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When Learners Read in Two Languages: Understanding Chinese-English Bilingual Readers Through Miscue Analysis

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Article abstract

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Abstract

The number of Chinese-speaking students in Canadian schools is increasing dramatically. This article discusses a study in which we explored reading processes in Chinese and English through examining children's reading in both languages. Based in a socio-psycholinguistic framework (K. Goodman, Wang, Iventosch, & Y. Goodman,2012; Kabuto, 2017) and through using miscue analysis, we examined how children apply their knowledge of language to Mandarin and English reading. This qualitative research included interviews with four Chinese-English bilingual children between grades 3 and 5 in an urban center as well as the analysis of their reading performance in both languages. From a comparative perspective, we discuss some of the similarities and differences between these two different orthographic language systems by offering syntactic comparisons of the two languages through psycholinguistic language cueing systems. We believe that knowing about how Chinese and English readers construct meaning in both languages will help English as an Additional Language (EAL) teachers, in fact all classroom teachers, to teach reading to bilingual and biliterate children.

Key Words: bilingual reading, miscue analysis, socio-psycholinguistic perspective, and multiple linguistic repertoires

Introduction

This paper examines data from a qualitative research study that explored the reading experiences of four Chinese bilingual children. This discussion of our results draws upon a general understanding of the Mandarin non-alphabetic writing system as well as the nature of reading in both English and Mandarin to help teachers to contextualize the

reading experiences of their Chinese bilingual readers. Using the work of K. Goodman, Wang, Iventosch, and Y. Goodman (2012) we additionally consider how reading works in these two different language systems and how having a comparative perspective can guide teachers' Chinese-English bilingual reading instruction. Sociocultural (Vygotsky, 1978) and sociopsycholinguistic (K. Goodman, 1994) theories influenced our data collection and analysis as we used interviewing and miscue analysis in both Mandarin and English as our data sources. This paper provides insights gleaned from this study as ways for teachers to understand and improve their pedagogy in bilingual classrooms to support the reading of Chinese-English readers. These insights also contribute to the scholarly work in the areas of bilingualism and biliteracy in Mandarin and English.

Context and Purpose

According to the 2016 Canadian census, Mandarin has become the largest, non-official language mother tongue in Canada, with Cantonese being the second largest (Statistics Canada, 2017). The Government of Canada recorded 610,835 Mandarin speakers and 594,030 Cantonese speakers. The number of immigrant Chinese mother tongue speakers grew substantially since the previous 2011 census where there were 255,160 Mandarin and 388,935 Cantonese speakers recorded. The growth in numbers of Chinese-speaking families and children in Canada impacts literacy teaching in schools. It is important, therefore, that teachers have some understanding of the languages and literacies that Chinese-speaking children bring to the classroom to support overall reading development. Our work is centered on our belief that reading is a multifaceted process of gaining meaning by using, not only graphophonic, but also syntactic, semantic, and pragmatic systems. As reading is a psycholinguistic process with universal features reflected in both the reading of Chinese and English, this research specifically aimed to understand the knowledge Chinese-English bilingual readers bring to their reading experiences by exploring their use of the language cueing systems.

Understanding Mandarin Logograms

Through his extensive work understanding language as a semiotic system, Halliday (1985) identified that text structure, in addition to the words themselves, holds or represents some of the meaning in a language. As a logographic system of language, Mandarin uses characters, not letters, as the writing system, and according to Yueh-Nu Hung (2012), Halliday's understanding that structure holds meaning is also relevant to understanding logographic languages. In Chinese language systems, the structure of the characters plays a large role in meaning making through reading.

Chinese languages have a long history of using a system of characters in their orthography. In contrast to how we often view alphabetic writing orthographic systems such as English, Chinese characters represent meaning directly. They are not based on a sound-to-letter correspondence that assumes that to read, one needs to connect the sounds (phonology) of the language to the letters (orthography). It is important to note that although Chinese has numerous spoken dialects/languages, it is possible for the speakers

of these dialects/languages to understand each other's writing without pronouncing the words orally.

A Chinese character is a unit of writing and usually represents a morpheme, which is a minimal meaningful unit. Each character has an internal structure that provide useful information to the reader even when the character is unfamiliar. A character includes one or several components and carries details for both meaning and pronunciation. One component, called a radical, is a graphical component of a Chinese character. A radical normally holds the main meaning that readers can use to predict what the whole word means. In Figure 1, there are two examples of how meaningful radicals are used in characters to help identify the meaning of other characters. In the first example, the commonly used radical *"木"* has something to do with wood and is found in other characters for tree, forest, and root. The second example illustrates how the radical *火(fire)* works as a semantic indicator to the listed three characters' (roast, stew, and burn) meanings. *"火"* means fire, so that any word that contains "火" means something about fire.

木wood: 树 tree, 林 forest, 根 root
火fire: 烤 roast, 炖 stew, 燃 burn
Figure 1: Radicals in Characters

In addition to radicals, "Chinese characters may also contain an element often referred to as 'phonetic'. These elements provide clues to how the word should sound for the purposes of oral reading. According to Goodman et al. (2012), the phonetic component acts "more like a rebus—suggesting that this word sounds like another word it represents as a character or character component" (Goodman et al., 2012, p. 8). For example, 马（horse）in Figure 2 has a phonetic component in the other three characters that gives clues to the characters' pronunciation.

马 ma3：妈ma1，码ma3，骂ma4
　　horse　　mother　　code　　　curse
Figure 2: Horse Character

This phonetic component, however, does not mean that Chinese languages have a phonological sound system like English as there are no Chinese phonemes and the phonetic component may not even represent the same sounds across different characters. Yueh-Nu Hung (2012) suggested that people who believe that we learn to read through phonics can have difficulty understanding how Chinese readers get to the meaning without sound-letter connections.

When reading logographic languages, such as Mandarin, gaining meaning directly from symbols is comparable to how the language of mathematics works. In the Arabic numerical system, for example, $1 + 4 = 5$ can be read directly from the numeral without a direct relationship to sound (Goodman, 2012, p. 6). This mathematical reading process is

similar to reading Mandarin characters and is a central concept in understanding what Mandarin readers do when they read and take in information from the characters.

The concept of a word is also a significant difference between English and Mandarin languages. In Mandarin, a word is a combination of characters and sometimes just a single character. Mandarin characters are equally spaced, and, thus, spaces hold no significance for the reader. A word can be several characters in a row, but each character is spaced the same from each other regardless of whether they are part of a word. In English, words are made through the combination of letters and punctuation strung together within a joined set bound by spaces on either side.

