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Spelling Error Patterns, Cohesive Ties, and Syntax Features in Spanish and English Essays
by Spanish-English Emergent Bilinguals in Primary Grades

DISSERTATION

Submitted in partial satisfaction of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

in Education

by

Alissa Patricia Wolters

Dissertation Committee:
Professor Young-Suk Kim, Chair
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2023

Table of Contents

List of Tables	iii
Acknowledgements	iv
Vita	v
Abstract of the Dissertation	ix
Introduction	1
Study 1	7
Method.....	16
Results	21
Discussion.....	26
Limitations and Future Directions.....	33
Conclusion.....	34
Study 2.....	35
Method.....	45
Results	53
Discussion.....	64
Limitations, Future Research, and Conclusion.....	68
Study 3.....	70
Method.....	78
Results	82
Discussion.....	94
Limitations, Future Research, and Conclusion.....	98
Contributions to the Field.....	100
References	104
Appendix	121

List of Tables

Table 1: Participant Information.....	17
Table 2: Common Crosslinguistic Spelling Errors.....	19
Table 3: Most Common Crosslinguistic Spelling Errors per Utterance.....	22
Table 4: Correlations Between Crosslinguistic Spelling Errors.....	24
Table 5: Regression Models Predicting Spelling Patterns due to Crosslinguistic Influence.....	26
Table 6: Writing Quality Scoring Rubric.....	48
Table 7: Descriptive Information of Syntax and Quality Writing Measures.....	53
Table 8: Bivariate Correlations between Measures.....	56
Table 9: Bivariate Correlations between Syntax Features and Writing Quality by Grade.....	57
Table 10: Bivariate Correlations between Syntax Features and Writing Quality by English Learner Status.....	58
Table 11: Bivariate Correlations between Syntax Features and Writing Quality by Instructional Program.....	59
Table 12: Regression Analysis Where Syntax Measures in Written Compositions Were Predicted by Grade Level, English Learner Status, and Instructional Program.....	61
Table 13: Regression Analysis of Crosslinguistic Relations Between Syntax Measures.....	62
Table 14: Multiple Regression Analysis of Written Syntax Features Predicting Writing Quality Including Moderations by Grade Level, English Learner Status, and Instructional Program.....	63
Table 15: Adapted Version of Halliday and Hasan’s (1976) Cohesive Tie Indices.....	80
Table 16: Descriptive Cohesive Tie and Writing Quality Data from Spanish and English Narrative and Opinion Essays.....	83
Table 17: Regression Analysis of Cohesive Ties Predicted by Grade, Instructional Program, and English Learner Status, Controlling for Free and Reduced Lunch Status.....	84
Table 18: Bivariate Correlations Between Cohesive Ties and Writing Quality.....	88
Table 19: Spanish and English Crosslinguistic Regression Models of Cohesive Ties in One Language Predicting Cohesive Ties in the Other Language.....	90
Table 20: Regression Models of Cohesive Ties Predicting Writing Quality Within and Across Languages.....	93

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Abstract of the Dissertation

Spelling Error Patterns, Cohesive Ties, and Syntax Features in Spanish and English Essays

by Spanish-English Emergent Bilinguals in Primary Grades

by

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Doctor of Philosophy in Education

University of California, Irvine

Professor Young-Suk Kim, Chair

We examined spelling errors patterns, cohesive ties, and syntax features in English and Spanish essays written by Spanish-English emergent bilinguals in Grades 1, 2, and 3 ($N = 278$; 51% female) enrolled in either English immersion or English-Spanish dual immersion programs.

In Study 1, we addressed whether students made consistent spelling errors that could be due to crosslinguistic influence, and whether these spelling errors differed by grade level, English learner status, and instructional program while controlling for free and reduced lunch status. Spelling errors potentially due to crosslinguistic influence were coded. We found that students tended to make crosslinguistic errors only in one language and not in the other language (i.e., either Spanish-influenced errors in English or English-influenced errors in Spanish). Students in the dual immersion program made more Spanish-influenced spelling errors in English compositions while students in the English immersion program made more English-influenced spelling errors in Spanish compositions. Students in higher grades made less Spanish-influenced spelling errors in English compositions than students in lower grades.

In Study 2, we investigated whether syntax features (mean length of utterance, number of verbs, subject agreement words, and subject agreement words accurately conjugated) differed by grade level, English learner status, and instructional program while controlling for free and reduced lunch status, whether syntax features in one language predicted its counterpart measure in the other language, and whether syntax features were related to writing quality within languages. Essays by students in Grades 2 and 3 had longer utterances, more verbs, and greater accuracy than Grade 1. Mean length of utterances and subject agreement accuracy were significantly associated with its counterpart in the other language, respectively. Syntax features were related to quality, but the magnitude of relations differed by English learner status and instructional program.

Finally, in Study 3, we explored whether reference, conjunction, and lexical ties measured by quantity and accuracy were predicted crosslinguistically by counterparts in the other language, whether they differed by grade level, English learner status, and instructional program while controlling for free and reduced lunch status, and whether they were related to essay quality within and across languages. Students in Grades 2 and 3 used a greater number of cohesive ties and more accurately than Grade 1, English learners used fewer cohesive ties in English and Spanish essays than non-English learners, and dual immersion students wrote a greater number and more accurate Spanish cohesive ties than English immersion students whereas the opposite was found for English immersion students and English essays. Reference and lexical ties predicted writing quality within each language, and English cohesive ties predicted Spanish writing quality.

Taken together, these results suggest that spelling errors by emergent bilinguals in primary grades are associated with instructional program and English learner status, which is

related to spelling in the other language, and that written syntax features and cohesive ties predict writing quality for Spanish-English emergent bilinguals in primary grades.

Introduction

Writing is an extremely challenging skill to acquire. It involves a complex process of generating ideas, translating them into oral language and organizing them into a structured text that is appropriate for the given genre, transcribing translated ideas into written text, and then revising as needed (Bereiter & Scardamalia, 1987). Many different skills contribute to this iterative process and struggling with any of them may lead to writing challenges. Many children in the United States do not reach proficient levels in writing. For example, the 2002 National Assessment of Educational Progress (2003) writing assessment found that only 28% of Grade 4 students were able to write at a proficient level. Additionally, close to 4 million K-12 public school students in the United States speak Spanish as their home language and dual immersion programs are becoming more ubiquitous, both of which (language skills and instructional program) could potentially impact writing.

The Direct and Indirect Effects of Writing Model (Kim & Graham, 2022; Kim & Schatschneider, 2017; Kim & Park, 2019) unpacks the skills that contribute to the writing process and writing outcomes. Oral language skills such as vocabulary, grammar (morphosyntax and syntax), background knowledge, and domain-general cognition (e.g., working memory) are needed to generate ideas and translate them into sentences. Then, for sentences to build upon each other with meaning and sophistication, the author must establish coherence using higher-order cognitions such as reasoning, inferences, monitoring and perspective-taking. Translated ideas are transcribed into written text, requiring both spelling and handwriting or keyboarding skills.

The aim of the current dissertation was to investigate several aspects of written compositions in Spanish and English written by students who were learning two languages,

Spanish and English, simultaneously (emergent bilinguals, hereafter) in Grades 1, 2, and 3.

Essays were evaluated for spelling errors potentially due to crosslinguistic influence in English and Spanish, written syntax features (mean length of utterances, number of verbs per utterance, number of subject agreement words per utterance, and subject agreement accuracy per utterance), written cohesive ties (reference, conjunction, lexical), and writing quality.

