vocabulary as part of an overall paragraph score. Written vocabulary is rated on a 0-3 scale that includes guidelines for the examiner such as “rich, expressive, and mature”, “specific”, “vivid expressions”, or “redundant and simplistic” which each address different components of written vocabulary. Global measures of vocabulary such as these are extremely limited in terms of assessing the quality of written vocabulary and do not provide researchers with different indications of vocabulary quality. For example, is the student making an effort to vary their vocabulary, or are their word choices advanced for their age? Is the child effectively employing many different descriptive, content, or

academic words? More detailed analysis of this specific aspect of writing is necessary to gauge how vocabulary is being used in writing, and thus to understand the connection between oral vocabulary and lexical quality in writing. Some indices of written vocabulary have been developed and used in research that examines the writing of English EL1 students as well as ESL adults, but these indices have so far not been used to examine the writing of children who are developing early writing skills while also learning English as a second language.

Diversity. One of the constructs measured in studies involving EL1 writers or ESL adults is diversity, which refers to the breadth or range of words used in a text. A greater range of words indicates a higher lexical diversity. Typically, lexical diversity is measured using a ratio of unique words (type) to total words (tokens) written. A serious critique of this method, like with all measures that employ type: token ratios (TTRs), is that the ratio is inevitably affected by text length (Wolfe-Quintero, Inagaki, & Hae-Young Kim, 1998). Recent attempts to address this concern include the Measure of Textual Lexical Diversity (MTLD; McCarthy & Jarvis, 2010). In this measure, a computer program evaluates whether each new word has already previously occurred in the text and calculates the ratio using total words to that point. When a specific pre-set ratio is reached, the program counts this as one factor and resets itself. In this way, the measure claims to virtually eliminate the effect of text length. Another limitation with using diversity as an index of lexical quality is that it only evaluates words used in the context of each individual piece of writing. A piece of writing could therefore obtain a similarly high score for lexical diversity with a wide range of simple or immature vocabulary as a composition containing more mature and well developed vocabulary

(Laufer & Nation, 1995). Thus, this measure tells us that a child is able to vary their word choice using the productive vocabulary that they have at their disposal, but the measure tells us nothing about the maturity (i.e., advanced or unusual words) of the words available to them. Therefore, to gain reliable information about the quality of vocabulary being used by children when they write, it is not sufficient to use this tool on its own, but rather as one of a collection of measures. Using a range of measures is indeed recommended, since each provides unique and valuable insight into the nature of the vocabulary of a text (McCarthy & Jarvis, 2010).

Maturity. Maturity is another construct that has been used to measure lexical quality in the writing of EL1 children or ESL adults. This term is often used to represent the sophistication of vocabulary in a text (Olinghouse & Wilson, 2012). Maturity is sometimes measured by obtaining a percentage of “advanced” or “sophisticated” words (Laufer & Nation, 1995). A problem with this method relates to the subjectivity of what constitutes a “sophisticated” word as well as the point of comparison (e.g., whether the vocabulary is mature when compared to the student’s class, grade, school etc.). For this construct to be measured in a meaningful way, it is necessary to use a standardized definition of “advanced” (Laufer & Nation, 1995). Olinghouse and Wilson (2012), for example, defined “maturity” as the percentage of words used by children that were not on the General Service List (GSL; West, 1953), a collection of the 2,000 most frequently used words in English. To calculate frequency, the researchers used the VocabProfile software program (Cobb, n.d.), which is a web-based adaptation of Heatley and Nation’s (1994) Range program. In this way, the construct was explicitly defined and measured using a standardized frame of reference. Therefore, this specific measure provides

researchers with results that are meaningful and can be used to generalize and compare performance across groups.

Content and academic vocabulary. Certain vocabulary constructs are particularly relevant to the writing that children produce in school settings. Content vocabulary, for example, refers to words that are related to specific domains within subjects (e.g., government, political science, geography, biology). Features of content vocabulary include technical and non-technical words, function words and phrases, unique representations (e.g., symbols or abbreviations), and common roots (Harmon, Wood, & Medina, 2009). In contrast to content vocabulary, academic vocabulary relates to words that are used by different academic disciplines (e.g., estimate, identify, consistent) (Coxhead, 2000). This distinction is also sometimes referred to as domain specific academic vocabulary versus general academic vocabulary (Baumann & Graves, 2010). In order to use content vocabulary as a research tool, it is necessary to ensure that children are writing on the same topic and have the same exposure to content needed to produce their writing. This construct is therefore problematic to use without also having control over participant instruction.