When trying to understand the bilingual assets of children who come from other orthographic systems and then to subsequently support their reading in classrooms, teachers can benefit from knowing some of the key differences of reading in the two language systems.

Theoretical and Methodological Frameworks

Our theoretical framework includes socio-psycholinguistic and cultural theories of learning (Halliday, 1978; Vygotsky, 1978) and that literacy practices are embedded in social, cultural, and historical contexts (Barton & Hamilton, 1998; Heath, 1983; Street, 2001). Our work and understandings draw from theories of reading as a language process and the notion that readers transfer what they know about how symbolic systems represent the world in written text to the reading of any text (Goodman 1994, 1996; Halliday, 1974, 1985; Hung, 2012; Kabuto, 2017, Lee, 2012). This belief is key in explaining how successes and challenges with reading in either Chinese or English can help in developing both languages.

Miscue analysis, a concept that has influenced our methodological and analytical frameworks, is based on a sociocultural and social-lexical grammatical understanding of how reading works. It is a culturally relevant way to observe and understand how readers construct meaning by using graphophonic, syntactic, and semantic cues and then to plan strategies for strengthening readers' simultaneous use of all language-cueing systems (Kabuto, 2017). Goodman and Goodman (1965, 1994,1996, 2012) have analysed and documented children's miscues for 50 years in a range of languages and dialects. They suggested that during reading, a miscue occurs when the reader produces an unexpected response rather than what is found directly in the text in front of them. The term *miscue* comes from Goodman's (1996) extensive study of reading and has since been used worldwide as both an understanding of how reading occurs but also as a practice for assessing reading behaviours. Based on his research experiences, Goodman stated:

> My young readers weren't just sounding out or recognizing letters and words. They were making sense, and to do so, they were combining language cues from the printed story with what they knew about how language works. I quickly came to the conclusion that the children were using the same cues in the unexpected responses as in the expected responses. That suggested to me that an appropriate term for the mismatches between what the reader did (observed responses) and what I expected (expected responses) might be "miscues" (p. 5).

In our research we drew heavily from the theoretical ideas of Goodman (1996) regarding how we considered reading as meaning making or meaning potential. In our methodology and in how we carried out our miscue recording, coding, and analysis, we used the miscue analysis procedures of Owocki and Goodman (2002) in their text titled *Kidwatching*. All readers make miscues in their attempts to make meaning from text. Goodman, Watson, and Burke (2005) wrote, "A major assumption of miscue research is that everything that happens during a reading is caused by what the reader knows about language and the world" (p. 20), and thus, we used the participants' miscues to learn more about how they used their overall knowledge of reading when reading one language or the other.

Research Design and Methodology

We conducted this exploratory case-study with four elementary students who were learning both English and Mandarin in four different urban Canadian school settings. We selected these children because of their varied bilingual histories to explore their common strengths and to understand what they draw upon as they move between languages. We wanted to ascertain the kinds of literacy practices and reading strategies that these children employ. We did some preliminary research with a bilingual boy who has lived in China and Canada (Blair, Fu, Lin, Wang, 2015) and was in a well-known Chinese bilingual program in Canada (Sun, 2015). The data collection process involved a written survey of the child's literacy practices completed by the parents, a face-to-face interview with the child participant, and a minimum of two reading experiences where the child read books aloud in both Mandarin and English. Interviews and surveys were conducted in the language preferred by the participants and their parents. We, as researchers, have varying language repertoires and drew on these throughout the study. Two researchers were Mandarin-English bilingual speakers, and two researchers were English only speakers. We matched researchers to participants based on the preferred language of the participants to improve communication and to ensure that they understood the purpose and process of the study.

The written survey completed by parents involved short answer response questions about their child's reading history and preferences. We were able to learn about some of the reading practices of the child and parent through the responses, particularly in response to questions about when and where the child reads and with whom the child primarily reads. It was also helpful to learn about the families' access to texts in both languages and whether the child had access to reading on devices. If the survey was written in Mandarin, we translated it into English for data analysis.

Each child participant was interviewed once by two researchers with at least one Chinese-speaking researcher. The location of the interview was either at the participant's home or at public library depending on the parents' preferences. The interview included questions about their reading practices and reading interests in both languages, such as what they liked to read, where they found reading material, when they read, and with whom they read. The questions helped us to gain a sense of the child's literacy practices and preferences as well as how they made choices in reading material and modes of reading. The interviews were given in the child's preferred language and were audio recorded and later transcribed and translated if required.

In addition to the interview, the participant was also asked to read at least two texts—one written in Chinese and one in English. The texts were selected by the researchers and were based on information gleaned from the parent survey, the interview, and informal discussions with the participants before the reading events. We selected texts based on perceived reading interests but also texts that would offer enough challenge to provoke use of reading strategies or miscues but not so challenging that the readers became frustrated. We tried to find similar texts to what they child was currently reading but wanted the book to be one they had not previously read. In the cases when students read more than one text it was because the text was either too difficult (frustration was expressed by the child explicitly or through body language, and there were multiple miscues) or too easy (as determined by very few to no miscues) or because the child stated they were uninterested in it. In these cases, the participants were given another text to read.

Although we selected texts for reading, the participants were provided with a choice from the texts brought by the researcher and researchers did bring a variety. All the texts in both languages were fiction but were various formats such as picture books, early chapter books, and novels. The participants were asked to read a chapter or a part of the book for 15 minutes for each language text. Each participant read a unique set of texts as the books were selected based on the child's reading needs and interests in both languages.

Following the reading of the stories, we used unaided retelling, that is, we simply asked the participants to tell us about what they read in an open-ended way to assist us in our understanding of their comprehension. The reading events were audio-recorded, and the researchers engaged in note taking when appropriate to document any relevant contextual information like child comfort or distractions.

After the reading, we recorded the miscues using the text from each of the books, the audio recording, and then transcribed the retelling. Miscues included omissions, insertions, substitutions, pauses, repetitions, attempts, and self-corrections. We included miscues for both words and punctuation. We then analysed and charted the miscues according to the type of miscue made, either semantic, syntactic, or graphophonemic and then determined if they were a high-level miscue (a miscue that retained the meaning of the text) or a low-level miscue (a miscue in which the meaning of the text was lost). We charted the miscues for the entire 15-minute reading period for each book. We were then able to examine the charts to determine any patterns in how the child drew upon graphophonemic, syntactic, and semantic cueing systems and whether the child was reading for meaning. The initial coding of miscue analysis was carried out by more than one of the researchers and members checked for final coding. The miscues and text were left in text, were left in their original language, and were not translated as a lot of the Mandarin text did not have a clear word for word translation and how the child miscued may have been lost. Part of how we interpreted the Mandarin miscues, especially graphophonemic miscues, needed to be understood through examining the character on the page and what was said during reading.