These skills have been under-researched for emergent bilingual children, and, thus, this dissertation makes an important contribution. These studies reveal differences in spelling, syntax features, and cohesive ties by grade level and that skills can develop in both languages. In addition, our work brings attention to the associations of language exposure (educational program) and linguistic proficiency (English learner status) to writing. This research also illustrates how syntax and cohesive ties are related to writing quality, which though theoretically supported, has not been a consistent finding in prior research (e.g., Jagaiah et al., 2020; Allard & Ulatowska, 1991, respectively). This work will promote further research on emergent bilingual writing and also provides resources to support the instruction of emergent Spanish-English bilinguals, targeting their unique needs.

In the first study, we examined whether emergent bilingual students made consistent spelling errors that could be attributed to crosslinguistic influence, whether there were patterns among the spelling errors by participant, and whether spelling errors differed as a function of grade level, English learner status, and instructional program while controlling for free and reduced lunch status. In the second paper, we investigated whether syntax features differed as a function of grade level, English learner status, and instructional program while controlling for free and reduced lunch status, whether they were crosslinguistically related, and whether they predicted writing quality in the same language. Finally, in the third study, we addressed whether

the quantity and accuracy of cohesive ties differed by grade level, English learner status, and instructional program when controlling for free and reduced lunch status, whether cohesive ties were crosslinguistically related, and whether cohesive ties predicted writing quality within and across languages.

In the three studies, we examined whether grade level, as a proxy for development, was related to writing skills. Primary grades are a period of significant growth in writing skills, and thus, we expected that spelling errors, syntax features, and cohesive ties would vary as a function of grade level. Early writing is often restricted by developing transcription skills (McCutchen, 1996) as students focus on letter writing (Puranik et al., 2011) and word spelling (Treiman & Bourassa, 2000). These skills are expected to have a strong relation to writing quality during these early developmental stages (Kim & Graham, 2022; Kim & Park, 2019). When transcription becomes more proficient, cognitive resources become available for other aspects of writing (DIEW, Kim, 2020). Limited work has examined spelling errors, syntax features, and cohesive ties by grade level, but none to our knowledge has analyzed potentially crosslinguistic spelling errors by grade level in both languages.

We also considered the relation of English learner status to writing skills. We used English learner status as a proxy for English proficiency as English learner status, by definition, indicates a lack of English proficiency, and had no comparable measure for Spanish. English proficiency may be related to English spelling, syntax, and cohesion development and the relation between English syntax and cohesion features to English writing quality because language proficiency is necessary for writing. According to DIEW (Kim, 2020) and other common writing models (e.g., Hayes & Flower, 1980; Berninger et al., 2000), oral language includes syntax and vocabulary skills related to cohesion knowledge and is needed to translate

ideas into words and sentences. Furthermore, grapheme-phoneme knowledge is often used to sound out and spell words, which could lead to crosslinguistic errors. To the best of our knowledge, crosslinguistic spelling errors, written syntax features, and cohesive ties have not been previously examined whether they differ by English learner status.

Next, we investigated whether spelling errors, syntax features, and cohesive ties differed by instructional program. Students were enrolled in either English-Spanish dual immersion (Grade 1: 90% Spanish instruction, 10% English instruction; Grades 2 and 3: 80% Spanish instruction, 20% English instruction) or English immersion instruction. Language is acquired through frequent exposure (Tomasello, 2003) and noticing (Schmidt, 2010) of language units, and, typically, more salient units are acquired before less salient units (MacWhinney, 2005). Language tends to be acquired during opportunities in the home, community, and schools. For writing skills, instruction is especially important, and DIEW (Kim & Graham, 2022) states that environments such as instruction should impact writing outcomes. Previous work has confirmed the importance of instruction on language skills (e.g., Wright et al., 2000). However, to the best of our knowledge, students in different instructional programs' spelling errors, written syntax features, and cohesive ties have not been compared.

Syntax features and cohesive ties were also examined as predictors of writing quality. As previously stated, oral language skills such as syntax and cohesion (e.g., vocabulary, syntax, text structure knowledge) are considered as important for writing quality (DIEW, Kim, 2020). In addition, relations between componential skills of writing and writing quality are expected to be dynamic and vary as a function of transcription development. Theoretically, more foundational skills (e.g., transcription, vocabulary, syntax knowledge) is expected to have a stronger relation to writing quality during the early stages of writing, and as these skills develop, they are

expected to become less related. To address this hypothesis, in Study 2, we examined whether relations between written syntax features and writing quality were moderated by grade level, English learner status, and instructional program while controlling for free and reduced lunch status. A small body of research has conducted correlational analysis of the relations between syntax features and cohesive ties and writing quality (Stewart & Grobe, 1979; Wagner et al., 2011). However, these studies did not consider possible confounds such as grade level, English learner status, and free and reduced lunch status. Additionally, no prior research to our knowledge has examined these relations for young emergent bilinguals, especially those in different instructional programs.

Finally, we considered crosslinguistic relations between spelling errors, syntax features, and cohesive ties. We grounded this research in the following bilingual theories that address cognitive mechanisms (e.g., Interdependence Hypothesis, Cummins, 1979; Unified Model of Bilingualism, MacWhinney, 2005), literacy (e.g., reading comprehension, Interdependence Continuum, Proctor et al., 2010), and linguistic practices (translanguaging, Salmerón, 2022). The Interdependence Hypothesis (Cummins, 1979) proposes that there is interaction between languages and that, specifically, L1 knowledge supports L2 language use. The Unified Model of Bilingualism (MacWhinney, 2005) states that all of multilinguals' languages are activated during language use regardless of language and that, because of this, a linguistic unit in one language can cue a linguistic unit in the other language, leading to crosslinguistic transfer. The Interdependence Continuum (Proctor et al., 2010) demonstrated that crosslinguistic relations can exist between literacy skills at both the surface-level skills (e.g., alphabetic knowledge) and deeper-level skills (e.g., reading comprehension). Last, we considered translanguaging theory and practices. Translanguaging is when instructors intentionally use multiple languages to

support student acquisition and has been posited to help with aspects of writing (e.g., audience awareness, Salmeron, 2022). It is reasonable to assume that in classes with a high number of English learners and dual immersion instruction, translanguaging may have occurred and this practice could potentially encourage crosslinguistic transfer of information. Although these theories were not designed specifically regarding the context of writing, we extended these theories to the current three studies to examine crosslinguistic relations between surface level features (e.g., spelling errors, syntax features, cohesive ties) and surface level features to deeper features (e.g., cohesive ties to writing quality).

Study 1

Spelling—the ability to encode sounds to written words that adhere to a language’s orthographic system—is a challenging task that develops over time (Llombart-Huesca & Zyzik, 2019). Theoretical models of writing such as the simple-view-of-writing (Juel et al., 1986), the not-so-simple-view-of-writing (Berninger & Winn, 2006), and the Direct and Indirect Effects Model of Writing (DIEW; Kim, 2020; Kim & Park, 2019), posit that writing requires proficient spelling. If spelling skills are not proficient, the transcription process requires cognitive resources (e.g., working memory), constraining the writer’s ability to focus on higher order processes such as ideation and organization of ideas coherently and cohesively. Thus, research investigating spelling in context is warranted, especially of under-researched populations, such as dual language learners.