Summary. Vocabulary quality in writing has been conceptualized in a variety of ways in research, although they have so far not been used to assess vocabulary in the writing of ESL children. Some of the more common conceptualizations include diversity, maturity, content, and academic vocabulary. Researchers are continuing to work to develop and improve measures that reliably measure specific aspects of vocabulary in ways that can be generalized across different groups. These different measures each

provide information about different important aspects of how vocabulary is being utilized in text.

The Connection between Lexical Quality and Writing Quality

Based on the hypothesized important role of vocabulary to writing, as guided by well-developed monolingual models of writing, researchers have sought to determine the extent to which lexical quality predicts overall writing quality in different types of text. Olinghouse and Leaird (2009), for example, considered the relation between different written vocabulary constructs and narrative writing quality in elementary school aged children. One of their primary areas of focus was whether these vocabulary constructs explained unique and shared variance in overall written performance above and beyond the variance explained by compositional length and spelling, which have both been shown in research to contribute to overall writing quality. Grades 2 and 4 children wrote two different narrative compositions -- one was an experimental measure designed by the researchers, and the other using the Test of Written Language – 3 (TOWL-3; Hammill & Larsen, 1996). The quality of written vocabulary was assessed using measures of different vocabulary constructs including diversity and maturity. Diversity was assessed using a Corrected Type-Token Ratio (CTTR), which is corrected in order to reduce the effect of paragraph length. Maturity, or words that are less common and used less frequently in writing, was assessed by identifying words that were not listed on the Basic Spelling Vocabulary List (Graham, Harris, & Loynachan, 1993). Both maturity and diversity were significantly correlated with writing quality in both grades 2 and 4 across both writing measures. Commonality analysis, a method used to determine the relative importance of predictor variables in the case of multicollinearity (Kerlinger & Pedhazur,

1973), revealed that all vocabulary measures contributed unique and common variance in writing quality on the experimental and standardized narrative writing measure. Results also revealed that vocabulary diversity was the only measure for which scores were stable across the two different writing tasks, despite similarities in format (both had picture prompts) and genre (both were narrative tasks), indicating that student vocabulary use may vary depending on specific prompts.

Olinghouse and Wilson (2012) addressed similar questions with a group of grade 5 EL1 children using three different genres of writing: narrative, informative, and persuasive. For narrative (story) writing, a model including both maturity and diversity explained 9% of the variance in overall writing quality. However, diversity was the only unique predictor of the quality of narrative text, explaining 8.4% of the variance on its own. For informative text, content words and maturity together explained 31% of the variance, with maturity explaining 3.4% of the variance on its own. These results suggest that (a) the amount of variance that different measures of vocabulary contribute to overall writing depends on the genre of the writing, and (b) that measures of content vocabulary, diversity, and maturity are likely to provide valuable information when assessing lexical quality among elementary aged children.

Summary. Overall, research on the contribution of various indices of written vocabulary on overall writing quality among EL1 children indicates that the quality of vocabulary does predict overall writing quality among younger children; however, vocabulary use and the contribution of different indices of vocabulary may differ as a result of text genre and possibly writing prompts. Vocabulary diversity and maturity have been demonstrated to be consistent predictors of writing quality for elementary children

across different genres and tasks. However, to date no similar research has been conducted using ESL children. Therefore, we know very little about the vocabulary that ESL students are using in their writing.

Summary of Background Research and Overview of the Present Study

Research indicates that although ESL children demonstrate underdeveloped English oral language skills (including vocabulary) when compared to EL1 students, they are not at greater risk of experiencing challenges learning to read. Research also indicates that ESL children are also not behind in their writing skills (based on studies evaluating writing up to 5th grade) when compared to their EL1 peers. However, we do not yet understand the relation between aspects of English oral language proficiency and writing in ESL children. Vocabulary is an important aspect of oral language, and children who speak English as a second language consistently demonstrate lower oral vocabulary proficiency than EL1 children. It is likely that vocabulary has a more important role to play in text-level literacy skills (reading comprehension and writing) than in word-level skills (word reading and spelling); research suggests that a well-developed vocabulary is important to building strong reading comprehension skills, and vocabulary is an important component in models of the writing process. In order to work towards developing a comprehensive model of ESL writing development, it is necessary to better understand the connection between oral vocabulary and the lexical quality of the writing produced by children who speak English as a second language. Although research involving EL1 children has begun to consider this association by using different measures of written vocabulary, no research exists that measures the written vocabulary of ESL children in any meaningful way. A more detailed picture of different aspects of lexical

