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## **Influence of Sequential and Simultaneous Bilingualism on Second Grade Dual Language Students' Use of Syntax in Reading**

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Second Grade Dual Language Students' Use of Syntax in Reading**

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**ABSTRACT**

This study integrated monolingual and bilingual reading theories to examine the reading behaviors of second grade Latinx students in a Dual Language program. It explored how the students' differing language backgrounds (simultaneous bilinguals and sequential bilinguals who had developed Spanish as a home language) might influence their early reading behaviors. Data sources include Spanish and English informal reading inventories and student interviews. While all students struggled with the syntax of grade-level text in Spanish and English, simultaneous bilinguals' greater ability to use syntax to self-correct in both languages was evidence of a stronger syntactical base. The findings have significant implications for equity of instruction and assessment, including the need to find new ways to analyze bilingual students' informal reading inventories from an assets-oriented lens, prudence with regard to how informal reading inventory results are used, the need for intensive language development in schools, and the use of caution when applying translanguaging theory to emergent bilingual readers.

Key words: biliteracy, reading assessment, informal reading inventories, translanguaging, Dual Language

**Influence of Sequential and Simultaneous Bilingualism  
on Second Grade Dual Language Students' Use of Syntax in Reading**

While Dual Language (DL) programs have emerged as highly effective for Emergent Bilinguals' (EBs') academic success in both Spanish and English (Collier & Thomas, 2017; Genesee & Fortune, 2014; Lindholm-Leary, 2001; Lindholm-Leary & Hernández, 2011; Steele et al., 2015; Thomas & Collier, 2002; Umansky & Reardon, 2014), the particular reasons behind that success are yet unknown (Valentino & Reardon, 2015). Also unknown is how a bilingual child's home language(s) influence their early biliteracy acquisition in a DL program. While a number of studies have shown that language production is strongly related to reading comprehension (Duke, Cartwright, & Hilden, 2013; Oakhill & Cain, 2012; Silverman, Proctor, Harring, Hartranft, Doyle, & Zelinke, 2015), the complex relationship between language and reading is not well understood (Holliman et al., 2014), especially in young bilingual students (Reyes, 2012).

EBs have a diverse range of bilingual and biliteracy skills (Hornberger & Link, 2012) that influence literacy development. Students in Dual Language (DL) programs may be new to learning English or Spanish, and at home they may speak both languages, neither language, additional languages, or varying dialects or registers. Since language is the foundation for literacy (Clay, 1991), the emergent reading practices and instructional needs of EBs may differ widely based on their linguistic background. Yet, in DL programs, students from varying language backgrounds are intentionally mixed, provided the same reading instruction, and expected to have the same literacy outcomes. This can result in the dominant group's needs being met over the needs of Latinx students (Cervantes-Soon et al., 2017; Wiese, 2004). With few exceptions (e.g., Escamilla et al., 2013; Hopewell, 2013; Hopewell & Escamilla, 2014), schools continue to inadvertently ignore students' linguistic diversity by using monolingual

perspectives of instruction and assessment, and consequently, they may be unintentionally failing bilingual student groups (Caragarajah, 2013; Hopewell & Butvilofsky, 2016; Lyster & Tedick, 2014). To address the research gap regarding how linguistic diversity in DL classrooms influences biliteracy acquisition, this exploratory study asked, *How do second grade simultaneous bilinguals (SimBs) and sequential bilinguals (SeqBs) in DL programs use their linguistic resources to process text in both Spanish and English?* The goal is to further emergent biliteracy theory to ultimately create more equitable instruction and assessment practices that value the wide range of EB students.

This study examined the reading behaviors of two groups of second grade Latinx students in a DL program – SimBs and SeqBs who developed Spanish as a home language – to explore how their differing language backgrounds may influence their early reading behaviors and instructional needs. SimBs acquire two languages from birth and often come from diglossic communities, whereas SeqBs develop a primary language at home then learn a second language at school (Baker, 2006). While some students in DL may be multilingual, the term bilingual is used throughout this paper as all students in DL programs will be at least emerging bilinguals.

### **Bilingual and Monolingual Theories of Reading Development: An Integrated Lens**

Various researchers (e.g., Chan & Sylva, 2015; García & Godina, 2017; Hopewell & Escamilla, 2014) have documented the need for a bilingual reading theory that better addresses the complexities of biliteracy. As such, this study employs more theories than usual in order to integrate MacSwan's (2017) multilingual perspective on translanguaging (MacSwan, 2017) with Kintsch's (1998) Construction-Integration theory and Clay's (1991, 2001; Doyle, 2013) complex theory of reading to further develop biliteracy theory. A complex theory of reading identifies cognitive and perceptual working systems that strengthen as students read continuous texts. When learning to read, children create meaning by actively applying their linguistic resources (syntax, vocabulary, phonology, morphology, and pragmatics) to text

(Clay, 1991). With two languages as a foundation, bilingual students' linguistic knowledge will differ from monolingual students, so their paths to literacy acquisition may differ.

Bilingual readers' use of syntax is of particular interest to this study, and Kintsch's (1998) Construction-Integration theory explains that readers use syntax and semantics to identify propositions, or syntactical chunks, in text and combine them to create meaning based on the text and readers' prior knowledge. When propositions are not appropriately combined, text coherence, and as a result, comprehension, can be reduced or lost. Kintsch (1998) explained that text coherence is reliant on correctly combining propositions using inference or explicit clues such as transition words. Thus, if a reader struggles with the syntax of a sentence, comprehension may suffer. While Clay's and Kintsch's work have primarily been applied to English reading, their theoretical understandings can also illustrate Spanish-English biliterate reading practices, as there are linguistic, phonological, morphological, and alphabetic similarities between the two languages (Ascenzi-Moreno, 2018, 2016; Author, 2016).