So far, spelling research has focused primarily on monolingual students. A small body of research has studied the spelling of dual language learners, and evidence from Spanish-English speakers suggests Spanish L1 has a crosslinguistic influence on English L2 spelling. However, most previous studies focused on the influence of L1 on L2. L2 influence on L1 spelling has been less investigated. Furthermore, previous research has examined dual language learners in English immersion or English as a Second Language instruction, but comparison of the spelling patterns of dual language learners in different instructional environments is scarce. To our knowledge, no research has addressed whether spelling errors potentially due to crosslinguistic influence vary within and across languages and, if so, whether it is moderated by instructional program, English learner status, or development (by proxy, grade). Therefore, the current study addresses these gaps by analyzing spelling patterns potentially due to crosslinguistic influence in

English and Spanish compositions written by Grades 1, 2, and 3 Spanish-English dual language learners in either English immersion or English-Spanish dual immersion programs.

English-Spanish Dual Language Learners' Spelling Development

Spelling develops in stages (Defior & Serrano, 2005; Ehri, 2000; Treiman, 2017). During the first stage, known as the “prealphabetic stage,” children learn that images can represent ideas. Then they transition to the “partial alphabetic stage” where they understand that and use grapheme-phoneme correspondences for some letters and sounds. They combine letters to write words, though most are misspelled or incomplete. Often, early spelling only includes the letters of the most salient sounds. Next, in the “full alphabetic stage,” children have and use knowledge of grapheme-phoneme correspondences in their spelling. English monolinguals learning to spell tend to have challenges such as omitting nasals or internal consonants (Bourassa & Treiman, 2001), and Spanish monolinguals tend to have trouble with silent letters (e.g., *h*), accent marks, and distinguishing between similar phonemes (Defior & Serrano, 2005; Defior et al., 2009). Finally, as children further develop their spelling skill, they recognize and use common spelling patterns in the “consolidated alphabetic stage”.

Spanish-English dual language learners may make some of the same spelling errors as those made by English and Spanish monolinguals, but because they are juggling the acquisition of two languages simultaneously, there are some important distinctions. Rubin and Carlan (2005) analyzed bilingual students' Spanish and English written compositions and proposed that although the stages of bilingual students' spelling development were generally similar to monolingual students' development, Spanish-English bilingual writers show signs of crosslinguistic influence in the early stages. After they develop the understanding that spelling (i.e., writing words) is different from drawing, bilingual children write the same letters and

symbols in both languages, but orally pronounce them differently. Next letter-sound mapping is acquired, and writers begin to use vowels to represent each syllable. Children will often spell a word the same way in both languages—especially for cognates—, but read them differently; they are aware of two different phonological systems. Then, in both languages, children begin to write words by including letters of the salient sounds. At this developmental point, crosslinguistic influence is evident as children struggle with distinguishing between spelling patterns of the two languages. After this stage, spelling begins to adhere to the orthographic rules of each language, including silent letters, although there is still the presence of spelling patterns due to crosslinguistic influence in more advanced words. Finally, in the last stage, writing becomes generally correct in each language with limited evidence of crosslinguistic influence.

Crosslinguistically Influenced Spelling Errors

A language's grammar is made up of linguistic rules—phonological, orthographic, and morphological. Some rules are shared with other languages while others are unique to the language. The usage-based theories suggest that L1 (Ellis, 2002; Tomasello, 2000) and L2 (Wulff & Ellis, 2018) are acquired as a result of interaction with chunks of language that follow these rules. These chunks, referred to as “psychological units,” are acquired over time and the learner abstracts and modifies rules in response. Units the learner is exposed to more frequently will most likely be acquired faster than those that are less frequent (Ellis, 2002; Wulff & Ellis, 2018). When units are in competition, more salient units may block less salient ones (blocking theory, Ellis & Sagarra, 2010). Similarly, the Unified Model of Bilingualism (MacWhinney, 2005) argues that positive and negative crosslinguistic influence happens when a unit in a less developed language cues a unit in the other more developed language. Features shared across

languages may also activate crosslinguistic transfer (see Interdependence Hypothesis, Cummins, 1979).

These theories along with the writing systems of English and Spanish may help explain the occurrence of crosslinguistically influenced spelling errors by Spanish-English dual language learners. For instance, Spanish and English share some important grapheme-phoneme correspondences. All letters in the English alphabet exist in the Spanish alphabet, and the shared consonant letters tend to have similar pronunciations. In addition, there are many cognates that are orthographically and phonologically similar (e.g., *class, clase; family, familia; photo, foto; rock, roca*). Therefore, a dual language learner who starts to spell a word in a target language in which they are less proficient may employ the spelling pattern of the more acquired or salient language. However, there are also distinct differences between the orthography and phonology of the two languages. For example, even though the Spanish alphabet includes letters that are not present in English (e.g., *ñ, ll*), these letters are similar to other letters shared by the two languages (e.g., *n, l*). Also, the phonemic inventories and letter-sound mapping of the two languages have some stark contrasts. Spanish has about 25 phonemes (unique sound categories) while English has 44 (these numbers may vary by dialect). However, most Spanish sounds have a phonemic sounding counterpart in English (e.g., most consonants and some long vowels), and, although many of the sounds in English do not have a similarly sounding phoneme in Spanish (e.g., short vowels), they are often allophones of a Spanish phonemic category. Additionally, Spanish has a consistent orthography while English has a highly inconsistent one with a large variety in spelling patterns for the same sound (e.g., *I, fine, sign, kind* for /ai/) as well as many homonyms (e.g., *band/band, well/well*), homophones (e.g., *role/roll, their/there/they're*), and homographs (e.g., *wind/wind, bass/bass*). Since writing requires proficient transcription skills (Berninger,

2000), a dual language learner who has developed oral proficiency in their target language, but not spelling, may draw from the spelling rules of their other language to not constrict writing. This may be especially prevalent when two languages share many orthographic and phonological features, as do English and Spanish, and the majority of either language can be written phonemically using the other language's spelling patterns.

Previous research has suggested crosslinguistic influence in spelling patterns. Spanish-English dual language learners tend to exhibit regular spelling errors in English that seem to be due to Spanish spelling influence (e.g., Bebout, 1985; Fashola et al., 1996; Howard et al., 2006; Zutell & Allen, 1988). One common pattern is applying Spanish spelling rules to English sounds that do not exist in Spanish (e.g., short vowels). For example, it is common to see words such as *funny* spelled as *fonna* (Bahr et al., 2015) because /ʌ/ is not present in Spanish, and the writer inserts a letter that represents a nearby phoneme instead—in this case the letter and sound *o* (/o/), of which /ʌ/ could be an allophone of in Spanish. Another common pattern is the deletion of word-final silent *e*. Spanish silent letters—other than silent *h*—serve as consistent orthographic markers (e.g., *u* after *q* and *g*) to distinguish between phonemic renderings. In English, silent *e* often marks a long vowel, and Spanish-English dual language learners often struggle with how to spell these sounds (Bebout, 1985; Raynolds et al., 2013), even similar sounds exist in Spanish. Other common errors include reducing double consonants, using consistent orthographic spelling, and applying Spanish phonological rules.

Significantly fewer studies have explored the influence of English on Spanish spelling (e.g., Bahr et al., 2015), but extant evidence suggests that, for Spanish-English emergent bilinguals, English spelling may also influence Spanish spelling. Bahr and colleagues (2015) analyzed common spelling errors in Spanish and English narrative and expository essays written

by twenty bilingual middle school children receiving English instruction for speakers of other languages (ESOL). They coded for type of error (phonological, morphological, orthographic, phonological-orthographic), code-switching, and Spanish dialectal differences. Many of the errors were similar to those made by developing English immersion writers (e.g., capitalization of proper nouns), but crosslinguistic patterns were also found. One common spelling pattern—similar to Spanish-influenced English texts—was vowel substitutions. For example, the Spanish *o* (/o:/) is more rounded than the English *o* (/ou/) and is typically formed farther back in the mouth. They found that students would spell *podia* as *pu dia*, replacing the *o* with a *u*. Another common spelling pattern was the use of linguistic features from the nontarget language. For example, children used spelling patterns and sounds that do not exist in Spanish (e.g., /f/), such as spelling *máquina* as *mashina* or *machina*, drawing from the English cognate, *machine*. Rubin and Carlan (2005) presented several samples of student writing in their text, which revealed that some spelling errors made by English monolinguals are also common for Spanish monolinguals, such as silent word-initial *h* deletion, switching *s* and *z* for /s/, and switching *b* and *v* for /b/ or /β/.