quality in the writing of ESL children, including the relations among measures of oral vocabulary and indices of written vocabulary quality will help to better understand this association. Knowing how ESL children draw on their oral vocabulary when writing will help researchers to better understand the cognitive and linguistic skills on which ESL students are drawing when writing, and whether the skills and processes involved mirror the writing process for English native speaking children. This information has important implications for classroom teachers, since the results may inform refinements in language and literacy instruction, particularly for ESL children. The proposed research study therefore seeks to (a) extend previous research by using measures of written vocabulary with ESL children in comparison to EL1, and (b) examine through the use of these measures whether there will be differences in written vocabulary that parallel the difference between ESL and EL1 in oral vocabulary.

Specifically, research will be guided by the following questions:

1. How do ESL and EL1 children's writing compare on different indices of lexical quality?
2. Is there an association between oral vocabulary knowledge and lexical quality in writing in EL1 and ESL children?

Method

The present study was part of a longitudinal project examining the writing development of EL1 and ESL children from five schools in the Abbotsford School District in British Columbia. The larger project ran from 2010-2013 and collected data from children in Grades 3, 4, and 5. Children completed a collection of cognitive, linguistic, and literacy measures in each year of the study. Analyses conducted as part of the current study concern a selection of measures relevant to the above research questions that were completed by 80 children in Grade 5 including measures of oral vocabulary, spelling, paragraph writing, as well as vocabulary diversity, vocabulary maturity, and academic vocabulary used in written text.

Participants

A total of 80 Grade 5 children from five schools in a multi-ethnic suburban community in British Columbia, Canada participated in this study. Of the 80 participants, 32 were EL1 and 48 were ESL. The EL1 group had 16 boys and 16 girls, and the ESL group had 24 boys and 24 girls. Mean age was 10 years and 9 months ($SD = 3.4$ months) for EL1 children and 10 years and 8 months ($SD = 3.4$ months) for ESL. There were no significant differences in age between language groups. Of the children who spoke ESL, the majority (93%) spoke Punjabi as a first language and had parents or grandparents who immigrated to Canada from India. Of the remaining ESL children, 2 spoke Korean as an L1 and 1 spoke Urdu as an L1. ESL children entered kindergarten speaking minimal or no English, and were designated as ESL students by the School District. ESL status was confirmed by teacher reports and from school files. Children in this study lived in predominantly middle class neighbourhoods with similar socio-economic status. The

median family income for the area in 2012 as reported by Statistics Canada (2014) was \$66,550.

According to the curriculum outlined by the BC Ministry of Education, writing instruction in grade 5 includes writing to communicate ideas and information, such as reports, articles, and letters, as well as literary writing, such as poems. However, most tasks continue to include personal writing that tells about events or experiences. Although instruction in Grade 5 now begins to place more emphasis on planning and organizing ideas, students in Grade 5 continue to use “knowledge telling” in their writing (Bereiter & Scardamalia, 1987; Berninger, 2000). Personal writing is most often not revised and edited and the intended audience is often the teacher or the author themselves. Students are expected to begin with a clear introduction and follow a logical sequence through to a conclusion. Writing that fully meets expectations is expected to demonstrate clarity and some variety in language (i.e., word usage or sentence structure).

Measures

Receptive vocabulary. Receptive vocabulary was assessed using The Peabody Picture Vocabulary Test – Fourth Edition (PPVT-4; Dunn & Dunn, 2007). The PPVT-4 is a commonly used measure of oral vocabulary in research that measures the breadth of a child’s receptive vocabulary. During administration, the child is shown a page with 4 coloured pictures and asked to point to the image that matches the word spoken by the examiner. Starting and stopping rules as described in the test manual were followed. Internal consistency estimates were (alpha) .96 for EL1 and .97 for ESL children. Raw scores were recorded, consistent with previous research e.g., Geva & Yaghoubzadeh, 2006; Jean & Geva, 2009) since no norms with ESL children are available. The measure

was scored by a team of graduate research assistants and each score was checked by a second rater.

Spelling. Spelling was assessed with the Spelling subtest in the Wide Range Achievement Test, Third Edition (WRAT-3; Wilkinson, 1993). This subtest requires children to spell increasingly more difficult words in isolation from dictation. Internal consistency estimates were (alpha) 0.85 for the EL1 group and 0.84 for the ESL group. Raw scores were recorded. The measure was scored by a team of graduate research assistants, and each score was checked by a second rater.