Throughout the coding and analysis process, we met regularly to discuss our coding, to talk through challenges with coding, and to ensure that we all held the same understanding of miscue analysis. We used Owocki and Goodman's (2002) Kidwatching text to support and confirm our knowledge. Miscue analysis is a tool that helped us to

understand what the participants were doing when they read and the strategies from which they drew when they encountered a challenge when reading. Miscue analysis essentially gave us a glimpse into the minds of the readers and allowed us to see some of the knowledge they held of reading and reading strategies. These children, like all readers, made miscues when they read. The text was in front of them, and they read it the best that they could, sometimes replacing, omitting, or inserting words and punctuation to make sense of the text. Like all readers, they were more successful at times than others.

The categorization of the children's miscues as high or low level allowed us to determine if the students were reading for meaning. A high level miscue suggests that the reader is reading for meaning as they maintained as much meaning as possible even with a miscue. An example of a high level miscue might be substituting a word with one that has a similar meaning (mom/mother) or omitting unnecessary words. Low level miscues result in a loss of meaning and often do not make sense, are not grammatically correct, or are an invented word. In our discussion of each participant, we describe the amount of high versus low level miscues and how that expressed whether the participant was reading to understand in each language.

Using both the unaided retell and recorded miscues, we analyzed the miscues to determine a percentage of word identification accuracy and to get a sense of their comprehension. Drawing from Wilde's (2000) work with miscue analysis and retelling, we charted the retell to determine comprehension we looked to the retelling to establish if students remembered the characters and any character development, the storyline, the underlying plot, and if they were able to make any inferences beyond what was stated in the text.

Using all the data (the survey, interview, miscue analysis, and unaided retelling), we created a reading profile of each child. We used the profiles to understand each participant's overall reading in each language but also cross-referenced the profiles across languages and children to see if any patterns emerged based on dominant language history and use.

Findings

The Bilingual Repertoires of the Participants

The following section includes descriptions of each of the four children in the study. Each description below also details what we learned about their reading in both languages. We discuss each child's sociocultural context and history as these contexts, alongside the particular miscues that we noted among and across our participants' reading, enlightened our understanding of bilingual readers.

Liam

Liam was eight years old; his first language was English, although he had been learning Mandarin as a second language since birth. He was born in China. Since his birth, his parents, who are both assistant professors of English at a university in China, have spoken English to him to support his bilingual development. His grandparents, who lived with them, spoke Chinese to him all the time. In China, Liam was comfortable in his bilingual environment and could converse in either language. After the family moved to

Canada one year later, Liam began to find it difficult to speak in Chinese to his grandparents over the phone or to their Chinese friends face to face so Liam's parents switched to speaking Chinese to him at home to balance the input in the two languages. At the time of this research, he was in grade three in a Canadian Chinese-English bilingual program. In Liam's home we saw a number of English reading materials, including books, magazines, and flyers, as well as table games; however, we did not see many Chinese reading materials. From the interview we knew that he read Chinese books in bed before he sleeps; these books are mainly from the community and school libraries, although sometimes his grandparents brought Chinese books from China.

Mickie

Mickie was a 10-year-old girl who came to Canada knowing no English as her only and dominant language was Mandarin. She attended grade two in an English public school for one year. The family then returned to China, and Mickie began to learn English as a subject in a Chinese public elementary school. She returned again to Canada two years later and attended grade five in an English public school, where she was the only Chinese student in her classroom.

Mickie had daily reading time with her mother at home after school and read both Chinese and English books, but her mother highly encouraged her to read more English books to improve her English reading. In terms of her Chinese reading, she was able to read children's chapter books without *pinyin* (phonetics). She liked mysteries and thriller-fiction books with adventure themes or about witches. Her English reading was not as strong as her Chinese reading. Mickie's favourite childhood English book was the *Big Book of the Berenstain Bears*. When reading English, she preferred books with many pictures and few words. She read mostly on her own and kept a record of all that she read, a practice she learned at school. If she became stuck when she read independently, she would ask her mother for assistance. Mickie found books at the local public and school libraries, and her parents have also brought Chinese books from China for her to read. At home the dominant language is Mandarin.

Duncan

At the time of the interview Duncan was nine years old and was a grade four student in an English program in a public elementary school. His dominant language was Mandarin. He came to Canada in the fall after he finished his grade one study in China. He spoke no English when he arrived. He lived in Canada with his mother because his father was still working in China. Both parents are Mandarin-Chinese speaking, which is their home and dominant language. Duncan read Chinese without referring to *pinyin* and read other children's chapter books in Chinese. Duncan's class had a few other students from China, but they still mainly used English to communicate at school. In his spare time at home, Duncan would read more English than Chinese when given a choice in reading material. In addition to what he chose, he was also required to read daily in Chinese at the request of his mother.

Min

At the time of the study, Min was 10 years old and in grade four in a Chinese-English bilingual school program. She was born and raised in Canada by her parents. Her father identified as Hongkongese, and her mother identified as Caucasian. Min's dominant language was English, but her father and grandparents had given her a great deal of exposure to both written and spoken Cantonese and Mandarin in their home. She also lived with her older brother and younger sister, who similarly attended a Chinese-English bilingual program at school. Min stated that she liked to read books at home and at school and sometimes even in the car while the family was driving. Min typically read during recess at school and before she went to sleep. She liked to read by herself, with friends, and sometimes with her mother. Her mother shopped at bookstores or visited the library to give Min both Chinese and English books to read, although Min also found books herself at the school library and read books on her iPad. She enjoyed fiction because it includes events that "could happen but not actually happen" and graphic novels because "people talk in them, and they have a great deal of description" (Min, from interview data).

School Contexts

Both Liam and Min attended Chinese-English bilingual programs that focused equally on the two languages (Sun, 2017). At the elementary level, 50% of the instruction is in Mandarin, and the other 50% is in English. The Chinese bilingual program included the same curriculum that any other publicly funded schools in the province used. At least two teachers instruct each class. A native speaker of Chinese who is also proficient in English usually instructed the Chinese portion of the school day, and English speakers, who often have little or no knowledge of Chinese, instruct the English portion of the school day. The subjects in Mandarin include Chinese language arts, mathematics, health, and physical education; the subjects in English are English language arts, science, social studies, art, and music.