Transfer may not be unidirectional in a learner. This is especially likely for students in a dual immersion program as children may find features of both languages salient, leading to a more balanced competition between their two languages (Cummins, 1979; Rubin & Carlan, 2005). On the other hand, MacWhinney (2012, p. 20) suggested a one-way influence because the less developed language is dependent, or “parasitic,” on the more developed language. However, no research to our knowledge has investigated whether a same dual language learner transfers in both directions, from their less proficient language to their more proficient language and vice versa.

Influence of Instruction, English Learner Status, and Grade Level

Language is acquired over time through interaction at home, in the community, and at school, and, thus, crosslinguistic transfer of spelling patterns may be moderated by instructional program, English learner status, and grade level (as a proxy for development). A dual language learner may acquire English spelling patterns even if they are less proficient in English than Spanish if they receive sufficient exposure to English print in school in either English immersion, dual immersion instruction, or elsewhere (e.g., community, home). However, even if they develop some English literacy, they may transfer spelling patterns from Spanish to English if Spanish is more proficient and salient. This may be especially true if they receive dual immersion instruction that includes both Spanish and English spelling instruction. Over time, a dual language learner may become more proficient in English than Spanish if they receive sufficient English exposure (Cummins, 1976). A study with Grade 1 Spanish-English dual language learners in either English or Spanish instruction found that only the students in Spanish instruction used spelling patterns in English that could be attributed to Spanish crosslinguistic influence while the students in English immersion instruction made fewer spelling mistakes and tended to follow English orthographic rules (San Francisco et al., 2006). However, greater proficiency in English than Spanish could also lead to crosslinguistic influence on Spanish production, and the student may misspell Spanish words using English grapheme-phoneme correspondences. To the best of our knowledge, this has not been previously investigated.

English learner status may also lead to use of crosslinguistic spelling patterns. The student may be an English language learner and not sufficiently proficient in English for English spelling instruction to be salient if home and community use a language other than the school language, such as Spanish. Cummins (1976) suggested that a certain threshold of language

proficiency must be reached in the learner's first and second language for acquisition of the second language to be additive rather than either not make an impact or lead to attrition of the first language. If a learner does not have sufficient proficiency in the second language, when writing in English, a language learner may instead draw from their Spanish language knowledge leading to crosslinguistic influence. However, as more English instruction is received, this would become less likely. Research regarding young English learners spelling in English has had mixed results. Some studies have found that English learners made significantly more errors than monolinguals (e.g., Wang & Geva, 2003) while others found no significant difference between the two groups (Harrison, et al., 2016; Jongejan et al., 2007). Figueredo (2006) reviewed twenty-seven studies of English language learners' spelling skills in different developmental stages (Grade 1 to University) and of various linguistic backgrounds and found that many of the studies identified spelling errors that suggested crosslinguistic influence.

Grade levels may also moderate crosslinguistic transfer. Monolingual children and English learners tend to make less spelling errors in higher grades than lower grades (e.g., Apel et al., 2012; Caravolas et al., 2001; Jongejan et al., 2007). A dual language learner may also show a change in spelling over time and spell with less crosslinguistic influence in higher grades than younger grades as they learn to distinguish between the two languages. When Grade 2 students in Spanish-English dual immersion program were asked to write in English (Linan-Thompson et al., 2017), many common crosslinguistic spelling errors were found (*b* for *v*, *ei* for */ei/*, *i* for */i/*, *j* for */h/*, *ll* for *y* or *j*, *d* for *th*, *u* for *oo*, *ai* for */ai/*, reducing double consonants, and deleting word-initial *h*) at the beginning of the school year (approximately 74%). The number of errors decreased to 58% by the end of the year. In another study (Zutell & Allen, 1988), grade

did not capture spelling development. Instead, Spanish-English dual language learners in Grades 2, 3, and 4 differed by language proficiency level.

The Current Study

The purpose of this study is to investigate patterns of spelling errors potentially due to crosslinguistic influence for Spanish-English dual language learners in Grades 1 to 3 in either English immersion or English-Spanish dual immersion programs. The following were guiding research questions. First, are there consistent spelling error patterns potentially due to crosslinguistic influence in Spanish and English essays (narrative, opinion) written by Spanish-English dual language learners in Grades 1, 2 and 3? Second, if so, do dual language learners tend to show crosslinguistic influence in spelling errors in only one direction (English to Spanish or Spanish to English) or both directions (English to Spanish and Spanish to English)? Third, do spelling error patterns differ by instruction program (dual immersion vs. English immersion), English learner status, and grade level?

We predicted that there will be consistent spelling error patterns that are potentially due to crosslinguistic influence (e.g., Bebout, 1985). We may also find some patterns not previously identified such as spelling phonologically ambiguous consonants with the orthographic rules of the other language's system (e.g., replacing Spanish's dental stops, /d̪/ and /t̪/ with English's interdental, /ð/ and /θ/ instead of English's alveolar stops, /d/ and /t/). We also posited crosslinguistic influence of spelling patterns in both directions, particularly for those in the dual immersion program. To our knowledge, no previous research has explored whether dual language learners who make crosslinguistic spelling errors in one language also make crosslinguistic spelling errors in the other language. Lastly, we hypothesized that spelling error patterns would be significantly associated with instructional programs, language status, and

grade level. For example, we hypothesized that students in dual immersion instruction will use Spanish-influenced spelling patterns in English spelling. On the other hand, participants in English immersion instruction may be more likely to use English-influenced spelling patterns in Spanish spelling. We also expected that English language learners will make more Spanish-influenced errors in English than dual language learners who are classified as fluent in English (Figueredo, 2006), and that spelling errors will decrease as students develop (grade level as proxy; Jongejan et al., 2007).

Method

Participants

Spanish-English dual language learners in Grades 1 to 3 in a high poverty (81% of students eligible for the free and reduced lunch program), Title I school district in the Southwest of US were invited to participate in a larger study (Kim et al., 2022). These children attended either dual immersion or English immersion instruction. Of the total 380 participants, 278 (Female = 51%) exhibited some biliteracy skill in both Spanish and English—defined as the ability to write at least one word in the target language on one of their two essays (one narrative, one opinion) per language— were included in the current study. Thirty-one students used at least one Spanish word in their English essay, and three of them wrote the majority (50% or more) of their English essays in Spanish. These three students were enrolled in dual immersion instruction (two in Grade 1, one in Grade 2). One-hundred-and-five students who used at least one English word in their Spanish essay, and 12 of them wrote the majority of their Spanish essay in English. Two of the 12 students were enrolled in Grade 1 dual immersion, and the remaining were enrolled in English immersion (nine in Grade 2, one in Grade 3).