Overall writing quality. Children were asked to compose a paragraph using administration guidelines from the Paragraph Writing subtest of the WIAT-II (The Psychological Corporation, 2002) in response to a prompt that asked children to tell about the best summer vacation [they] ever had. Children were reminded that a paragraph “tells about one thing or idea, and includes lots of details and information for the reader about that idea” and given 10 minutes to write. Paragraphs were assessed across multiple dimensions (based on the WIAT-II analytic scoring criteria) including text spelling accuracy, text writing fluency, and content and structure, which examined sentence structure, linking expressions, whether ideas were on topic and supported by examples, and vocabulary. Together, these dimensions provided an overall index of writing quality. Three different graduate assistants (including the author) scored paragraphs according to the WIAT-II criteria. Each rater scored half the paragraphs, so that each paragraph was independently scored by two raters. Any discrepancies in scoring were then each discussed by all three raters and an agreement was reached on each decision. The scores used reflect the joint decisions.

Lexical quality. In order to gauge how EL1 and ESL children are using vocabulary in their writing, three different vocabulary indices were then applied to evaluate the writing samples. The measures have also been used with monolingual English-speakers of the same age in recent published research (e.g. Olinghouse & Leaird, 2009; Olinghouse & Wilson, 2012). Lexical quality was assessed using computer software in order to eliminate rater error.

Diversity. Vocabulary diversity was calculated using the Measure of Textual Lexical Diversity (MTLD; McCarthy & Jarvis, 2010), which is part of the Gramulator software program (McCarthy, Watanabi, & Lamkin, 2012). The MTLD has recently been used in a study involving Grade 5 EL1 children that assessed the lexical quality of written vocabulary in student writing using a range of measures (Olinghouse & Wilson, 2012). This measure calculates lexical diversity by sequentially determining whether each new word has occurred already in the text and calculating a ratio based on total words to that point. For example, the phrase “This house is the best house of all the houses on the street of houses” has a Text Token Ratio (TTR) of 0.6. When a pre-set ratio has been obtained (.720), the program counts this as a factor of 1 and then resets itself. To obtain the MTLD value, the total number of words in the text is divided by total number of factors, so that the lower the number of factors, the higher the MTLD scores. For example, if the text is 500 words and the factor count is 5.07, the MTLD value is 98.619. This is done twice: once while processing the text forward, and once backwards; the final MTLD value is the mean of these two values. A higher MTLD score indicates a greater amount of lexical diversity. Research on the efficacy of this measure suggests that its use is appropriate for texts as short as 100 words. Evaluations of the MTLD found high correlations ($r = .694$

to .848) with other widely accepted indices including voc-D, HD-D, K, and Maas (McCarthy & Jarvis, 2010). An assessment of internal validity found that MTLT was the only measure of lexical diversity that has no correlation with text length ($r = 0.016$, $p = .530$) (McCarthy & Jarvis, 2010). Olinghouse and Wilson (2012) reported 100% interrater agreement for this measure. In line with past research (Olinghouse & Wilson, 2012), raw scores were used in the analyses.

Maturity. Consistent with Olinghouse and Wilson (2012), vocabulary maturity was assessed by determining the percentage of words used by children that were not on the General Service List (GSL; West, 1953) using the VocabProfile software program (Cobb, n.d.), a web-based adaptation of Heatley and Nation's *Range* program (1994). Like with the MTLT, Olinghouse and Wilson (2012) reported 100% interrater agreement with this measure. Laufer and Nation (1995) evaluated the reliability of the VocabProfile program and found there were no significant differences between scores obtained on different compositions composed by the same children, and therefore concluded that it produces stable results across different pieces of writing.

Academic vocabulary. *VocabProfile* was also used to calculate the extent of academic vocabulary used by children. This was assessed by calculating the percentage of words that are included on the Academic Word List (AWL; Coxhead, 2000), which is included as part of the *VocabProfile* program (Cobb, n.d.). The AWL comprises 570 word families and approximately 3,000 total words that are frequently found in most types of academic text. This tool has been previously used to measure academic vocabulary in EL1 children of this age group (Olinghouse & Wilson, 2012).

Procedure

Data collection was conducted by trained graduate research assistants in Special Education (including the author) and the principal investigator of the longitudinal study, and took place in quiet rooms provided by each elementary school. Data collection occurred in March and April of 2013. All measures were counterbalanced in blocks (cognitive and language, reading, and writing) with a fixed order of tasks within blocks. Measures took approximately one hour to administer in each year of the study and standardized assessment procedures were followed. Consent forms were translated into Punjabi for the ESL children. Signed parental consent forms were collected for each child prior to testing, and children signed their own consent form at the start of the testing session, after the purpose of the study was verbally explained to them and they were given the opportunity to ask questions.