Translanguaging (García & Wei, 2014) is a dynamic, transformative practice that enables language users to employ their full range of bilingual linguistic resources during literacy practices. Rather than viewing languages as single, closed semiotic and linguistic systems, "Bilingual speakers select meaning-making features and freely combine them to potentialize meaning-making," following existing syntactical rules (García & Wei, 2014, p. 42). As such, young EB readers bring knowledge of multiple linguistic and semiotic systems to bear on print as they process text. A continuum of translanguaging theory exists: In a strict interpretation of translanguaging students would not be categorized by language background, as the theory posits that each individual has a reservoir of language knowledge from which to draw rather than a first or second language. However, MacSwan's (2017) multilingual perspective on translanguaging acknowledges the existence of discrete languages and refers to Chomsky's (1980) distinction between the sociopolitical and individual-cognitive dimensions of language. The socio-political construct of language, or externalized language (E-language), is often associated with a political state. In contrast, I-language, or internalized, individual language, denotes an individual's language, which is a result of socialization within a linguistic community (MacSwan, 2017). E-languages are

helpful constructs to capture generalizations in studies like this one that seek “to understand any number of language-related behaviors specific to one or another community of speakers” (MacSwan, 2017, p. 175). As a result, the participants in this study are categorized by language background, while recognizing that individuals participate in language communities in which their individual linguistic repertoires, or I-languages, are developed.

Insert Table 1 here

## **Review of the Literature**

### **Biliteracy**

Since bilingualism “expands a person’s meaning-making, or comprehension, repertoire” (Hopewell, 2013, p. 62), English-only strategies are inadequate for understanding bilingual reading comprehension as they exclude strategies such as cognate recognition, cross-language morphological analysis, judicious use of translation, and explicit comparison of conventions (Hopewell, 2013; Jiménez, García & Pearson, 1995, 1996). While less successful bilingual readers tend not to recognize that reading is the same process in both languages (Wurr, Theurer & Kim, 2008), more successful bilinguals understand this concept (García & Godina, 2017; Jiménez, García & Pearson, 1995, 1996). Younger children tend to do better on metalinguistic tasks than older students (García, Jiménez & Pearson, 1998), however, in seemingly contradictory findings, they are also less likely to identify cognates (Kelly & Kohnert, 2012). Bilinguals exhibit more complete and sophisticated comprehension when provided opportunities to use both languages (Alvarez, 2012; Hopewell, 2011, 2013; Martínez-Roldán & Sayer, 2006).

A number of studies of young EBs have been completed from the perspectives of home literacy (e.g., Reyes, 2006; Reyes & Azuara, 2008) and writing (e.g., Bauer & Gort, 2012; Escamilla, Fine, & Hopewell, 2019; Kenner, 2004; Reyes & Azuara, 2008), but there are fewer that attempt to capture the reading acquisition processes (exceptions include Kabuto, 2016; López-Velásquez & García, 2017). López-Velásquez and García (2017) analyzed the reading practices of two bilingual first graders, one receiving Spanish literacy instruction and the other in an English-only medium classroom. They

concluded that the monolingual reading instruction the students received, plus the exposure the girls had to both languages, enabled them to develop emerging biliteracy despite monolingual instructional settings. Meaning-making practices transferred from one language to the other successfully, while decoding skills were less applicable in the second language due to the different structures of the languages. In a study with similar findings, Johnson, García and Seltzer (2019) found that talking to students about a book with fluid language use, regardless of the language of the book, both improved students' comprehension and enabled the teacher to better understand students' preferences, content knowledge, and comprehension.

Upper-elementary EBs use a wide range of resources when reading fiction (Martínez-Roldán & Sayer, 2006) and non-fiction (Alvarez, 2012; Hopewell, 2013) in English (Hopewell, 2011) and Spanish (Alvarez, 2012). Students use both languages to gain meaning from text and to express comprehension. Soto Huerta (2012) identified three ways EBs used their linguistic skills when reading: monitoring comprehension, interpreting unfamiliar vocabulary, and using two languages to attain comprehension. Her study was consistent with previous research on students' tendency to not notice cognates without explicit instruction (August et al., 2005; Cummins, 2007; García & Godina, 2017; Nagy, 1995; Nagy, García, Durgunoglu, & Hancin-Bhatt, 1993). More recently, García and Godina (2017) found that biliterate fourth graders struggled with English vocabulary, and translation was the bilingual strategy used most frequently in their study. Interestingly, even when a child was unable to use translation to understand a piece of text, the attempted use of the strategy aided the child in monitoring comprehension.

### **Running Records as a Lens on Biliteracy**

Developed by Clay (1967, 1982), running records provide a consistent way to record reading behaviors and minimize observer bias and error. While Goodman (1969) developed miscue analysis at about the same time, Clay's running records and complex theory are employed for the purposes of this paper. (For a recent discussion of running records and miscue analysis, see Harmey & Kabuto, 2018). Often used as part of Informal Reading Inventories (IRIs), running records capture how a child processes a text as it is being read. This systematic method of observing students' oral reading behaviors provides



evidence of students' in-the-moment literacy processing, which increases in complexity as students become more proficient readers (McGee, Kim, Nelson, & Fried, 2015). Teachers can observe how students learn to monitor student' processing of print and comprehension through attention to self-corrections, which predict reading progress for struggling readers and those at the earliest stages of literacy development (D'Agostino, Kelly, & Rodgers, 2019). Running records also document students' graphophonological-semantic flexibility (flexible attention to multiple characteristics of text at once, including semantics, syntax, orthography, morphology, and phonology) and their ability to navigate their attention between features and simultaneously to multiple features (Cartwright, Marshall, Dandy, & Isaac, 2010).

Spanish/English biliterate readers require the added flexibility of distinguishing between overlapping E-language and I-language systems of semantics, syntax, orthography, morphology, and phonology. Prior research has laid a foundation for IRIs being used to develop useful, culturally relevant profiles of bilingual readers (Croce, 2010; Kabuto, 2016). Kabuto (2016) found IRIs and miscue analysis to be particularly helpful in identifying bilingual readers' strengths, as they allow for an analysis of how students' employed their full linguistic repertoire. A holistic bilingual perspective would include analysis of students' English and Spanish running records side-by-side (Escamilla et al., 2013). Instead, running records tend to be analyzed from a monolingual perspective (Ascenzi-Moreno, 2016), which underestimates the literacy abilities of bilingual students who learn to read simultaneously in Spanish and English (Hopewell & Escamilla, 2014). Additionally, during the comprehension parts of the IRI students should –but often do not– have the opportunity to use translanguaging to convey their understanding so that their proficiency in an E-language does not limit what they are able to communicate about their comprehension, and teachers have the opportunity to observe and assess a student's oral language and comprehension in a one-on-one setting (Alvarez, 2012; Ascenzi-Moreno, 2016).