In addition, regarding the analysis sample ($n = 278$), most were in dual immersion instruction ($n = 229$), classified as English language learners by the district ($n = 214$), and of Latinx/Hispanic descent ($n = 247$). Dual immersion instruction at these schools is made up of 80% Spanish instruction for Grade 1 and 60% Spanish instruction for Grade 3. English immersion students received the English version of Benchmarks Events curriculum while dual immersion students received both English and Spanish versions. Approximately 3% of the students were receiving school services for disabilities (Autism Spectrum Disorder: $n = 1$, learning disability: $n = 3$, language impairment: $n = 5$). Two-hundred-and-thirty-two students received free or reduced lunch services. Table 1 shows the student descriptive information.

Table 1

Participant Information

	Total	Grade 1		Grade 2		Grade 3	
		<i>Dual</i>	<i>English</i>	<i>Dual</i>	<i>English</i>	<i>Dual</i>	<i>English</i>
Participants (n)	279	79	14	110	25	40	10
Mean Age	7.83	6.98	6.95	7.96	8.22	8.93	8.99
Female (%)	.51	.54	.36	.55	.60	.35	.60
Latinx (%)	.90	.87	.86	.93	.84	.85	.80
English learner (%)	.77	.85	.86	.83	.56	.70	.20
Free or reduced lunch (%)	.87	.82	.64	.88	.84	.80	.80
Disability (%)	.03	.01	.07	.04	.12	0	0

Note. Dual = Spanish-English dual immersion instruction. English = English immersion instruction.

Writing Measures

Two writing samples in English and Spanish respectively were collected. First, students completed a narrative task adapted from the Test of Early Written Language-Third Edition. The assessor explained qualities of a good story (beginning, middle, and ending with characters) and read an example story based on three sequential cartoons (a boy blowing balloons). After the demonstration, children were given a different prompt of three sequential cartoons (English: children skateboarding, Spanish: children playing soccer) and were told to write their own story based on the new images.

Second, an opinion task (Wechsler Individual Achievement Test-Third Edition in English and an experimental task in Spanish, adapted from English, Kim et al., 2015) was completed. In English, children were asked to write about their favorite game, and, in Spanish, they were asked to write about their favorite animal.

Writing assessments were administered by language in a quiet place at their school by trained bilingual research assistants. In a one-hour session, Spanish narrative and opinion tasks were administered and, typically later that week, in another one-hour session, English narrative and opinion tasks were administered. Students had 30 minutes to complete each writing assignment.

Spelling Patterns

Essays were transcribed verbatim by English-Spanish bilingual research assistants following Systematic Analysis of Language Transcripts (SALT) guidelines. To prepare compositions for SALT analysis, essays were broken up by utterance. An utterance was considered a finished thought that included a subject and verb (i.e., T-unit). During this process,

all transcriptions were cross-checked with the handwritten version to confirm accurate interpretation of handwriting.

Then spelling codes were created to record sounds and patterns misspelled potentially due to crosslinguistic influence. Codes were developed from a literature review (e.g., Fashola et al., 1996) and survey of the compositions. Some patterns in previous research, such as *ck/cc* replaced by *k* (e.g., Fashola, 1996), were not included since these grapheme-phoneme correspondences are acceptable in English and *k* is not commonly used in Spanish except in borrowed words. A total of 45 English transcription codes and a total of 15 Spanish transcription codes were used. More variation of Spanish influence on English spelling than English influence on Spanish spelling was identified. A summary of the spelling codes that were used are in Table 2. Interrater reliability in both languages was 97% for SALT analysis preparation coding (e.g., separating utterances and morphemes) and 95% for experimental codes. SALT software was used to tally experimental spelling codes, giving both a total essay count and an average count per utterance; the latter was used for analysis.

Table 2

Common Crosslinguistic Spelling Errors Made by Emergent Bilinguals in Grades 1 to 3 in English and Spanish Compositions

Sound/Spelling	Description	Example
<i>English</i>		
Long-e /i:/	Frequency long-e vowel (e.g., ee, ea, eo, ey, ie) in English was replaced by <i>i</i> per utterance.	people → pipol
Interdental /θ/, /ð/	Frequency interdental (e.g., th) in English was replaced by dental (e.g., d, t) per utterance.	the → de wit (with) a oder (another)

Long-i /ai/	Frequency long-i vowel (e.g., iCe) in English was replaced by <i>ai</i> , <i>ay</i> , or <i>a</i> per utterance.	I → Ai laic (like)
Short-i and schwa /ɪ/, /ə/	Frequency short-i vowel (e.g., iC) in English was replaced by <i>e</i> per utterance.	it → et
Short-a /æ/	Frequency short-a vowel (e.g., oC) in English was replaced by <i>a</i> per utterance.	from → fram
Bilabials /p/, /b/, /v/	Frequency <i>b/v/p</i> were switched per utterance.	bleeding → vleeding gives → gibs fipertre (favorite)
Long-a /ei/	Frequency long-a (e.g., ai, aCe, ay) was replaced by <i>ei</i> or <i>e</i> .	game → gem
Glottal fricative /h/	Frequency <i>h</i> was replaced by <i>j</i> , <i>g</i> , or <i>x</i> per utterance.	him → jim jauces (houses) gort (hurt)
Long-u /u:/	Frequency long-u (e.g., oo) was replaced by <i>u</i> per utterance.	balloons → balluns
Alveolar stop /k/, /g/	Frequency <i>qu</i> replaced <i>k-</i> or <i>g-</i> sounds per utterance.	beginning → viquenin basquet (basket) piques (because)
W-sound /w/	Frequency <i>w</i> -sound was replaced by <i>u</i> per utterance.	one → uan llant (want)
E-initial insertion	Frequency <i>e</i> was added before <i>s</i> initial words per utterance.	skateboard → skateboard eslaym (slime)
<i>Spanish</i>		
Alveolar stop switch /k/, /g/	Frequency <i>c</i> and <i>g</i> were switched.	gol → col
E-initial deletion	Frequency that <i>e</i> -initial is deleted per utterance.	estaba → staba
Glottal fricative /h/, /x/	Frequency that <i>h</i> -sound (<i>j</i> , <i>g</i> , <i>x</i>) was replaced by <i>h</i> per utterance.	hugando (jugando) protehe (protege)
Long-e /i:/	Frequency that long-e sound (<i>i</i> , <i>y</i>) was replaced by English spelling (e.g., <i>ee</i>) per utterance.	equipo → equeepo feforeetho (favorito)

Long-u /u:/	Frequency that long-u (u) was replaced by English spelling (e.g., oo) per utterance.	footbol (fútbol)
Long-o /o:/	Frequency that long-o (o) was replaced by English spelling (e.g., oCe) per utterance.	equipos → equipose
Dentals /d̪/, /t̪/	Frequency that dentals (t, d) were replaced by English interdental (th) per utterance.	de → the thambien (también) petho (puedo)
U replaced by W /uV/	Frequency that <i>w</i> was inserted to make diphthongs with <i>u</i> -sounds per utterance.	Eduardo → Edwardo
Qu-spelling /k/	Frequency that <i>qu</i> was replaced by English spelling (e.g., k, c) per utterance.	que → ke ckerer (querer) ekipo (equipo)

Results

Are there consistent spelling error patterns potentially due to crosslinguistic influence in Spanish and English essays?

Table 3 shows common spelling errors in the two writing tasks. Spelling errors made by at least once by 10 different students were determined to be the threshold to indicate a possible pattern and were included in the current analysis. In English compositions, 12 spelling patterns were identified as potentially due to crosslinguistic influence (see the top panel of Table 3), averaging to 1.15 spelling errors per utterance. The most common errors were replacement of long-e /i/ (e.g., *ee*, *ea*, and *ey*) with Spanish spelling *i*, replacement of interdentals (*th*-) with the Spanish dentals *t* or *d*, and replacement of long-i (e.g., *I* or *iCe*) with Spanish spelling *ai*.