Results

Normal distribution of data was assessed using the following methods. First, data was graphed using histograms in order to visually examine the distribution of scores. Next, skewness levels were checked to ensure that values fell between -1 and +1, a generally accepted rule regarding normal levels of skew (e.g., Bulmer, 1979). Levels of kurtosis were also checked to ensure that they fell between 2 standard errors of kurtosis (Tabachnick & Fidell, 1996). Preliminary analyses revealed a normal distribution of scores for all measures, with the exception of academic vocabulary, which was significantly positively skewed ($s > 1$) for both EL1 and ESL children. The high number of “0” scores on Academic Vocabulary suggests that very few children used this type of vocabulary in their writing, with this measure producing floor effects. This finding is consistent with research conducted by Olinghouse and Wilson (2012) who also examined academic vocabulary in the writing of 5th graders. Academic vocabulary was therefore excluded from all subsequent analyses. No statistically significant differences were found on any of the measures based on age or gender. There was no missing data for any of the measures used in this study. Scores were analyzed for outliers using stem and leaf plots. Extreme scores were individually checked to identify whether they were errors or true scores. It was determined that all extreme scores were representative of students actual scores (i.e., not as a result of scoring error), and all scores were therefore included.

Descriptive results for all measures and performance differences between language groups across measures of written vocabulary are presented next, followed by the results of a correlational analysis run separately for EL1 and ESL children.

EL1 and ESL differences on measures

Differences in scores across measures between the two language groups were examined first. Means and standard deviations for each measure are presented in Table 1.

Table 1. Descriptive statistics on EL1 and ESL student performances on all measures (raw scores)

Measures	EL1 (n=32)		ESL (n=48)	
	Mean	SD	Mean	SD
PPVT-4	173.91	16.93	150.35	20.50
WRAT Spelling	34.66	4.46	32.69	4.26
WIAT-2	12.38	3.43	10.81	3.31
Writing				
Diversity ¹	54.31	15.27	52.38	15.79
Maturity ²	6.18	3.62	5.08	2.86

¹Measure of textual lexical diversity

²Percent of less frequent vocabulary

One way ANOVAs were performed to ascertain whether there were any significant differences on any of the measures between the two language groups. The assumptions for ANOVA including homogeneity of variance, underlying normal distribution, and independence of observations were met. As noted above, skewness and kurtosis were within acceptable range indicating that data met the assumption for normal distribution. Testing procedures ensured independence of observations. Homogeneity of variance was assessed using Levine's test, and differences in variances were not statistically significant. Bonferroni correction was used to correct for any type 1 error. The analyses revealed no statistically significant differences between language groups on either the diversity ($F_{1,78}=.267, p >.05$) or maturity ($F_{1,78}=2.332, p >.05$) of written vocabulary. Additionally, no significant differences were revealed between language

groups for spelling ($F_{1,78}=3.95, p >.05$) or overall writing ($F_{1,78}=4.15, p >.05$) scores. A significant difference was detected between EL1 and ESL students for scores on the PPVT-4 ($F_{1,78}=29.01, p <.01, d=1.25$).

Associations among Vocabulary Measures, Spelling, and Overall Writing Performance

The results of Pearson correlation analyses run separately for the EL1 and ESL groups are shown in Tables 2 and 3, respectively. A correlation analysis was performed for each language group to examine the relation between oral vocabulary, spelling, overall writing ability, as well as diversity, maturity, and academic vocabulary for both EL1 and ESL children. As described above, data was examined for outliers before each analysis was conducted. Additionally, scatterplots were used to visually examine each correlation. Scatterplots revealed that there was a linear relationship between each set of variables, and no unusual or extreme scores were identified that would affect the accuracy of the correlations.

Table 2. Correlation Analysis (EL1)

Measure	1	2	3	4	5
1. PPVT	-				
2. WRAT-3Spelling	.391*	-			
3. Overall Writing	.224	.543**	-		
4. Textual diversity	.284	.058	.083	-	
5. Textual maturity	.293	.413*	.372*	-.105	-

** $p < .01$. * $p < .05$ (two-tailed)

For the EL1 group, significant positive correlations were found between receptive

vocabulary and spelling ($r=.391, p < .01$); spelling and total writing performance ($r=.543, p < .01$), spelling and textual maturity ($r=.413, p < .05$), and textual maturity and total writing performance ($r=.372, p < .05$). For the ESL group, significant correlations were found between receptive vocabulary and spelling ($r=.475, p < .01$), spelling and total writing performance ($r=.540, p < .01$), spelling and textual diversity ($r=.384, p < .01$). Significant correlations were also found between receptive vocabulary and total writing performance ($r=.444, p < .05$), textual diversity and total writing performance ($r=.355, p < .05$), and receptive vocabulary and textual diversity ($r=.311, p < .05$).