Texts are generally written in a particular E-language, and students use their I-language to problem-solve text and develop understanding. For example, young speakers of African American Vernacular English may apply their I-language to text, pronouncing “they” as “dey” (Wheeler,

Cartwright, & Swords, 2012), and native Spanish-speaking emergent bilinguals may confuse visually similar prepositions (Author, 2018). These “language approximations” are not necessarily errors of interpreting print and would probably not impact comprehension (Author, 2018). Instead, language approximations are evidence of beginning readers’ application of their current linguistic knowledge to a text written in an E-language. However, because the related I-languages tend to be stigmatized varieties of English, their appearance on running records is marked as an error, which can result in misidentification of students’ reading abilities and lead to inappropriate instruction (Author, 2018; Kontovourki, 2012; Wheeler et al., 2012). Instead, educators should acknowledge and value instances where students use their I-language to understand E-language texts. Integrating a complex theory of reading with translanguaging in this study enables the analysis to explore language as a single linguistic repertoire with features belonging to two E-languages.

### **Syntax and Punctuation in Bilingual Reading**

Both syntax and punctuation contribute to readers’ prosody, a component of fluency (Rasinski, Homan, & Biggs, 2009), so these items are addressed together. Readers need to be familiar with syntax, or knowledge of the structure of language (Proctor, Silverman, Haring & Montecillo, 2012), to read sentences with prosody. For a sentence to be read with appropriate prosody, or inflection (McKenna & Stahl, 2015), the reader must integrate the sentence’s propositions according to the punctuation and language of the text (Kintsch, 1998), which requires a student to know what book language should sound like (Clay, 2004). In monolingual English speaking students prosodic sensitivity was shown to predict reading comprehension (Proctor et al., 2012; Whalley & Hanson, 2006) and has positive correlations with many aspects of reading, including phonemic awareness, vocabulary, and morphology, all of which influence reading and writing (Holliman et al., 2014). Knowing the intricacies of how book language sounds directly influences literacy acquisition (Holliman et. al, 2014), so students may be less sensitive to syntax when an E-language differs from one’s personal I-language, by dialect, register, or otherwise (Ulijn, 1980). A lack of syntactical sensitivity to an E-language may therefore negatively impact reading prosody.

The complex relationship between language and reading is not well understood (Holliman et al., 2014). Language production is strongly related to reading comprehension: The complexity of students' oral language at age seven was a predictor of future reading comprehension (Oakhill & Cain, 2012). Conversely, elementary students who struggle with reading comprehension tend to have lower oral language skills than their peers (Duke et al., 2013). Nation and colleagues (2010) found that poor comprehenders at age eight specifically had a weakness in grammatical understanding. Finally, older bilinguals were found to self-correct more frequently using meaning and structure, which the researcher attributed to a deeper language foundation (Francis, 2004). While all young readers are continually learning language, the relationship between reading and language is even less well understood in young bilingual students (Reyes, 2012), as they are navigating two E-languages and two I-languages.

The role of syntax in bilingual students' reading comprehension has not been widely researched. Existing studies suggest a positive relationship between a reader's knowledge of syntax and reading comprehension: Bilingual students' syntactical knowledge predicted reading comprehension in both Spanish and English (Geva & Farnia, 2012; Silverman et al., 2015; Swanson, Rosston, Gerber & Solari, 2008), and it contributed to reading comprehension for both native and non-native French speakers (Simard, Foucambert, & Labelle, 2014). Finally, Spanish researchers compared monolingual third and fifth graders' reading with that of adults and found that third graders' reading was markedly different (Alvarez-Cañizo, Suárez-Coalla, & Cuetos, 2017). Third graders made more, longer, and less appropriate pauses than 5th graders or adults made, and the researchers concluded that the younger children struggled to use syntax to anticipate the ends of the sentences and were less proficient at adjusting their expressiveness in accordance with the length and structure of the sentence. Inaccurate parsing is problematic because appropriate syntactic grouping (pausing and phrasing) is required for making meaning of text (González-Trujillo, Calet, Defior, & Gutiérrez-Palma, 2014). Consequently, despite Spanish's transparent orthography, the development of reading prosody is comparable to more opaque languages, such as English (Alvarez-Cañizo et al., 2018).

This exploratory study extends previous research by observing the influence of home language background on young bilingual readers in order to further biliteracy theory development and consider more effective ways to assess and instruct EBs from varying linguistic backgrounds. Using informal reading inventories and student interviews, this study addresses the question, *how do second grade SimBs and SeqBs in DL programs use their linguistic resources to process text in both Spanish and English?*

### **Methods**

Following in the tradition of previous studies (e.g., Ascenzi-Moreno, 2016; Author, 2018; D'Agostino et al., 2019; Kabuto, 2016; McGee et al., 2015), informal reading inventories were used to observe literacy behaviors as students read in Spanish and English, and interviews about languaging practices followed the reading of each text.

### **Setting and Participants**

Golden Valley Elementary is a large, urban school in Northern California serving kindergarten through fifth grades. During the 2015 – 2016 school year there were just under 1,000 students attending the school's English-only or Two-Way Bilingual Immersion programs. Approximately 60 percent of students qualified for free or reduced lunch and 40 percent were classified as English Learners. Seventy percent of students identified as Latino, 16 percent as white, five percent as multi-racial, four percent as African-American, and the rest as "other."

Six EB second-graders in the school's DL strand participated in this study; two other males met the criteria but parent consent was not received. Second grade followed a 70%-30% DL model, where Spanish was the instructional language for 70% of the day, with the rest being in English. Participant selection criteria included participation in the DL program, grade-level reading proficiency in both Spanish and English, and home language(s) background (students were either simultaneous bilinguals or Spanish was their home language). School district personnel first identified students by home language(s), which is collected for all students in California through a Home Language Survey. District personnel then identified individuals in each language group who had scored proficient in Spanish and English reading as determined by district benchmark reading assessments. Proficient second grade students were selected for

this study as they have mostly acquired emergent literacy skills and are solidifying the reading process (Kaye, 2006). A meeting was then held to request parents' permission for their children's participation in the study, and consent forms were sent home for parents who could not attend the meeting. The language(s) spoken at home were confirmed by families/caretakers and students were asked about their strengths in each language. Whereas all the SeqBs stated they were Spanish-dominant, the SimBs claimed to not have a language preference. The researcher was blind to language background and language assessment results until after data analysis was completed.