In Spanish compositions, nine spelling patterns were identified as potentially due to crosslinguistic influence, averaging to .32 spelling errors per utterance. The most common spelling errors were replacement of long-e *i* and *y* with English spellings (e.g., *ee*), replacement of Spanish *qu* spelling with English *k* or *c*, and replacement of Spanish long-o (*o*) with English *oCe*.

Table 3*Most Common Crosslinguistic Spelling Errors per Utterance Averaged Across the Two**Prompts by Language*

<i>English spelling errors potentially influenced by Spanish</i>	
Total	1.15
Long-e replacement (e.g., he → hi)	0.19
Interdentals replaced with dentals (e.g., they → de)	0.18
Long-i replacement (e.g., I → Ai)	0.12
Short-i replacement (e.g., it → et)	0.15
Short-a sound with a/o switches (e.g., from → fram)	0.12
Bilabial switches (e.g., favorite → faborite)	0.09
Long-a replacement (e.g., game → geim)	0.08
Glottal fricative switches (e.g., his → jis)	0.07
Long-u replacement (e.g., shoot → shut)	0.07
E-initial insertion before <i>s</i>	0.06
K-sound replaced with <i>qu</i>	0.02
W-sound replaced with <i>u</i>	0.01
<i>Spanish spelling errors potentially influenced by English</i>	
Total	0.32
Long-e replacement (e.g., favorito → favoreeto)	0.10
K-sound replacement (e.g., que → ke)	0.07
Long-o replacement (e.g., equipos → equipose)	0.03
E-initial deletion (e.g., estaban → staban)	0.03
Dental replaced with interdental (e.g., también → thambién)	0.02
H-sound replacement with <i>h</i> (e.g., jugar → hugar)	0.02
U-sound replaced with <i>w</i> (e.g., sueno → sweno)	0.02
Alveolar switch <i>c/g</i> (e.g., ganar → canar)	0.01
Long-u replaced with <i>oo</i> (e.g., luna → loona)	0.01

What types of patterns were identified with spelling errors, if any?

Table 4 shows the correlation matrix between types of spelling errors potentially due to crosslinguistic influence both within and across languages for the entire sample. Within language correlations were positive and mostly significant weak to moderate magnitudes for English ($r_s = .13-.56, p < .05$) and Spanish ($r_s = .13-.51, p < .05$). For example, in English, short-a errors with e-initial insertion ($r = .56$) and interdental errors ($r = .44$), short-i errors with long-i ($r = .55$) and interdental ($r = .48$) errors, switching bilabials with short-i ($r = .52$) and long-i ($r = .48$) errors, and long-e errors with long-u errors ($r = .43$) all showed evidence of moderate positive relations. In Spanish, strong relations were shown between c/g switching with e-initial deletion ($r_s = .51$), replacing *u* with w with long-e ($r = .49$), e-initial deletion ($r = .47$), and interdental ($r = .47$) errors all showed positive moderate relations.

Correlations across languages were mostly not significantly related. Significant bivariate relations were negative weak magnitudes ($r_s = -.17$ to $-.12, p < .05$). For instance, long-e errors in Spanish were weakly negatively related to long-e errors ($r = -.17$), glottal ($r = -.15$), interdental ($r = -.14$), and long-i ($r = -.14$) errors in English. Similarly, errors with the h-sound in Spanish were weakly negatively related to interdental ($r = -.14$) and long-e ($r = -.13$) errors in English. Overall, participants who made crosslinguistic spelling errors in English or Spanish were likely to make other crosslinguistic spelling errors within the same language and were not likely to make crosslinguistic spelling errors in the other language. Examples of student essays are in the Appendix.

Table 4

Correlations Between Crosslinguistic Spelling Errors (n = 278)

	English										Spanish										
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
<i>English</i>																					
1. long-e	-																				
2. interdent	.32*	-																			
3. long-i	.29*	.31*	-																		
4. short-i	.40*	.48*	.55*	-																	
5. short-a	.38*	.44*	.23*	.41*	-																
6. bilabial	.29*	.38*	.48*	.52*	.36*	-															
7. long-a	.24*	.35*	.21*	.30*	.14*	.35*	-														
8. glottal	.34*	.26*	.27*	.20*	.21*	.19*	.23*	-													
9. long-u	.43*	.19*	.16*	.25*	.00	.09	.31*	.30*	-												
10. e-initial	.36*	.40*	.11	.21*	.56*	.31*	.24*	.15*	.09	-											
11. k- sound	.15*	.16*	.06	.16*	.06	.23*	.20*	.14*	.11	.10	-										
12. w- sound	.16*	.21*	.24*	.15*	.19*	.14*	.11	.13*	.15*	.08	-.04	-									
<i>Spanish</i>																					
13. long-e	-.17*	-.14*	-.14*	-.06	-.13*	-.12*	-.04	-.15*	-.10	-.12*	-.07	.02	-								
14. k-sound	.05	.02	-.03	.04	-.01	.10	.11	-.04	.12*	.05	-.06	-.04	.29*	-							
15. long-o	-.03	-.11	-.02	.03	-.07	-.11	-.11	-.05	-.08	-.07	-.06	-.06	.19*	.10	-						
16. e-initial	.05	-.10	-.08	-.03	-.05	-.02	-.05	.00	.06	-.09	-.06	-.02	.34*	.51*	.05	-					
17. interdent	-.12	-.10	-.10	-.08	-.09	-.06	-.08	-.10	-.09	-.08	-.05	-.05	.40*	.27*	.18*	.20*	-				
18. h-sound	-.13*	-.14*	-.12	-.08	-.07	-.08	-.10	-.12*	-.07	-.05	-.06	-.02	.41*	.20*	.15*	.20*	.38*	-			
19. u-sound	-.08	-.05	-.10	-.11	-.12*	-.08	-.08	.01	-.06	-.12	-.06	-.04	.49*	.38*	.11	.47*	.47*	.19*	-		
20. c/g switch	.06	.00	.04	.02	-.02	.03	.11	-.05	.00	.03	.00	-.05	.17*	.32*	.06	.38*	.15*	-.01	.38*	-	
21. long-u	-.09	-.06	-.07	-.06	-.07	-.06	-.06	-.08	-.05	-.07	-.04	-.03	.16*	-.01	.04	.14*	.19*	.13*	-.01	.08	-

Notes. Correlations are between summed per utterance scores from the two compositions per language. Significant at $p < .05$ denoted by asterisk (*).

Do these patterns differ by instructional program, English learner status, and grade level?

Instructional program, English learner status, and grade level were included as predictors for a composite of total spelling errors potentially due to crosslinguistic influence as the outcome variable in a regression model by language controlling for free or reduced lunch. Table 5 shows the results. For the English spelling error pattern that were potentially influenced by Spanish, the regressions model showed that spelling patterns were significantly predicted by instructional program ($\beta = 1.11, p < .000$) and grade level (Grade 2: $\beta = -.41, p = .01$; Grade 3: $\beta = -.93, p = .00$), but not by English learner status ($\beta = .32, p = .06$). Students in dual immersion program made significantly more English spelling errors potentially due to Spanish influence than students who were in English immersion instruction. In addition, students in higher grades made significantly less crosslinguistic spelling errors than students in lower grades.

For Spanish spelling error patterns that were potentially influenced by English, instructional program was statistically significant ($\beta = -1.12, p < .000$) and Grade 2 was significantly different from Grade 1 ($\beta = -.14, p = .04$, see Table 5). Students in English immersion instruction made significantly more spelling errors in Spanish compositions potentially due to English influence than students who were enrolled in dual immersion instruction. Grade 2 students made significantly less crosslinguistic errors in Spanish than Grade 1 students.