Table 3. Correlation Analysis (ESL)

Measure	1	2	3	4	5
1. PPVT	-				
2. WRAT-3Spelling	.475**	-			
3. Overall Writing	.444**	.540**	-		
4. Textual diversity	.311*	.384**	.355*	-	
5. Textual maturity	.212	.254	.023	.255	-

** $p < .01$. * $p < .05$ (two-tailed)

To help interpret the above results, further analyses examined the receptive vocabulary of both the EL1 and the ESL group in greater detail by assessing the percentage of mature words used in the PPVT-4 word list and comparing these percentages using an independent *t*-test. The words associated with each participant's PPVT-4 (i.e., the words from the PPVT up to each student's cut-off score) were analyzed using the VocabProfile software to determine the percent of these words that were not on the General Service List (GSL; West, 1953), and were therefore considered "mature". This analysis revealed that 61.80% of PPVT-4 words correctly identified by the EL1 group are considered "mature", compared to 56.37% of PPVT-4 words correctly

identified by the ESL group. The *t*-test revealed that there was a significant difference between these two means ($t = 4.870$, $df = 78$, $p = 0.000$, $d=1.7$), which suggests that although there is not a significant difference in the amount of mature words that ESL children used in writing compared to EL1 children, that ESL children may have fewer mature words at their disposal compared to EL1 children.

Discussion

Summary of Results

The key research questions posed by this study were (1) how EL1 and ESL children's writing compares on different indices of lexical quality, and (2) whether there is an association between oral vocabulary knowledge and lexical quality in the writing of EL1 and ESL children. Results of this study indicate that, in contrast to the differences in their respective levels of oral receptive vocabulary, EL1 and ESL children are using vocabulary of roughly the same quality in their writing. However, results do suggest that there are different patterns of associations between different vocabulary measures based on language group (i.e., EL1 vs ESL).

EL1 and ESL Differences on Measures of Written Vocabulary

The first research question addressed how EL1 and ESL children's writing compares on different indices of lexical quality including diversity, maturity, and academic vocabulary. As previously noted, academic vocabulary was removed from all analyses given the floor effects revealed in the preliminary analyses. Analyses revealed no significant differences between EL1 and ESL children on measures of vocabulary diversity and maturity. The most likely explanation for this finding is that EL1 children are still developing as writers and are not yet making full use of their stores of vocabulary when composing. Theories of language development based on EL1 children outline how children develop oral language well in advance of written language (Berninger, 2000; MacWhinney, 2011), and early writers are typically limited in terms of content, vocabulary, and organization due to transcription demands (Flower & Hayes, 1981). Research on writing development among first language English-speaking writers also

indicates that the use of vocabulary in writing is a developmental skill, and that children show improvement on different measures of lexical quality in writing as they progress through elementary school grades (e.g., Olinghouse & Leaird, 2009). Cummins (1979) suggests that as children progress to older grades the demands of language increase, requiring children who speak English as a Second Language to develop more than a surface fluency. It is likely in these older grades when the writing that children are required to produce becomes more complex, that children must begin to make more full use of their oral language skills, including a more full range of their oral vocabularies.

The lack of any significant difference in either the diversity or the maturity of written vocabulary between EL1 and ESL children helps to explain the research finding that, despite achieving significantly lower oral vocabulary scores than their EL1 classmates, ESL children are not in fact underperforming in writing quality (Ball, 2003; Harrison, Goegan, Heayn, Jalbert, Sinclair, & Spurling, 2013; Harrison, Goegan, McManus, & Spurling, 2014). As such, it is plausible that, if ESL children continue to lag behind in oral language as they move into older grades and are required to produce larger and more complex written texts, a significant difference may emerge in the lexical quality of the writing produced by the two language groups. However, further research is required to explore this possibility further.