Duncan and Mickie did not learn any Chinese or Mandarin language at school as they both attended English speaking public elementary schools. They learned French as a second language from grades four to six at school as part of their Canadian curriculum instruction.

Miscue Analysis Discussion

The following discussion uses the analysis of the participants' miscues both individually and collectively to illustrate patterns that emerged in their reading in terms of fluency, word identification, and comprehension. Each participant's bilingual repertoire further impacted our understanding of the reading strengths each participant brought to their reading. We identified connections between the structures of each language and their influence on miscues made by each reader. The child's dominant language as well as their experience reading texts in each language impacted the miscues they made across the language cueing systems.

Finding 1: The Children were Reading for Meaning in their Dominant Language (High-/Low Level Miscues)

The miscues and use of reading strategies, such as self-correction and repetition supported our finding that the children were reading for meaning in their dominant language but struggled more with comprehension and understanding in their second language.

When she read in Mandarin, Min read slowly word by word very carefully and did not omit any words. She did not self-correct even if she was not unsure of her pronunciation. Thus, most of her miscues were low level (68%), and she generally did not retain the meaning. Because Mandarin is not her dominant language, she struggled to gain the full meaning from Mandarin text; but when she read in English, Min read for meaning as 70% of her miscues in English reading were at a high level. Her retelling confirmed that she was able to understand and retain more of the text when she had less low level miscues and when she read in her dominant language.

During Mickie's Chinese reading, the further she read in the story, the fewer miscues she made; the text taught her to read, as Margaret Meek (1988) would say. That is, 84% of her miscues when reading in Chinese were at a high level, and she retained the meaning. Our analysis of Mickie's miscues when reading in English revealed that she was not gaining the full meaning from the texts, because 76% of her miscues were at a low level. This suggests that she lost or changed the meaning of the sentence or context of the book. Recalling what she read during the unaided retell was very difficult for Mickie. She was only able to recall some of the English words she knew but was not even sure how they fit into the story. She was also unsure of the characters' names as they were English names. They confused her as she saw them as unfamiliar words and did not recognize them as names. It was clear that she did not understand what she read in English and was not reading for meaning.

During Liam's English reading we wondered whether he understood one of the main concepts behind the story as a miscue produced a confused facial expression and a long pause. For example, the book he read contained numerous references to cheese, quiche, and provolone; he might not have connected the Western notion that mice are attracted to cheese. He miscued on the word *quiche*, said *quick*, and moved on. Although he read *provolone* fluently at the end of the story, we doubted whether he was familiar with this specific kind of cheese.

From his retelling, we learned that Liam knew that Geronimo, the main character, was a mouse because of illustrations and the numerous references to it, for example, through the use of the word rodent, which he knew. During his unaided retelling he asked the researchers what a chisel is as he miscued on this word throughout the story by replacing *chisel* with an invented word that sounded similar. Liam's retell showed understanding that Geronimo was writing, but he did not understand the notion of chiseling in stone until we explained that what a chisel was. In response to the explanation, he said he knew what it was but did not know the word for it prior to this book. His retelling also revealed that he remembered many details about the story such as characters, plot, and theme but had some challenges with a few vocabulary words, like chisel. It also revealed

that he was aware of how this lack of knowledge was impacting his comprehension and felt comfortable asking about the word to help clarify what he was reading.

The analysis of Duncan's reading also revealed that he was reading for meaning in his dominant language, Mandarin, but he struggled to understand what he was reading in English. When reading in English, our analysis showed that 75% of his miscues were at a low level. Duncan engaged in some self-corrections or attempts at self-correction. His self-corrections involved substituting and attempting words, even invented ones, that were graphically similar but often chose words that still did not make sense in the text. He was testing words he knew when he came to an unfamiliar word but was unsuccessful in his attempts. His focus appeared to be on proper pronunciation of the words over reading for meaning.

During his reading in Mandarin, 82% of his miscues in Chinese were at a high level, which suggests that he was reading for meaning. His miscues involved omitting or inserting words that did not impact syntax or meaning. To be able to add words that fit into current text, or to take out words that are not needed, strongly shows that the reader understands the text as a whole. His unaided retelling confirmed that understood the characters, plot, and theme and he was able to make some inferences beyond what was stated directly in the text.

Finding 2: The Children's Additions and Omissions were Significant to Understanding their Knowledge of Reading

Two prominent miscues that we noted with all of the participants were omissions and insertions. When coding miscues, circling skipped parts indicates omission miscues and can include skipping a word, a group of words, a sentence, a paragraph, a page, or punctuation. Insertions, which are indicated by a caret and the inclusion of what was inserted, can also include one or more words or punctuation marks. Both omissions and insertions have the potential to impact the retention of meaning and are coded as high or low level miscues.

Examples of our participants' omissions and insertions can be found in all the children's reading samples and in both Mandarin and English. In both languages Mickie inserted words to make the text syntactically correct or more interesting. For example, the Mandarin text read, "It just hit the shoulder of the person, and he was shocked by this"; whereas Mickie read, "It just hit the shoulder of the person, and as a result he was shocked by this." She inserted *as a result* because she understood that the shock was the result of the action. Her oral text was a high-level miscue because it did not hinder the meaning and, in fact, improved the text. She also inserted 辆 which is a similar word to car. This is an example of a high-level miscue that is a result of her Chinese reading knowledge as adding this one word does not change the meaning but, in fact, makes the sentence more complete and fits very well within the context of the story.

Mickie persistently omitted words, although more so when she read in English than in Mandarin. Mickie's English omissions, which often occurred in clusters of more than one word, resulted in a loss of meaning at both the sentence level and storyline level. At one point, Mickie omitted an entire line but did not notice. Mickie also omitted whole

words such as *to* and *in*. For example, in the title of chapter 1 she read "Off the Show" instead of "Off to the Show." We believe that the meaning was lost because of the omission of the word *to*, because it significantly changes the meaning of the title and could have impacted her overall comprehension of the chapter if she began reading it and thinking that the title is indeed "Off the Show." She also occasionally omitted the periods from sentences, which produced a text that did not make sense. Her omissions in from the English text impacted her ability to retell the story as they dramatically impacted the meaning of the text that she actually read. In contrast, when she read in Mandarin, Mickie omitted small words, but they did not significantly alter the meaning. For example, she read, "So you don't want to go to report it to the police? (你们不想去报告警察了?)" yet her omission of "go to (去])" did not affect the meaning and still produced a grammatically correct sentence. When Mickie was reading for meaning in Mandarin, her omissions were high level and showed understanding. When Mickie was not reading for meaning in English and more focused on saying the words, she lost focus on comprehension and, thus, was not even aware when what she read did not make sense or sound grammatically correct. When readers omit large parts of text, or do not notice or self-correct low level omissions, it suggests that they do not understand what they are reading, even if they are saying most to all of the words correctly.