The qualifying students had similar academic experiences and socioeconomic backgrounds: None of the students spoke a third language, all had been in the DL program at Golden Valley Elementary since kindergarten, all had been in one of two DL classes at each grade level, kindergarten through second grade, and all were the traditional age for second grade (seven years old as of September 1 in the year they started second grade); none had started school late or had previously been retained. All students were of Mexican or Central American ethnic background, and all qualified for free or reduced lunch. California state assessments of English Language Arts begin in third grade so there were no state literacy assessment results for the participants. Students' English Language Development assessment results varied from levels three to five on a five-point scale, with one student being reclassified as English proficient. Table 2 summarizes participant data.

Insert Table 2 here

### **Data Collection and Analysis**

IRIs were used to observe students' reading behaviors in both languages, followed by reading interviews that addressed students' translanguaging practices. The Qualitative Reading Inventory, 6<sup>th</sup> Edition (QRI-6, Leslie & Caldwell, 2017) and La Evaluación del Desarrollo de la Lectura, 2<sup>da</sup> edición (EDL2; Ruiz & Cuesta, 2007) were administered. The assessments include fiction and informational texts, running records, retells, and comprehension questions. Since not all levels of the EDL2 have informational texts, students also read a previously-unseen excerpt about life cycles from their second grade science text in Spanish. Students read one fiction and one informational text in each language, as in

García and Godina's (2017) study. The use of IRIs adds to García and Godina's (2017) think-aloud study, as think-alouds do not show students' processing of text like the running record portion of an IRI can.

After each text, a brief interview was conducted with the goal of illustrating how knowledge of two languages helped students read the text. Questions were asked in the language of the text and students were told they could respond using either or both languages (similar to Alvarez, 2012; García & Godina, 2017; Hopewell, 2013). The questions asked were:

1. Did knowing Spanish *and* English help you read that book? If so, how?
2. (After reading the Spanish text,) Were there any words in that book that reminded you of a word in English? (After reading the English text,) Were there any words in that book that reminded you of a word in Spanish? If needed, a follow-up question prompted for words that looked like or sounded like a word in the other language.
3. Were there any other ways that knowing both Spanish and English helped you understand that text? Or made it harder to understand?

The data collection was audio-recorded and was completed in one session of 40-60 minutes per student, totaling approximately 300 minutes of audio.

Data were analyzed in three recursive rounds. First, the recordings were used to check and correct the original running records and an initial analysis identified the primary sources of information students used when reading at points of difficulty and self-correction (e.g., semantic, syntactic, visual; Clay, 2013). Initial descriptive and process codes (Miles, Huberman, & Sandaña, 2013) were then used to identify and describe students' reading behaviors. A bilingual research assistant simultaneously and independently used the recordings to do the same. Together, the researcher and research assistant compared each running record for accuracy. In the few instances when discrepancies occurred, a researcher-colleague was asked to analyze the data, independent of previous opinions. The IRIs and audio recordings were then transferred to Atlas.ti and re-coded using the same codes for the purposes of data analysis. Once all the data were in Atlas.ti, we began to analyze the comprehension section of the IRIs and the reading interviews.

Insert Table 3 here

In the second round of coding both the running records and recordings were analyzed for documented biliteracy strategies (Table 3). When codes overlapped, multiple codes were applied to the same reading behavior. Multiple strategies were sometimes used simultaneously; they are not mutually exclusive. As in the first round of coding, the researcher and a bilingual research assistant independently coded all the data and compared outcomes, and a researcher-colleague was again consulted when discrepancies occurred. Using Atlas.ti queries and multiple readings of the data, comparisons were then made between the two groups of students to identify similarities and differences in students' reading behaviors. Then, to deepen the analysis of the EBs' reading behaviors regarding syntax, a final round of sub-coding was completed to further specify reading behaviors influenced by syntax. The primary codes that emerged in the final phase of analysis are explained in the Findings section, and included reading that did not follow the author's intended syntax because students (1) neglected punctuation and merged phrases that were not intended to be merged together; and/or (2) inserted long pauses, separating phrases that should have been read together. Finally, we analyzed the use of syntax in students' approximations (errors) and self-corrections, and compared students by home language background (SeqB and SimB). While a range of coding was completed, this paper focuses on bilingual students' use of syntax in order to contribute new findings to the field.

### **Findings**

Students' awareness of syntax was apparent in their reading of texts in both Spanish and English. In some ways, students' different linguistic backgrounds did not appear to influence their reading. Both groups of students struggled to parse sentences appropriately in both languages, and in many cases comprehension was lost. In other ways, however, language background may have influenced the students' reading. SimBs appeared to be more able to use their syntactical knowledge across E-languages than SeqBs, particularly to self-correct approximations.

#### **Syntactical Approximations and the Need to Look Beyond Accuracy**

SimB and SeqB tended to read accurately but shared two challenges in both languages. As upcoming examples show, they stopped at the end of phrases, rather than at the end of sentences, in both languages, which may have resulted in reduced comprehension and fluency despite accurate reading. They also ignored punctuation, but often attempted to maintain meaning, at least initially. I refer to these behaviors as *approximations* rather than errors as the students are actively using their full linguistic repertoire, or I-language, to attempt to read in an E-language in which their syntax, vocabulary, phonological awareness, morphological knowledge, and grammar are developing along with their emergent reading processes.

**Neglecting punctuation and merging phrases.** Neglecting to read punctuation often resulted in the merging of phrases that were not intended to be read in the same sentence. As a result, the words were read accurately but the student's reading was inconsistent with the text. This occurred in both languages for both groups of students. In example one, Jacquelin, a SeqB, read accurately, however skipping a period resulted in a phrase being read in a way that was unintended. At the point of difficulty, however, the student appears to have made meaning from the text; the loss of meaning comes a few words later.

[1] Text: Todos los seres vivos crecen y cambian. La manera en que un ser vivo crece y cambia se llama ciclo de vida. (All living things grow and change. The way in which a living thing grows and changes is called a life cycle).

Jacquelin (SeqB): Todos los seres vivos crecen y cambian la manera en que un ser vivo crece y cambia se llama ciclo de vida. (All living things grow and change the way a living thing grows and changes is called a life cycle.)