Relations among Vocabulary Measures, Spelling, and Overall Writing

The second research question addressed whether there is an association between oral vocabulary knowledge and lexical quality in the writing of EL1 and ESL children. Correlation analyses revealed no associations between oral receptive vocabulary and

either type of written vocabulary, either maturity or diversity, for EL1 children. However, with ESL children, there was an association found between oral receptive vocabulary and diversity of written vocabulary. Therefore, if an ESL student scored higher on the PPVT-4, they are likely to likewise use more diverse vocabulary in their writing (and vice versa). The fact that the PPVT-4, a common measure in research, does not always correlate with measures of written vocabulary is also useful information for anyone studying the role of second language proficiency on the development of literacy skills for ESL children by supporting the idea that there are different vocabulary constructs, and a score on the PPVT-4 does not provide information about how a child uses vocabulary in written text.

Additionally, no associations were found between diversity and maturity for either language groups. This is an important finding that contributes to research on second language literacy by providing more information about the use of tools used to assess vocabulary in ESL children, and provides important information to researchers studying writing development. As discussed earlier, most standardized measures of writing assess vocabulary use across a range of indicators including both diversity and maturity, without giving specific instructions about which to weight more heavily, or how to deal with conflicts among indicators. Therefore, if a researcher is interested in learning about written vocabulary, more specific tools are needed.

Different patterns of association were found based on language status (i.e., EL1 or ESL) between oral vocabulary and overall writing; although there was an association found between oral vocabulary and overall writing ability for the ESL group, there was no association for EL1 children. As discussed earlier, models of writing explain how

writers draw from their long-term memories to access content and vocabulary when writing, and there is a well-supported theoretical basis to connect vocabulary and writing (Berninger & Amtmann, 2003; Berninger, 2000, Flower & Hayes, 1981), so it would be likely to expect to find some sort of association between the two scores. Although these findings are puzzling since a study of EL1 and ESL children in Grade 3 (Harrison, Goegan, Heayn, Jalbert, Sinclair, & Spurling, 2013) found that vocabulary was associated with overall writing for EL1 and not ESL children, what the combined findings from both these studies do suggest is that the association between oral language and writing may be different for EL1 and ESL children, and this relationship may change over time based perhaps on the changing language demands of writing from grade to grade.

When examining the correlations between written vocabulary and overall writing, results likewise suggest a different pattern of association. Research by Olinghouse and Wilson (2012) demonstrates an association between the measures of diversity and maturity used in this study and the quality of paragraphs of similar genres composed by grade 5 EL1 children. Therefore, it was expected that there would be an association between overall writing and at least one of the measures of written vocabulary in this study. This finding supports the idea that the quality of vocabulary being used does indeed, as we would expect, relate to the overall quality of the writing being produced. However, for children who speak English as a second language, this association appears to be different with maturity being correlated to overall writing for EL1 children and diversity being correlated with overall writing for ESL children. Again, this makes sense in light of analyses performed comparing the maturity of words identified on the PPVT by EL1 and ESL children that suggest that ESL children have less mature words on

which they can draw. These results suggest that ESL children who do deliberately vary the words that they used, as they were likely taught to do, achieved high writing scores regardless of maturity. Since there were no differences in overall writing performances for either language group, it is likely that many ESL children did in fact vary their word choice when composing their paragraphs. However, since specific details pertaining to specific writing instruction that each student received is unknown, other than through informal discussions with students and teachers, this interpretation is still only speculative at this point.

Lastly, results of the correlation analyses indicate that spelling may be a relational factor between oral vocabulary and writing in different ways for EL1 and ESL children. Unsurprisingly, spelling was found to be correlated with both oral vocabulary and overall writing for both EL1 and ESL children. These findings support the well-established association in research between oral language and spelling skills (Berninger, 2009; Berninger & Amtmann, 2003; Ehri, 1987; Ehri & Rosenthal, 2007), as well as the well-documented contribution of spelling to overall writing ability (Berninger & Amtmann, 2003; Hayes & Flower, 1981). However, the two groups differed on the type of vocabulary (ESL: diversity; EL1: maturity) associated with their spelling skills as well as overall writing performance. Although results of this study indicate that Grade 5 children do not display any significant differences on the diversity or the maturity of the words used in their writing, additional analyses revealed that EL1 children are able to correctly identify a larger number of mature words. This apparent difference in the type of oral vocabulary is likely playing a role in affecting the interactions between oral vocabulary, spelling, and overall writing ability between EL1 and ESL students.

Implications of Findings

Theoretical implications. Results of this study confirmed some of the key roles of different sub-skills and processes that interact during composing as outlined by models of writing. For example, they confirm that spelling is linked to overall writing quality for both EL1 and ESL children, a key aspect of Berninger's functional writing system. Likewise, these results support the theory that a strong vocabulary aids in the development of strong spelling skills (Berninger, 2009). However, even though no significant differences were found between the language groups on the quality of vocabulary used in their writing, the different association patterns do suggest that there is a difference in how the two groups are using vocabulary in their writing. These findings have implications for how we theoretically conceptualize the way that writers make use of different skills during the writing process.