On several occasions of English reading, Liam omitted the first word of the sentence. For example, he omitted *As* from "As I walked down the street" and although he did not lose the overall meaning of the story, the omission impacted the following clause "the rodents of Old Mouse City greeted me with smiles and waves" and he read it as a separate complete sentence. The omission of *As* resulted in the insertion of a period following *street*. These miscues and corrections show that Liam was using his grammatical knowledge to make what he was reading sound grammatically correct following an omission miscue. Liam also omitted *A* from "A tornado whirled into my office" (p. 5). These words were both at the beginning of the sentences and at the top of the page but did not change the meaning of the story but impacted the syntax. Further into his reading, Liam inserted a word that was not in the text. The grandmother said to Geronimo, "Now you come with me," and Liam read, "Now you must come with me". This adds emphasis and occurs several pages after the grandmother is described as having a bossy voice, which Liam misread although may have understood the concept. By inserting the demonstrative *must*, he constructed her speech as he imagined her to be. This is a high level insertion miscue because Liam was constructing his own interpretation of how Grandma talked to Geronimo. Liam's high level miscues did not prevent him from making sense of the text, in these cases, and he did not repeat or reread but used what he knew about language to continue to and adjust the text so that it made sense and sounded grammatically correct.

Like Liam, Min also omitted or inserted words that made sense in her attempt to make meaning from the English text. She also inserted words to make the text sound more interesting. For example, she added *very*: "She awakened feeling *very* cross," which fit with the storyline and was an appropriate insertion. She read clearly and enunciated well and appeared to use her semantic and syntactical knowledge to fluidly insert or omit words

as she read. Fluency is connected to comprehension as a fluent reader demonstrates that they understand the text when they can enunciate and add expression appropriately.

Duncan, when reading English sometimes omitted or inserted words because of his knowledge of reading Mandarin. For example, he omitted many short words, such as auxiliary words and suffixes, that do not exist in written Chinese texts. Many of those omissions impacted the meaning and syntax of the sentence, especially when the suffixes were indicators of tense.

An interesting pattern emerged in our examination of all four readers' omissions and insertions in both languages. When reading in English, the children who read more proficiently in English (Min and Liam) inserted words to make the text more interesting; however, the readers who were more proficient in Mandarin (Mickie and Duncan) did not. The opposite was also evident when reading Mandarin as Mickie and Duncan inserted appropriate words when they read. This suggests that the children's ability to enhance the text through appropriate insertions was related to their proficiency in the language in which they read. There were less to minimal insertions in the non-dominant reading as there was less focus on comprehension and more focus on saying the words on the page. Insertions can be an indicator of how well readers are constructing meaning.

An additional significant area related to insertions and omissions was how the children used affixes, tense, and plurality. In English, we use affixes to express meaning. For example, we use suffixes such as *s* or *es* to distinguish between singular and plural. English also uses affixes to indicate tense, such as the prefixes *pre* or *post* and the suffix *ed*. Occasionally, English words are changed slightly, or are a new word altogether, to indicate tense as in the examples, *write* to *wrote* or *think* to *thought*. Chinese languages, however, do not use affixes as English does. In Mandarin, a whole new character is added to a sentence as a marker to indicate verb tense. It was, therefore, no surprise that the children who were more proficient readers in Mandarin omitted many affixes when they read in English. English readers learn that affixes hold meaning and are important parts of words, but because the idea of affixes does not exist in Chinese, Chinese-proficient readers do not attend as closely to them. For example, many of Mickie's miscues resulted from her omission of letters when she read in English. Specifically, Mickie missed 32 endings of words, most of which were suffixes such as *ed*, *s*, *es*, or *s'*. She occasionally missed prefixes such as *re*. Because these affixes hold meaning, we believe that Mickie's omissions affected her comprehension.

Generally, we noted that the participants proficient in Mandarin omitted affixes when they read in English, whereas those proficient in English did not. Because affixes do not exist in Chinese writing, it was not a relevant pattern in their Chinese reading and were therefore not considered important to their English reading.

Finding 3: The Participants Substituted Words but Relied on Different Cueing Systems for Different Languages

Substitutions are the replacement of a word or punctuation with something unexpected. They are indicated in miscue coding by writing the substituted item over the expected response. Substitutions can be either high or low level as some impact meaning and some do not. Additionally, readers make some substitutions because of subsequent

miscues and are readers' attempts to maintain or construct meaning of what they are reading. All the readers in our study made substitutions, but the cueing system that they used to substitute varied.

In both languages, Liam made substitutions when he made predictions as he read. For example, he made the same substitution miscue twice with the same character in Chinese reading: "替换的袜子" "replaced socks", whereas he said, "替换和袜子" "replaced and socks" and once when he read "替换的裙子" "replaced skirt" to "替换和裙子" "replaced and skirt". These may seem like insertion miscues when examining the English translation but he in fact substituted one character for another as he read. The two substitutions are low level miscues because they affected the sentence and overall meaning and did not make sense within the context. Perhaps because *de* is similar to *he* in their character representation, Liam did not realize the miscue the first time and continued to read it wrong the second time. He was not reading for meaning in Mandarin and as he was focused on drawing from the graphophonic cues in the characters and did not notice the loss of meaning. Liam's English substitutions suggested that he was scanning ahead as he read and then predicting or guessing what might fit into the sentence or context. He read for meaning in English and made more high level substitution miscues because he was relying more on the context as he scanned the text and better understood the overall storyline.

Min made syntactic substitutions that fit with common English phrasing or were more aligned with the English that she speaks. The English text that she read was written in a style with which she was likely not familiar because the book was originally published in 1911. An example of a substitution is that she read "hurried *away*" instead of "hurried *about*". Min drew heavily on the semantic and syntactic cueing systems to read and make meaning based on her current use and knowledge of English.

Mickie, in contrast, relied heavily on the graphophonemic language-cueing system to make multiple substitutions when she read in English. These substitutions had similar-looking or -sounding letters or even similar phonograms (e.g., *could* for *would*). She also substituted whole, real words that did not fit into the sentence but looked similar (e.g., *designed* for *designer*, *occasion* for *accessories*, and *thought* for *though*). She also made some miscues in her Chinese reading. For example, she replaced "情愿" "would rather" with "宁愿" "would rather". They have similar meanings but sound different when read aloud; however, the substitution did not change the meaning of the sentence.