The way Jacquelin read the text changed the interpretation of the first instance of “cambian” (change) modifying the following phrase (la manera / the way) rather than the previous phrase (todos los seres vivos / all living things). It appears that the student made an effort to maintain meaning despite ignoring the period: It made sense to read, “Todos los seres vivos crecen y cambian la manera en que...” (“All living things grow and change the way in which...”), however the rest of the sentence did not make sense and Jacquelin did not appear to use meaning or structure to self-monitor or self-correct in this instance. When asked about the text, the student said that living things grow, showing an understanding of the first few words, but did not address life cycles.



In the second example, Stefani, a SimB, shortened a sentence but comprehension was only negligibly impacted in the context of the text.

[2] Text: Thomas knew that they would be going out to dinner. Another night they were going to a country music show.

Stefani (SimB): Thomas knew that they would be going out to dinner another night. They were going to a country music show.

Again, the student read the words accurately, if not how the text's propositions were intended to be read (Kintsch, 1998). Since there is nothing in the way the student read the text that would overtly signal an error to the student, this type of approximation may be exceedingly difficult to self-monitor and self-correct. And, as the general meaning was not impacted in the context of the text, it may not have been an important approximation to self-correct. Additionally, despite the inaccurate parsing, it would not be considered an error by the standards of some IRIs (e.g., Leslie & Caldwell, 2017; Ruiz & Cuesta, 2007). The students' accurate decoding may misrepresent to the teacher their reading level if comprehension checks are not consistently and frequently used as part of ongoing assessment and instruction.

**Inserting long pauses.** Both SimB and SeqB students often combined skipping punctuation with pausing where there was no punctuation, possibly due to difficulties with the syntax of longer or more complex sentences. Long pauses appeared to be both symptoms of difficulty in reading, as students stopped to work on something they were struggling with, and also causes for potential struggles with comprehension. In the third example, Citlaly, a SimB, struggled with a short passage from the science text due to missed punctuation and pauses despite accurate reading. She skipped the period after "changes" and inserted a long pause after "back."

[3] Text: The tadpole grows and changes. The tadpole's back legs grow first.

Citlaly (SimB): The tadpole grows and changes the tadpole's back. Legs grow first.

As in the first example, the student's reading of the text—although 100 percent accurate—changed the intended meaning. Citlaly's reading suggests that as the tadpole grows, it changes its own back. "Legs grow first" is a complete sentence that makes sense on its own. While the child's reading of the text does not make sense to someone who is familiar with the life cycle of frogs, it might make sense to a second

grader who is unfamiliar with tadpoles. (The students had not yet studied life cycles in class). While we cannot know if the reader self-corrected internally to achieve comprehension, the inaccurate parsing of propositions appears to have resulted in inaccurate comprehension, as Kintsch (1998) predicted.

The proficient readers in this study appeared to make an effort to maintain meaning even when inserting long pauses or neglecting punctuation. In example four, SeqB had trouble with a sentence comprised of multiple phrases:

[4] Text: “I will take that stone to my grandmother,” thought Lin-Ling, and she reached to pick it up.

Jacqueline (SeqB): “I will take that stone to my grandmother,” thought Lin-Ling. And she reached to pick it up.

Alicia (SeqB): “I will take that stone to my grandmother.” Thought Lin-Ling. And she reach-ed to pick it up.

Both SeqBs segmented the sentence inaccurately: Jacqueline split it into two, and Alicia into three independent parts. Jacqueline’s version, while not what the author intended, maintains both accuracy and meaning. Alicia’s reading contains a sentence fragment (“Thought Ling-Ling.”) and a common English Learner approximation, “reach-ed” for “reached” (Author, 2018), but it could be argued that neither of those items significantly influenced the student’s comprehension of the text.

In examples one through four, both SimBs and SeqBs appeared to developing their understanding of how to use syntax and punctuation to support comprehension in reading. While comprehension was negatively impacted in many instances, as evidenced in discussions about the texts after reading, data showed that students were initially working to maintain meaning. One implication is the need for ongoing comprehension checks and additional instruction on self-monitoring for comprehension. Since comprehension was affected due to the accurate but syntactically incorrect reading, the high accuracy rates might misrepresent the students’ reading ability. The students’ incorrect parsing may be evidence that the language of books, which includes longer and more complex sentences than oral language, may have been challenging for them in both languages. These data provide evidence for the need for explicit instruction regarding the parsing of complex sentences.

The difficulty with parsing propositions and sentences across both languages suggests that the language of the texts may have been more sophisticated than the children's language at that moment in time and provides evidence for the need for oral language development and explicit instruction regarding the parsing of complex sentences. These findings also seem to reflect Whalley and Hanson's (2006) findings that monolingual students' prosodic sensitivity predicted comprehension.

### **Self-correction using Syntax as a Primary Source of Information.**

Self-correction behaviors appeared to vary by language background. A self-correction occurred when a reader "failed to use some information, noticed some mismatch, picked up some additional information, and put together and achieved a correct response" (Clay, 1991, p. 303). Self-corrections are important to observe because they are evidence of the child monitoring comprehension, searching for new information, and using it correctly (Clay, 1991, 2013; D'Agostino et al., 2019). Close observation of the sources of information a child uses at point of difficulty and to self-correct can inform a teacher's next instructional steps (Clay, 2013). Only self-corrections that were made audibly could be counted; students may have adjusted their comprehension in their heads.

In examples five and six, SimBs self-corrected using syntax in both English and Spanish. In example five, Citlaly used syntax to correct "frog" to the possessive "frog's" after reading the next word, "life:"

[5] Text: A frog's life cycle starts with an egg.

Citlaly (SimB): A frog life (self corrects) frog's life cycle starts with an egg.

Initially reading "a frog life," which is syntactically incorrect, Citlaly self-corrected by adding the "s" to "frog" to show the possessive. Note that possessives are not marked this way in Spanish; this was an instance of SimB using her knowledge of syntax in a particular E-language (English) to self-correct. A similar use of Spanish syntax to self-correct was observed in Spanish in example six when Stefani, a SimB, re-read to self-correct "gustaban" to "gustaba" in example six.

[6] Text: Se llevaban muy bien, pero les gustaba embromar el uno al otro. (They got along very well but liked to joke with one another.)

Stefani (SimB): Se llevaban muy bien, pero les gustaban embromar (self corrects) gustaba embromar el uno al otro. (They got along very well but liked (plural instead of singular verb conjugation) to joke (self-corrects) with one another.)