Table 5

Regression Models Predicting Spelling Patterns due to Crosslinguistic Influence in English and Spanish Compositions

	β	<i>SE</i>	<i>p</i>	CI.LB	CI.UB
<i>English spelling errors potentially influenced by Spanish in English Composition</i>					
Dual	1.11	0.19	0.00	0.74	1.48
EL status	0.32	0.17	0.06	-0.02	0.66
Grade 2	-0.41	0.15	0.01	-0.71	-0.11
Grade 3	-0.93	0.20	0.00	-1.34	-.53
FARL	0.58	0.21	0.01	0.18	0.99
Intercept	-0.16	0.27	0.55	-0.68	0.37
<i>Spanish spelling errors potentially influenced by English in Spanish Composition</i>					
Dual	-1.12	0.08	0.00	-1.29	-0.96
EL status	-0.04	0.09	0.64	-0.19	0.12
Grade 2	-0.14	0.07	0.04	-0.28	-0.01
Grade 3	-0.04	0.09	0.70	-0.22	0.15
FARL	-0.04	0.09	0.64	-0.23	0.14
Intercept	1.40	0.12	0.00	1.16	1.63

Notes. Outcome variables are composites across all spelling patterns (Table 4) per utterance. Dual = Enrolled in Spanish-English dual immersion instruction. EL status = English language learner. Grade = continuous variable across grades 1, 2, and 3. FARL = Free and reduced lunch status.

Discussion

We investigated spelling errors in compositions written by Spanish-English dual language learners in Grades 1, 2, and 3 enrolled in either English immersion or dual immersion

instruction. We hypothesized that students would make crosslinguistic spelling errors, that spelling errors would be made in both directions (English to Spanish and Spanish to English), and that errors would be moderated by instruction, English language status, and grade. Most of our hypotheses were confirmed.

First, dual language learners used orthographic and phonological rules of their other language to support writing in the target language, suggesting crosslinguistic influence and confirming our first hypothesis. Spelling errors were present in both English and Spanish compositions. In English compositions, we identified an average of 1.15 Spanish-influenced spelling errors per utterance. The complexity and inconsistency of English spelling may contribute to the high number of misspellings per utterance. Many words contained multiple patterns, such as “happy” spelled as “japi” (glottal fricative and long-e), “bleeding” spelled as “vliding” (bilabial switch and long-e), “kid” spelled as “queds” (k-sound and short-i), or “skateboard” spelled as “esceidbor” (e-insertion and long-a). Many of these patterns have also been found in previous research (e.g., Fashola et al., 1996). In addition, most English words cannot be spelled correctly by using Spanish graphophoneme rules. Therefore, drawing from crosslinguistic graphophoneme rules of Spanish to spell English words would most likely lead to an error.

We investigated spelling in written compositions to examine the spelling process of dual language learners while they manage the other constraints of the writing process. Our approach was different from prior research on dual language learner’s spelling that instead assessed spelling in isolation through wordlists that included patterns to capture crosslinguistic influence (e.g., Fashola et al., 1996). On one hand, our approach limited the variability in potential spelling patterns due crosslinguistic transfer. For example, essays included very few words with letters

such as z/s, ch/sh/s, ll/y/j, other graphophoneme correspondences in English and Spanish that were not analyzed in the current work. Although some students wrote words with these sounds did make the predicted crosslinguistic spelling errors, there was an insufficient number of occurrences to consider it a pattern (i.e., made by less than ten students). On the other hand, our approach was beneficial because we identified some Spanish on English spelling patterns that were not previously identified. For instance, to our knowledge, no previous studies examined how English short-i and schwa were replaced by *e*, switching of *c* and *g*, nor insertion of *e* before *s*. We recommend future research combine the two approaches, that is use wordlists with predicted crosslinguistic patterns and examining spelling patterns in context (i.e., authentic writing tasks), to provide the most complete picture of crosslinguistic patterns.

We also investigated whether there was evidence of English influence on Spanish spelling. To our knowledge, this is the first study to examine this relation. We identified an average of .32 English-influenced spelling errors per utterance. Unlike in English compositions, there was typically only one spelling pattern per word, such as “y” spelled as “ee” (long-e), “jugando” spelled as “hugando” (glottal fricative), “gol” spelled as “col” (alveolar switch), and “queria” spelled as “keria” (k-sound). There may have been significantly less crosslinguistic spelling errors per utterance due to shared and non-shared letter-sound mappings in the two languages. For instance, many words in Spanish could potentially be spelled by sounding out in English letters (e.g., gol, uno). In fact, the words that broke English graphophoneme rules were the ones that were often misspelled (e.g., jugando, equipo). Therefore, English graphophonemic knowledge may crosslinguistically support some spelling in Spanish.

Overall, there was a greater number of crosslinguistic errors made due to Spanish influence on English than English influence on Spanish. One reason for this may be that students

did not have balanced oral language skills in both languages. One potential explanation is that students were more proficient in Spanish than in English and therefore, they drew on their Spanish language resources. However, many more students borrowed English words in their Spanish writing than borrowed Spanish words for their English writing, which suggests greater vocabulary knowledge in English than in Spanish. It might be that students utilized Spanish phonological systems even though they had high proficiency in English vocabulary. We explored variables related to proficiency, such as grade (as a proxy for development) and English learner status, but we did not measure proficiency. Future research that includes language proficiency assessments is needed to further investigate our finding that crosslinguistic transfer is possible in both directions for dual language learners.

Another reason there may have been more evidence of Spanish influence on English than English influence on Spanish may be due to orthographic depth. Seymour and colleague's (2003) survey of 13 European languages found that children learning to read in mostly consistent orthographies developed a high level of accuracy in word reading within their first year of instruction while children learning to read in English tended to take more than twice as long. Therefore, when dual language learners receive input from two competing languages simultaneously, they may acquire the graphophoneme rules of the more consistent spelling system more easily than the more complex, inconsistent spelling system. Therefore, even if dual language learners did have balanced oral language skills, they may develop the spelling patterns of the two languages at different rates. This speculation was further supported by our findings discussed below regarding grade as a moderator.

Another unique aspect of the present study is an examination of whether there was a pattern of participants' misspelling within and across languages, which has not been investigated

in prior research to the best of our knowledge. We found evidence of unidirectional crosslinguistic transfer of spelling patterns. Our bivariate correlational analysis found overall positive weak to moderate relations within language and weak negative relations across languages. Participants who used Spanish-influenced spelling errors in English typically made other Spanish-influenced spelling errors in English, and the same was true for English-influenced spelling errors in Spanish. Learners tended to make crosslinguistic errors in one direction (Spanish on English or English on Spanish) but not both. Student examples (Appendix) corroborates this finding. Students often made multiple spelling errors potentially due to crosslinguistic influence in one language and demonstrated proficient spelling with minimal mistakes in their other language. For instance, students 1, 2, 3, and 5 borrowed Spanish patterns to spell words in English while students 4, 7, and 8 borrowed English patterns to spell words in Spanish. Student 6 is one of the few students who showed that crosslinguistic transfer is possible both ways in the same student (e.g., *nid* for *need*, *al* for *I'll*, *hugando* for *jugando*, and *kando* for *ganaron*), but this was rare. Prior research investigating crosslinguistic transfer has found evidence that a more proficient language can influence spelling in a less proficient language (e.g., Figueredo, 2006), but this is the first research to investigate the other direction. However, as previously stated, some students may have been more proficient in English than Spanish, explaining why crosslinguistic transfer was found in both directions.