Like all readers, the children occasionally substituted a word with a nonsense word. Nonsense words can be graphically similar (or not) to the expected response, but they do not exist in a particular language or are not found in a dictionary. It is important to note that awareness of the reader's dialect can determine whether a word is actually a nonsense word miscue or a result of a culturally connected dialect. In Newfoundland, for instance, you might hear the word *biver* used for *to shiver*, and if you do not know that this word is part of a regional dialect you might consider it a low-level miscue as a nonsense word when indeed it is a high level miscue drawing on regional language variation. Regardless, in this study the participants substituted many nonsense words for both English and Mandarin

words that often resulted from sounding them out in English or their lack of knowledge of the radicals in Chinese characters.

When Min read in Mandarin, she produced nonsense words by relying on the graphophonemic cueing system; for example, she read "几只" "several" as "儿" [nonsense]. In both languages, Mickie drew heavily on the graphophonemic system although she retained more meaning in Mandarin than in English. When she read in Mandarin, she still occasionally lost the meaning because she used only the parts of the character that indicate pronunciation. For example, she replaced "拘谨" "cautious" with a nonsense word, "狗谨" [nonsense]. In spite of her drawing from only a portion of the character during the sessions that we recorded, we noted that it likely did not affect her understanding of the meaning overall.

Most of the nonsense words that Mickie produced in English reading, however, resulted from her sounding-out strategy, but she either used the wrong sound (short/long, hard/soft) or missed individual sounds. For example, she pronounced *human* with a short u sound or used a hard g sound and said *gil* for *gel*.

Occasionally, Liam would also produce nonsense words. For example, partway into the story the text read "a very bossy voice," but Liam read "a very boosy voice". He used his knowledge of the graphophonemic cueing system to say *boosy*, which looks like and has a similar sound to the written text. He used his invented word as an adjective and kept the syntax in order, but it was not clear to us whether he understood the connotation of a bossy person.

Finding 4: The Readers Repeated as they Read

Repetitions in miscue analysis can provide a great deal of information about the reader and their reading strategies. Repetitions can occur in four general ways: (a) by repeating a word or phrase with no miscue, (b) by repeating a word or phrase and successfully self-correcting a miscue, (c) by repeating a word or phrase without self-correcting a miscue, and (d) by repeating a word or phrase with or without a miscue and miscuing on the repetition. Repetitions can include one or more attempts, with each attempt recorded separately. Repetitions are recorded by underlining the portion that was repeated and then indicating what happened on each attempt by numbering the attempts. It is often difficult to know why a reader repeats a word or phrase without asking them directly.

In Liam's Mandarin reading, he often repeated himself, even when he read correctly the first time. He was likely trying to make connections between what he was reading and the text ahead. He read with relative speed and fluency but made several repetitions that sometimes disrupted his fluency. Liam's most frequent repetitions occurred when he encountered an unfamiliar word in Mandarin. After repeating it several times with long pauses in between the repetitions, he often arrived at the expected response. He seemed to know the meaning of challenging words even when he did not know some of the single characters; for example, "往 出 租 车" "towards the taxi". The whole sentence is "爸爸一边往出租车上装十二只大包一边说" (translation in English: "Dad was talking while he was loading twelve luggages towards taxi"). This was a very typical miscue in Chinese

for Liam. The right way to separate individual words are "往" ("towards"), "出租车" (taxi). However, he read "wǎng chū 往出" the first time and then seemed to realize that it did not make sense, so he began to separate the two words by saying "chū 出." Then he realized that "chū 出" requires other characters to have meaning and spelled "chū 出" with the following characters: "chū zū 出租". He corrected himself several times, trying to get the right word. Because the characters are equally spaced, Liam found it difficult to distinguish individual words. He tried several times until he found the right word or a word that made sense to him. When he read in Mandarin, he read the character first if it was simple or the characters were familiar; however, he also found it difficult to read new characters, and when he encountered complex words, he appeared to draw on the *pinyin* (alphabetic writing) system for clues. He read the *pinyin* correctly but still did not know the meaning of the words and was simply sounding them out.

Repetition was also noted when Min read in Mandarin as she had difficulty distinguishing the individual words in the Chinese text. She used several repetitions to try to separate words within long sentences. For example, when reading "一个大野狼" "one big wild wolf", she repeated "一个" "one" twice, then repeated "野" "wild" twice and then stopped repeating until she was able to sound it out in her mind "野狼" "wild wolf". Like Liam, an English dominant reader, Min made miscues in order to made sense of the text, she repeated unfamiliar characters and words until the text became meaningful for her.

Finding 5: Retelling is Important in Understanding Reader Strengths

Retelling is a key component of miscue analysis because it helps to understand the meaning that readers construct and the impact of miscues on comprehension. Owocki and Goodman (2002) called retelling *holistic remembering* in that we do not simply memorize the text as we read; rather, we are in the process of constructing meaning, and thus we remember the text as we retell it by drawing on how we have connected to the ideas. They suggest the "holistic remembering provides evidence that children are developing awareness of the integrated quality of text—of its cohesiveness and its connectedness from beginning to middle to end" (p. 43). It also helps to make readers' cueing systems more prominent and identify those who might need to learn new reading strategies to better support them. Retelling also shows the existing strengths of bilingual readers that they do or can transfer from one language to another. Retelling in this study was unaided and was generally prompted by the question, "tell me about what you just read".

When Liam retold the Chinese story, he remembered that Weiqun Mother forgot her sunscreen, but he could not remember the word in Chinese. He knew the concept and identified its use, but because he did not know the Chinese term, he used the alternative words *sun protection* to express the same idea. He understood the concept and created a synonym. Like any reader at this age, he also used the illustrations to grasp ideas; one example is in the retelling, which he began by saying that Geronimo "was starting to work at a rodent's Gazette, and he was drinking a mammoth milkshake". Liam paused and said, "I don't really know what a mammoth is. It's not real, right?" He looked at the researcher for an answer before he proceeded with his retelling. He had read this term used as an adjective correctly twice in the story, in the phrase "I took a mammoth milkshake" but his

question in the retelling indicated that he did not understand what it meant. He then said, "It's milkshake in a coconut with half of it chopped off... It's the colour of a mammoth's fur. The straw was green." Earlier he had conceptualized half a coconut with a drinking straw, and he was predicting and moving along, as any good reader would. The discussion stemming from his unaided retell a misunderstanding we would not otherwise have known about.