Example six is interesting because a few words prior to the self-correction, “llevaban” was used; Stefani may have used that syntactical clue, saying “gustaban” when she came to “gustaba,” but after seeing the next word she self-corrected. As in example five, this appears to be an instance in which Stefani’s knowledge of Spanish E-language syntax enabled her to self-correct, as the reflexive verb structure is less frequently used in English, especially by young children (a literal translation of “pero les gustaba embromar” might be “but joking was pleasing to them,” rather than, as a child might say, “they liked to joke”).

Figures 1 and 2 show that SimBs used their knowledge of syntax to self-correct in both E-languages, whereas SeqBs used syntax to self-correct in Spanish, their home language, and generally not in English. In English, the SeqBs self-corrected nine times using visual information, once using structure, and did not use meaning to self-correct. In contrast, their self-corrections in Spanish were slightly more balanced (three self-corrects each for structure and visual). The SimBs had a more balanced use of meaning, structure, and visual information across both E-languages and self-corrected more overall, with a total of 21 self-corrections across all information sources versus 16 self-corrects by the SeqBs. The SimBs used syntax to self-correct twice as often as the SeqBs when reading in Spanish. In contrast, the SeqBs used syntax and visual information when self-correcting in Spanish, but they relied heavily on visual information when self-correcting in English (9 out of 10 instances used visual information). It is logical that it would be more difficult to use syntax in a less-dominant E-language when reading, and a less developed English vocabulary may interfere with students’ ability to use meaning as a source of information. These differences, however, can have profound instructional implications.

Insert figures 1 and 2 here

While the data are clearly too few for statistical significance, they suggest that SimBs, who grew up speaking two E-languages, may have greater syntactical knowledge and therefore might be more likely to use syntax as a source of information in reading. However, like SeqBs, SimBs may have one E-

language that is more dominant than the other, which could influence an individual's self-correction behaviors in reading.

### **Discussion and Implications**

This study's analysis of SimBs' and SeqBs' use of syntax in reading adds to the literature by beginning to explore how home language background might influence biliteracy acquisition. students' knowledge of syntax in an E-language supported reading in that E-language, but not necessarily in both E-languages. Translanguaging theory (García & Wei, 2014) appeared to apply to SimBs but not necessarily the SeqBs who spoke primarily Spanish at home and were learning English at school. Despite accurate reading, both groups of students exhibited difficulties with syntax in both E-languages, evidenced by inaccurate integration of propositions. When reading, students are asked to interpret the author's language and apply the syntax of their I-language to the E-language of the text. Kintsch (1998) explained that (monolingual) readers integrate related phrases and propositions to construct meaning from text. Simultaneous bilingual readers have a wider repertoire of language from which to choose as they construct meaning, knowing vocabulary, grammar, syntax and phonology from multiple E-languages. As a result, their mental feed-forward calculations to anticipate text will likely differ from a monolingual's as they attempt to integrate syntactic propositions to construct meaning. In fact, the SimBs appeared to have a larger syntactical reservoir at their disposal and were therefore better able to use syntax to integrate the propositions in texts to self-correct in both languages than the SeqBs.

Translanguaging posits that bilinguals hold a single language system, yet the syntaxes of each E-language differ in important ways, and the texts students read generally follow the syntactical rules of each E-language. There are two consequences to this discrepancy between translanguaging theory and the reality that most texts are written in E-languages. First, translanguaging should be applied cautiously to emergent bilingual readers. Despite strong I-languages, some young bilinguals may not yet have broad enough exposure to the syntactical structures of the E-languages of texts for translanguaging to be a useful theory in emergent reading. Much of the research on young bilinguals' translanguaging has focused on language production in writing (e.g., Bauer & Gort, 2012; Bauer, Presiado, & Colomer, 2017;

Durán, 2017) or speaking (e.g., Garcia & Godina, 2017; Hopewell, 2013) rather than interpreting the language of texts.

It is critical that DL programs begin to consider students' language background for assessment and instruction purposes. For example, to support bilingual students' comprehension of text, DL teachers must understand how a child's I-language influences their reading comprehension, and value and extend the child's I-language rather than attempt to replace it with E-languages. DL teachers do not differentiate instruction by language background (Caragarajah, 2013), particularly for two groups of students who both may be grouped as "Spanish speaking" such as the SimBs and SeqBs in this study. Assessments that identify differences between students' socially constructed I-language and the socio-political E-languages of schooling (MacSwan, 2017) might be useful as one form of analysis when exploring reading behaviors of bilingual students from varying linguistic backgrounds.

The lack of evidence of SeqB students' ability to use syntax to self-correct in English underscores the importance of language development in the classroom, which is corroborated by recent research in both DL settings (Savage, Kozakewich, Genesee, Haigh, & Erdos, 2017) and for Spanish speakers in English-only instruction (Mancilla-Martinez and Lesaux, 2017). An explicit instructional focus on language development, syntactical awareness, and parsing in the primary grades would help students develop their linguistic knowledge and use it to read. Without a strong foundation in how the language works, students are limited to using meaning and visual sources of information in reading.

Lyster and Tedick (2014) stated, "The goal of a language focus in immersion pedagogy is to strengthen students' metalinguistic awareness, which then serves as a tool for extracting linguistic information from content-based input and thus for learning language through subject-matter instruction" (p. 214). An increased focus on syntactical awareness would help students to use their knowledge of overall language to read in either language. For instance, while it may not be surprising that Sim-Bs only used syntax to self-correct when reading in Spanish, the finding has significant implications for instruction in both DL and English monolingual programs. The students' self-correction behavior underscores the importance of language development in the classroom, which is corroborated by recent

research in both dual language education (Savage, Kozakewich, Genesee, Haigh & Erdos, 2017) and Spanish speakers in English-only instruction (Mancilla-Martinez & Lesaux, 2017). Without a strong foundation in how the language works, students are limited to using meaning and visual sources of information in reading.

Since some IRIs, (e.g., Leslie & Caldwell, 2017) explicitly state that omissions of punctuation should not be counted as errors, educators may ignore this behavior and not notice the potential comprehension issues that result from skipped punctuation or long pauses. Consequently, false positives may result when external pressures interfere and teachers, who are pressured for time, do not complete the comprehension portion of the assessment. A bilingual reader's difficulty with integrating propositions will affect their prosody (Kintsch 1988), which is an aspect of reading fluency. As such, it would be easy for teachers to label the bilingual students' approximations issues of fluency, which is simply not a deep enough analysis of the reading behavior for effective instruction to result. Further attention to how language background influences emergent biliteracy behaviors appears warranted as it could lead to more equitable assessment and instruction.