Research implications. The finding that there were no significant differences between language groups on lexical quality possibly helps explain findings that ESL children are performing at par with EL1 peers despite consistently low levels of proficiency in oral language (Ball, 2003; Harrison, Goegan, Heayn, Jalbert, Sinclair, & Spurling, 2013; Harrison, Goegan, McManus, & Spurling, 2014). Additionally, in light of these findings, research examining language and literacy skills of ESL children would benefit from considering the quality of written vocabulary to gain a more detailed picture of their language abilities, rather than simply relying on receptive vocabulary. Lastly, the fact that there was no association between the maturity and diversity of written vocabulary for either language group is an important finding, since it illustrates that these are unique aspects of writing. As previously discussed, measures of writing ask

examiners to evaluate children on both aspects of written vocabulary simultaneously, with no direction on how to weight one versus the other. This is likely something important to consider when conducting writing research with ESL populations.

Applied implications. The ultimate goal of any research on literacy development should surely be to support the quality of reading and writing instruction delivered to children. Results of this study suggest that, when assessing the language proficiency of ESL children, it would be helpful for schools or psychologists to also measure their written vocabulary, since lower proficiency in oral vocabulary does not necessarily equate to lower proficiency in written language. Likewise, when assessing the writing abilities of ESL children, teachers can consider assessing writing vocabulary for both maturity and diversity, rather than relying on a global measure. Lastly, results suggest that it is likely beneficial to teach ESL children to deliberately vary their use of words when writing even if they have limited vocabulary, since this can help them effectively communicate via writing.

General Limitations of Study

As with any research study, these findings are limited to the age and grade-level of the participants. Writing is a complicated skill that is learned over many years, and there is great variability from school year to school year in terms of both instruction and expectations. Therefore, it would be necessary to conduct similar research with a range of age groups – specifically older children – in order to be able to generalize these findings. Additionally, it would have been helpful to have more detailed information about the writing instruction that participants received prior to taking part in this study. Were they told to use exciting words in their writing? Were they taught to vary their vocabulary?

This information would provide information that would help in the interpretation of the results outlined above. Lastly, this study involved participants who reside in a middle class neighborhood, which could certainly, and likely did, affect the results. The socio-economic status of the participants likely impacted the extent to which school work was supported at home, which impacts the development of our young writers.

Future Directions

Further research is necessary with older children for two reasons. Firstly, it is possibly that a difference might emerge between the two language groups once EL1 children become more confident writers and begin to use a wider range of their oral vocabulary banks. Research indicates that ESL children continue to demonstrate lower levels of language proficiency despite years of instruction in English (Geva, Yaghoub-Zadeh, & Schuster, 2000; Jean & Geva, 2009; Limbos & Geva, 2001; Wade-Wooley, & Siegel, 1997). As EL1 children get older, it is likely that we will see them begin to use a greater number of mature words; it would therefore be interesting to see if we would find the same with ESL children despite lower levels of language proficiency, or whether these same patterns would continue into later years.

Secondly, research involving older children would mean larger writing samples, which would provide more detailed information about their use of vocabulary, specifically academic. A measure of academic vocabulary was included as part of the current study. However, in line with similar research (Olinghouse & Wilson, 2012), scores were not used as part of the analyses due to floor effects with the measure. Further research with older students would allow for the inclusion of this measure in analyses and

would provide valuable information, especially since academic vocabulary is more likely to be developed in academic settings instead of at home.

Likewise, the inclusion of a measure of content vocabulary in future research would answer similar questions pertaining to whether there were any differences between EL1 and ESL children relating to academic versus conversational language. It was decided to not examine content vocabulary in this study since it would have been necessary to control for the instruction that children received in order to ensure that they both had the same background content knowledge. This was not possible in this case. However, this would be a valuable addition to future research.

Conclusion

The current study produced two main findings. First, that there are no significant differences in the quality of vocabulary that Grade 5 EL1 and ESL children are using in their writing. Secondly, that there are different patterns of associations between EL1 and ESL children in relation to spelling, vocabulary, and writing skills, suggesting that the two language groups are using language in different ways when writing. The aim of these two research questions was to help elucidate the assumed importance of oral language in the development of writing skills among ESL learners. Although further research is required to fully address this important question, these findings provide valuable information that has implications for theory, research, and practice relating to the writing development of ESL children.

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