Mickie's retelling of the story confirmed that although on the surface she appeared to read with 84.4% word-identification accuracy, she knew very little about what she was reading. She is an example of a reader who could read and pronounce the words but did not comprehend them. The retelling revealed that Mickie lacked the background knowledge to fully comprehend the overall context of the story and very specific vocabulary related to fashion shows, which was an important aspect of the book she read. She might also not have had a Western view of what fashion is. For example, in the chapter *catwalk* appeared three times; however, Mickie was unfamiliar with this term, which impacted her understanding of the events that the term connoted in the text and of the images in the illustrations. When we discussed the word catwalk after it appeared twice in the text, she seemed to understand its meaning and how the picture related to the words, but she mispronounced the word each time that she read it (as "catwick") and never did correct it. As a reader she had assigned the meaning and used a common reading strategy "just keep on reading".

Summary

Metalinguistic Awareness

Though Chinese and English literacy involve two different kinds of orthographic systems (logographic and alphabetic), children who are literate in Chinese do bring reading strengths, skills, and strategies when they learn to read in English. Our research provided further evidence to support Koh, Chen, Cummins, and Li's (2017) hypothesis that "in learning a language, learners develop metalinguistic insights that can be applied to other languages, allowing for cross-linguistic transfer to occur" (p. 345). The most effective and widely noted strength that all the Mandarin-literate children in our study exhibited was prediction. Children who have already attained Chinese literacy are used to making predictions because the character writing system requires a great deal of prediction. The cueing systems they drew from as they predicted was connected to their language dominance which was consistent across both languages. They relied more heavily on graphophonemic cues when they were less proficient but used all three language cueing systems when more proficient. Understanding prediction as an important aspect of effective word identification and comprehension which benefit Mandarin readers as they learn English. Further to the predictions they use when reading Mandarin, such as contextual clues, identifying words, and syntactic structure, they will need to learn that spacing matters in English and holds meaning. In the conclusion, we will discuss several aspects of the use of prediction, including, contextual clues, vocabulary, and syntactic structure.

Using the context to identify characters and words is a significant part of reading in Mandarin. The Chinese students in the study knew a great deal about how to use context

when they read in Mandarin. The high level insertions and substitutions they made demonstrated that they knew how to use the context of both the character and the story to be able to make predictions as they read. When reading in English, students also construct meaning by drawing on this knowledge and using the contextual clues.

It can be useful for teachers to help children whose dominant language is Mandarin, or another Chinese language, to see the connections between how context is used to identify words in Mandarin, through gaining meaning from the radicals, and between English through using both the overall context and the meaning of individual words. Certain radicals indicate certain things. The rules are similar when Chinese children learn English vocabulary given the right explanation of the similarities. Although Mandarin does not have them, English words have prefixes, suffixes, and roots; however, they can be explained in a similar way to how radicals work together to complete meaning in Mandarin characters. For example, English prefixes such as *un/uni* as in *untie* and *unilateral* and *anti* as in *antiwar* and *antibiotic* work with the root words to express meaning like the radical 木 *wood* found in the word 树 *tree*. One major difference to note is that most affixes cannot stand alone as free morphemes, meaningful words, whereas most Chinese radicals can and do exist as separate words. From these characteristics of Chinese characters and vocabulary, children apply the learning strategies to English vocabulary learning.

Another similar rule to learn vocabulary is to understand how words combining words happens in each language. Compound words, which are two words used together to create a new word, exist in both English and Mandarin, for instance in the words, 莓: berry, found in 草莓: strawberry and 蓝莓: blueberry. It is important to note that some single words in Mandarin are made by multiple characters as opposed to individual English words which have their own distinct meaning and lose meaning when divided further. Moreover, since Chinese words (which can contain multiple characters, each taking up the same sized square space) are not spaced as English words are (with one word is identified as a string of letters with a space on either side) as discussed previously, identifying a word is more challenging in Mandarin than in English. When Mandarin readers learn English, they need to know how the spaces signify a single word. We noted that the readers who were Mandarin dominant did not struggle to identify individual word units in English, but the English dominant readers did struggle to identify the word units in Mandarin. This understanding, that words in English are bound by spaces on either side, can make learning to identify individual words in English simpler than identifying individual words in Mandarin and can help Chinese readers to better grasp strategies for English reading.

The most important feature in sentence structure is word order. Most languages in the world contain one of the following word orders: subject-verb-object (SVO), subject-object-verb (SOV), or verb-subject-object (VSO). Chinese and English share a SVO grammar system, which means that they both follow similar word order patterns, making it easier to understand syntax across the two languages. Although it might seem unusual, Mandarin and English belong to the same linguistic family, the Indo-European language family, and because of their similar basic syntax structure, teachers who teach children whose dominant language is Chinese might find that the children use a great deal of

prediction to determine the main idea. Often our self-monitoring of the syntactical cueing system is whether something sounds right, that is, sounds like native English or native Chinese. The students in our study who exhibited a number of high level miscues or successful self-corrections relied heavily on their syntactic cueing system to read. Bringing awareness that both Mandarin and English have similarities in word order to students will help them to continue to monitor when what they are reading does not sound like standard language. Because of the similar basic syntax structure, English teachers will likely find that their Chinese students are able to predict the main idea of a sentence because they use what they know about Chinese syntax.

There are other grammatical features of both Mandarin and English that can support how teachers can understand the miscues of their bilingual readers and find strategies to further their reading development. For example, punctuation, and how it is used in both languages, has some similarities and differences. Historically, Chinese languages did not contain the punctuation symbols commonly used in English but over time the comma, exclamation mark, question mark, parentheses, and quotation marks have been adopted into Mandarin and other Chinese languages texts. They function the same but may look different, for example, the full stop, or period, looks like a filled into dot in English but is a small circle in Mandarin. Despite the differences in how they look, the functions are similar and can be taught in similar ways to help students understand grammar.

When Chinese students read and write in English, they grasp the fundamental syntactic structure because it is the same in Chinese (Chuang et al., 2011). Although the participants in our study might not have understood every single word in English, they were able to predict the meaning based on their understanding of the grammatical structure and use of punctuation in the text they were reading. Highlighting the similarities in word order and punctuation can be helpful in teaching English sentence structure to Mandarin readers.