While IRIs provide formative data, they are also used as interim assessments with summative purposes of grouping and even tracking students (Perie, Scott & Gong, 2009), thus it is imperative that accuracy rates not be the primary driver of IRI results and students not be identified as, or self-identify as, a text level (Kontovourki, 2012). Risks include students receiving unequal access to reading instruction, being misplaced in programs, or being limited to reading books at certain levels (Kontovourki, 2012). Traditional error analysis tends to be at the word level (Clay, 2013), and it appears that bilingual readers, and perhaps all readers, could benefit from a level of analysis that explores how syntax supports or confounds their understanding, such as a syntactical acceptability measure (e.g., Goodman, 1969). Since IRIs tend not to be analyzed through a bilingual lens (Ascenzi-Moreno, 2016), it is imperative that new assessments or methods of analysis are developed that explore students' biliteracy through an assets-oriented lens, enabling bilingual students "to demonstrate the ways they were gifted rather than deficient" (Durán, 2017, p. 107).

Teacher education programs can provide more opportunities to engage future teachers to learn about the influence of language on reading behaviors. Just as we know to differentiate reading instruction for students who have more or less knowledge of phonics, we also need to consider ways to differentiate for students who have more or less experience with and knowledge of syntax in the language of instruction. The interrelationship between language and literacy may currently be understated in many teacher education programs. The interrelationship between bilingualism and biliteracy may currently be understated by researchers and practitioners alike.

Future research is needed to further bi- and multilingual theories of literacy as well as to address the limitations of this exploratory study, such as the small sample size and the use of only two, somewhat imprecise, language background groups. Future studies could assess students' language skills in both languages and perform a matched analysis based on one language to look at reading behaviors in both languages. Research that merges a bilingual lens with what is known about reading and writing processes should result in more equitable educational practices for the future.

### **Conclusion**

The goal of this study was to determine if exploring how students' language background influenced their literacy acquisition was a worthwhile topic of study. The findings show that the differences in the ways that SimBs and SeqBs used syntax in reading have significant implications for instruction and assessment. The SimBs' stronger syntactical base provides evidence against the "semilingual" label often given to students who grow up speaking both Spanish and English, and who are accused of not being fully proficient in either language (Flores, 2017). Findings from this study also suggest prudence when applying translanguaging to emergent reading, particularly for students who are not simultaneous bilinguals. Additional studies are needed to address the limitations of this study, such as the small sample size and the use of only two, somewhat imprecise, language background groups. Future studies could assess students' language skills in both languages and perform a matched analysis to look at reading behaviors in both languages, possibly comparing the bilingual students' prosody to that of



monolingual students. Research from a biliteracy lens should result in more equitable, assets-oriented assessment and instruction practices for the future.

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Table 2

*Participant Information*

| Student    | Gender ; age (Year: Month) | SimB or SeqBs | English language proficiency level*<br>Scale 1-5 | District Reading Assessment – English | District Reading Assessment - Spanish |
|------------|----------------------------|---------------|--|---------------------------------------|---------------------------------------|
| Jacqueline | F, 7:9                     | SeqBs         | 4 - Early Advanced                               | Proficient                            | Proficient                            |
| Alicia     | F, 8:1                     | SeqBs         | 5 - Advanced                                     | Proficient                            | Proficient                            |
| Raúl       | M, 7:12                    | SeqBs         | 3 - Intermediate                                 | Proficient                            | Proficient                            |
| Stefani    | F; 7:11                    | SimB          | 3 - Intermediate                                 | Proficient                            | Proficient                            |
| Citlaly    | F, 8:0                     | SimB          | 4 - Early Advanced                               | Proficient                            | Proficient                            |
| Victoria   | F; 8:3                     | SimB          | Reclassified as English Proficient               | Proficient                            | Proficient                            |

\*The test administered was the California English Language Development Test (CELDT<sup>1</sup>). No equivalent Spanish proficiency scores are available.

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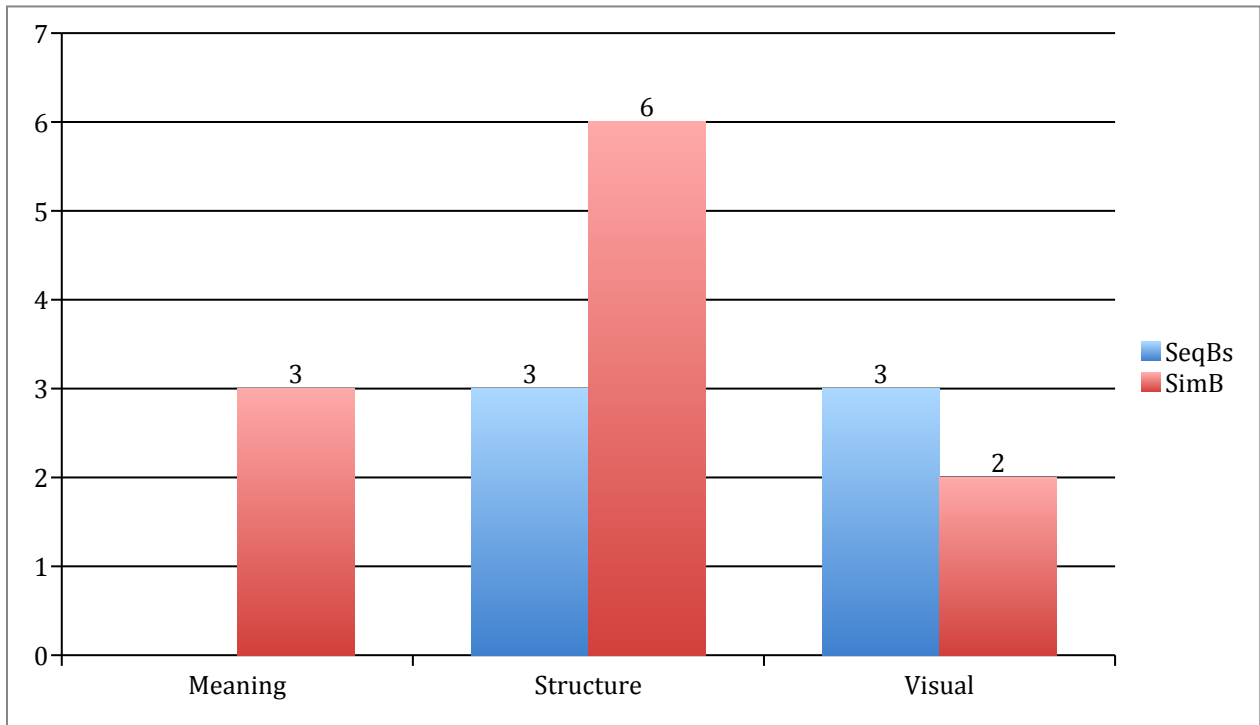
<sup>1</sup> The California Department of Education is currently in the process of replacing the outdated CELDT with a new English language assessment.

Table 3

*Initial Etic Codes for Analysis of Bilingual Reading Behaviors*

| Reading Strategies Specific to Bilinguals   | Explanation   |
|---|---|
| Cognates (Hopewell, 2011, 2013; Jiménez, García & Pearson, 1995, 1996; Soto Huerta, 2012)                               | Use of a known word in one language to determine the meaning of an unfamiliar word in the other language, e.g., activity/ <i>actividad</i>  |
| Cross-linguistic morphology (Hopewell, 2011, 2013)  | Morphological analysis of an unknown word using known morphology in the other language. E.g., the English suffix “-tion” to help solve a Spanish word with the “-ción” suffix   |
| Translanguaging (Hopewell, 2011, 2013; García & Wei, 2014; Jiménez, García & Pearson, 1995, 1996)                       | Applying a bilingual repertoire to understand text, and using what is known in both languages to comprehend   |
| Bilingual-specific background knowledge & language contrasts (Jiménez, García & Pearson, 1995, 1996; Soto Huerta, 2012) | Linguistic or content knowledge that a bilingual has that a monolingual would likely not have. (E.g., quotation marks are used to denote dialogue in English, so maybe they are also used occasionally in Spanish for the same purpose) |
| Phonetic flexibility (from interliteracy, Gort, 2006; Hopewell, 2013; Kenner, 2004)                                     | Use of Spanish <i>and</i> English phonics to determine a word. (E.g., “listen’ is funny because we don’t say the “t.” It’s like the ‘ <i>h muda</i> ’ [silent h] in Spanish” from Hopewell, 2013, p. 243)                               |
| Metalinguistic awareness (from Bialystock, 2001; Hopewell, 2013; Kenner, 2004; Rubenstein-Avila, 2003)                  | Using what you know about words and language to solve at point of difficulty  |

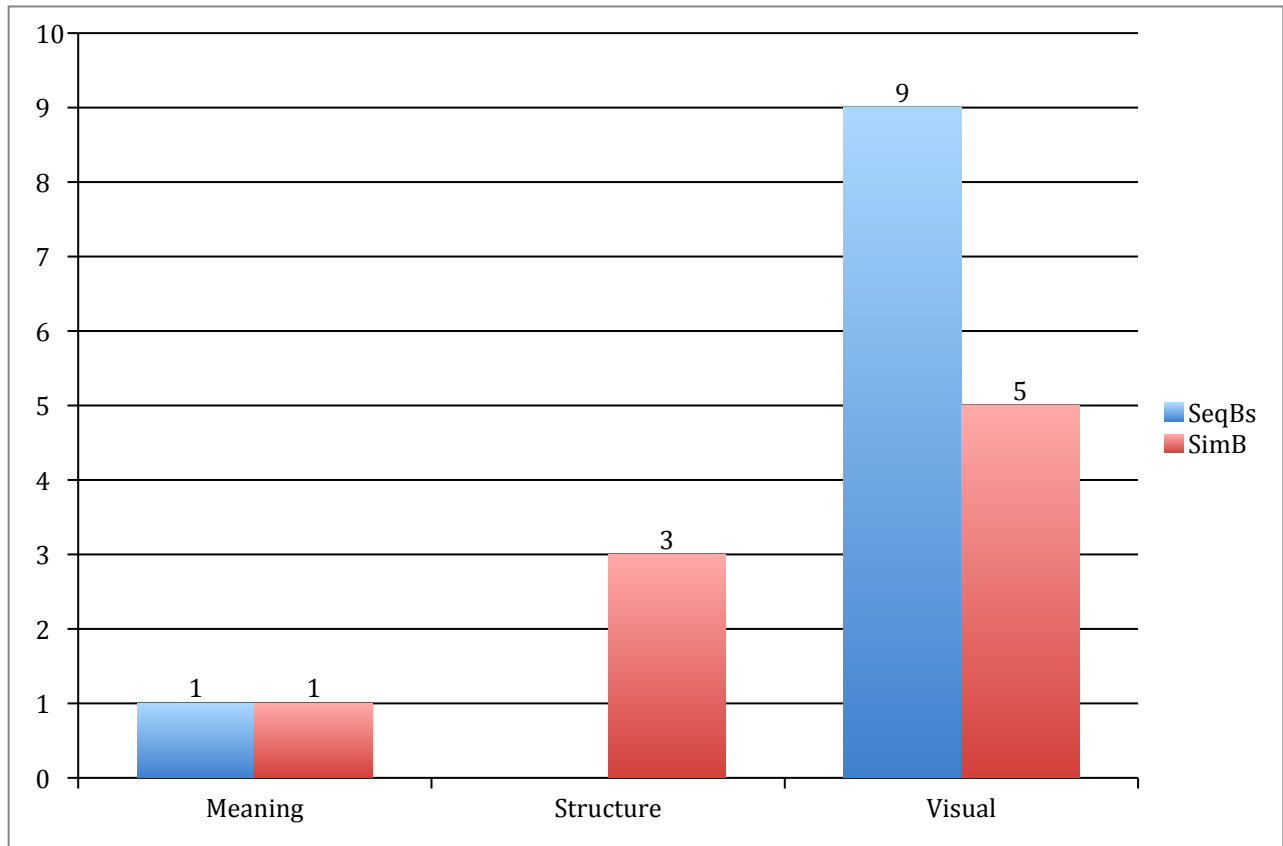
Sources of information used when self-correcting in Spanish



**Figure 1.** Students' use of meaning, structure and visual sources of information when self-correcting during Spanish text reading.



Sources of information used when self-correcting in English



**Figure 2.** Students' use of meaning, structure and visual sources of information when self-correcting during English text reading.