Implications and Conclusions

The intent of this study was to offer some insights into Chinese-English bilingual reading by presenting a qualitative research-based description of what some young bilingual readers do as they read in two languages. This study has reinforced for researchers and teachers that meaning is central to reading in all languages and that readers acquire meaning by using a wide array of strategies. Meaning is the essence of reading, and, as we saw with these children, it does not require accurate recognition of all individual words. The universal features of the reading process (Goodman, 1996) that Xu (2012) identified in the reading of other bilingual readers were evident in our study as well.

We suggest there is a need to value children's multilingual repertoires and to recognize children's literacies and how they are using them across languages. Conclusions of this study for teachers who teach Chinese children in Canadian classrooms include: (a) meaning is the essence of reading in both English and Chinese; (b) meaning does not require accurate recognition of individual words but there are important differences in how words are visually represented that can impact word identification; (c) teachers can draw on the strengths of their students to teach reading, such as their use context clues and knowledge of syntax; (d) to support bilingual readers, teachers must be aware of what

students know about reading and language from their Chinese literacy; and (e) as a psycholinguistic process, reading has universal features (Goodman, 1996) that are reflected in the reading of Chinese (Xu, 2012).

Teachers can think about classroom pedagogy through reflecting on students' linguistic knowledge and language experiences. These conclusions bring forth some specific recommendations for teachers. First, teachers should support multiliteracies in their classrooms and value children's literacy in Chinese. They should ask the students about how each language works and draw from what they know. Teachers should ensure that their classrooms contain varied texts from the children's languages. We also suggest that when teachers ask the children to write, they can be given the choice to write ideas first in their preferential language. They should also encourage them to read and write dual-language (bilingual) texts and ask them to take materials home to their parents, write bilingually, and bring the materials back to the classroom. Additionally, teachers can encourage families to continue to read in both languages at home and in the community and to share some of those texts with the other students at school. The more teachers can encourage and support developing and understanding both Chinese and English languages, the stronger the literacy experiences will be for bilingual children.

References

Blair, H., Fu H., Lin, X., & Wang, N. (2015). Ideas for the teaching of reading to Chinese students in the English language arts classroom, Alberta voices. *Journal of English Language Arts Council of Alberta*, *12*(1), 16-22.

Barton, D., & Hamilton, M. (1998). *Local literacies: Reading and writing in one community.* Routledge.

Cummins, J. (1979). Linguistic interdependence and the educational development of bilingual children. *Review of Educational Research, 49*(2), 222-251. https://www.jstor.org/stable/1169960?seq=1#page_scan_tab_contents

Goodman, K. (1965) A linguistic study of cues and miscues in reading. *Elementary English,* 42, 639-643.

Goodman, K. (1994). Reading, writing, and written texts: A transactional sociopsycholinguistic view. In R. Ruddell (Ed.), *Theoretical models and processes of reading* (pp. 1093-1130). International Reading Association.

Goodman, K. (1996). *On reading.* Heinemann.

Goodman, K. (2012). The process of reading in non-alphabetic languages: An introduction. In K. Goodman, S. Wang, M. Iventosch, & Y. Goodman (Eds.), *Reading in Asian languages: Making sense of written texts in Chinese Japanese and Korean* (pp. 3-15). Routledge.

Goodman, K., Wang, S., Iventosch, M., & Goodman, Y. (2012). *Reading in Asian languages: Making sense of written texts in Chinese Japanese and Korean.* Routledge.

Goodman, Y., Watson, W., & Burke, C. (2005). *Reading miscue inventory: From evaluation to instruction.* Richard C Owen.

Halliday, M. A. K. (1974). Language and social man. In S. Lushington (Ed.), *School council programme in linguistics and English: Teaching papers, Series II.* Longman Group.

Halliday, M. A. K. (1978). *Language as social semiotic: The social interpretation of language and meaning.* Edward Arnold. https://doi.org/10.1017/S004740450000782X

Halliday, M. A. K. (1985). *An introduction to functional grammar.* E. Arnold.

Heath, S. B. (1983). *Ways with words: Language, life, and work in communities and classrooms.* Cambridge University Press.

Hung, Y.-N. (2012). How a morphosyllabic writing system works in Chinese. In K. Goodman, S. Wang, M. Iventosch, & Y. Goodman (Eds.), *Reading in Asian languages: Making sense of written texts in Chinese Japanese and Korean* (pp. 16-31). Routledge.

Koh, P., Chen, X., Cummins, J. & Li, J. (2017). Literacy outcomes of a Chinese/English bilingual program in Ontario. *The Canadian Modern Language Review, 73*(3), 343-367. http://www.utpjournals.press/doi/abs/10.3138/cmlr.3665

Kabuto, B. (2017). A socio-psycholinguistic perspective on biliteracy: The use of miscue analysis as a culturally relevant assessment tool. *Reading Horizons, 56* (1). https://scholarworks.wmich.edu/reading_horizons/vol56/iss1/2

Lee, J. J. (2012). Understanding and facilitating literacy development among young Chinese-speaking children. In K. Goodman, S. Wang, M. Iventosch, & Y. Goodman (Eds.), *Reading in Asian languages: Making sense of written texts in Chinese Japanese and Korean* (pp. 193-210). Routledge.

Owocki, G., & Goodman, Y. (2002). *Kidwatching: Documenting children's literacy development.* Heinemann.

Smagorinsky, P. (2007). Vygotsky and the social dynamics of classrooms. *English Journal, 97*(2), 61-66.

Statistics Canada. (2017). Linguistic diversity and multilingualism in Canadian homes. https://www12.statcan.gc.ca/census-recensement/2016/as-sa/98-200-x/2016010/98-200-x2016010-eng.cfm

Street, B. V. (Ed.). (2001). *Literacy and development: Ethnographic perspectives.* Routledge.

Sun, M. (2016). Peer collaboration in an English/Chinese bilingual program in Western Canada. *The Canadian Modern Language Review*. 72(4), 423-453.

Vygotsky, L. S. (1978). *Mind in society: The development of higher mental processes* (M. Cole, V. John-Steiner, S. Scribner, & E. Souberman, Eds. & Trans.). Cambridge, MA: Harvard University Press. (Original work published 1930-1935)

Wilde, S. (2000) Miscue analysis made easy: Building on student strengths. Heienemann.

Xu, J. (2012). Making sense in reading Chinese: An error-detection study. In K. Goodman, S. Wang, M. Iventosch, & Y. Goodman (Eds.), *Reading in Asian languages: Making sense of written texts in Chinese, Japanese, and Korean* (pp. 117-126). Routledge.

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