We also predicted that instructional program, English learner status, and grade levels would moderate crosslinguistic spelling errors in both languages. We found that instructional program and grade levels were related to the quantity of crosslinguistic spelling patterns, but not to English learner status once instructional program and grade levels were controlled for. Students in the dual immersion program compared to those in the English immersion program

were significantly more likely to make Spanish-influenced English spelling errors, but significantly less likely to make English-influenced Spanish spelling errors. These findings held true controlling for English learner status, grade level, and free or reduced lunch status. The current study's dual immersion participants, who received 60-80% of their instruction in Spanish, tended to source Spanish for graphophonemic rules, regardless of English learner status. These findings underscore the impact of instruction on spelling development.

Grade levels were significantly associated with Spanish-influenced errors in English, but only Grade 2 was significantly different from Grade 1 with English-influenced errors in Spanish. Models controlling for instructional program, English learner status, and free or reduced lunch status showed that, in English, students in higher grades made significantly less crosslinguistic spelling errors than students in lower grades. On the other hand, in Spanish, there was no significant association between English-influenced errors and grade. Most prior research exploring spelling development overtime on both monolinguals (e.g., Apel et al., 2012; Caravolas et al., 2001; Jongejan et al., 2007) and English language learners (e.g., Jongejan et al., 2007; Linan-Thompson et al., 2017) has also found that grade moderated errors. Usage-based theories (e.g., Tomasello, 2000) suggest that language skills develop from interaction and frequency of exposure. According to MacWhinney (2005), crosslinguistic transfer occurs when one language cues the other language and the more salient, developed language is sourced. Our findings suggest that participants in both dual immersion and English immersion instruction received sufficient exposure to make significantly less crosslinguistic spelling patterns over time in English, but not in Spanish. Regarding English, this makes sense. English immersion instruction provides consistent English exposure which leads to a reduction in student spelling errors over time. However, we do not have an explanation as to why grade levels did not

moderate spelling errors made in Spanish. As previously hypothesized, perhaps the two languages develop at different rates. Due to the different orthographic depths, Spanish's consistent orthography may be acquired more rapidly to a certain level of proficiency then development slows while English's inconsistent orthography is developed more slowly overtime. Rubin and Carlan (2005) proposed that dual language learners develop slower than monolinguals as they learn to differentiate between two phonological and spelling systems during early writing stages and, as a result, transfer spelling patterns between languages. They did not address, however, whether the languages develop at the same speeds. Our findings suggest they may not. Future research that follows dual language learners in dual immersion and English immersion programs beyond the primary grades can further explore spelling development in both languages. Lastly, English learner status was not significantly related to crosslinguistic spelling errors when controlling for instruction program and grade level. Therefore, instruction and development primarily explained any differences in crosslinguistic spelling errors regardless of English learner status.

This study extends our understanding of crosslinguistic influence in early writing development, specifically spelling. We found that dual language learners in Grades 1 to 3 make crosslinguistically-influenced spelling errors in both languages. Multilingual development theories (e.g., Cummins, 1979; MacWhinney, 2005) posit that languages share cognitive space and resources. Similar linguistic features and competition between linguistic structures, such as phonological, lexical, and syntactic systems, can lead to crosslinguistic transfer. Spelling ability requires phonological, morphological, and orthographic knowledge (Apel & Masterson, 2001; Bear & Templeton, 1998; Ehri & McCormick, 1998), and Spanish and English share many alphabetic and phonological properties. It seems reasonable to hypothesize that this applies to

dual language learners' spelling development. Furthermore, phonemic or orthographic features in one language cued more salient spelling patterns in the other language. MacWhinney (2012) theorized that for adult learners, transfer only happens in one direction, L1 transferring to L2, but did not address patterns in children. We found that transfer tended to be only in one direction in our sample of dual language children. Also, transfer errors in both languages were significantly associated with instructional program as well as grade for English compositions. This emphasizes that instruction is an important source of exposure that is needed for spelling proficiency.

Our study also has practical implications. Our findings, such as Spanish-English crosslinguistic spelling error list (Table 2), includes some consistent spelling errors not identified in previous research. This information, together with findings from previous studies, can be used by practitioners to explicitly instruct students (MacWhinney, 1997), create error correction activities (Gettinger, 1993), analyze student writing for spelling errors that may be due to crosslinguistic influence, and develop spelling assessments that target these patterns.

Limitations and Future Directions

The current study had the following limitations. First, the majority of our biliterate sample was enrolled in dual immersion programs. Many students who were considered by teachers as dual language learners enrolled in English immersion instruction did not show biliteracy only oral bilingualism; they were unable to write at least one word in both languages. Future studies should further compare biliterate students in various in education settings. However, this may be a challenge considering the impact that instruction has on spelling and writing development. Second, we did not measure oral language skills (e.g., vocabulary) or spelling in isolation. Proficiency in these skills may have impacted what types of errors children

made and whether or not they transferred spelling patterns crosslinguistically. We used grade as a proxy for development and English learner status as a proxy for English proficiency, but these may not be sufficient measures (e.g., Zutell & Allen, 1988). We recommend that future studies collect proficiency measures in both languages. Next, our study collected cross-sectional data of the early primary grades, but we recommend that future research is longitudinal and continues into later primary grades. Lastly, no classroom observation data were collection. Therefore, we do not know what type of instruction students received beyond the curriculum. Future research that includes teacher practices and classroom instruction is needed to investigate how they relate to dual language spelling and writing development.

Conclusion

These findings build upon prior research on crosslinguistic spelling patterns of dual language learners and indicate the importance of instruction for dual language learners. We hope our findings help practitioners support the spelling development of Spanish-English dual language learners. We urge researchers to conduct more studies on dual language learners in different instructional programs, an important gap in the research in the field of literacy development. Future investigations should not only replicate our study but also extend it by assessing language proficiency in both languages.

Study 2

Syntax is a language's rule-system to construct words into meaningful constituents. More advanced syntax can lead to greater clarity, accuracy, coherence, and sophistication in language production, such as writing (Hunt, 1970; Wolfe-Quintero et al., 1998). In general, written syntax features become longer per unit, more accurate, and more sophisticated in association with greater language proficiency (Celaya, 2019; Wolfe-Quintero et al., 1998), and they are positively associated with writing quality (Crowhurst, 1983; Yang et al., 2015). However, most available studies only analyze English production from English monolinguals and adult second language learners. Although young emergent bilinguals who speak a language other than English at home is a rapidly growing population that makes up a large proportion of public-school students in the United States, there is almost no research that has examined syntax features in their written production. About 75% of United States emergent bilinguals speak Spanish (National Center for Education Statistics, 2020), and, therefore, investigating Spanish-English emergent bilinguals in both Spanish and English is especially pertinent. In addition, dual immersion instruction has increased in availability in some states in the US; however, literacy skills for children in these programs are also under-researched.

To address these gaps, the current study examined syntax features in both Spanish and English essays by children in primary grades in either Spanish-English dual immersion or English-immersion. We also investigated whether the syntax features of one language were related to the syntax features in the other language, whether syntax features were related to writing quality within languages, and whether the relations between syntax features and writing quality are moderated by developmental phase (grade level), English proficiency (English learner status), and instructional program (dual versus English immersion). Below, we review the

literature on written syntax features and writing quality, followed by syntactic features of two focal languages Spanish and English, and potential moderators of the relations of written syntax features to writing quality.

Written Syntax Features and Writing Quality

The role of language skills in writing has been recognized in several theoretical models, including the cognitive model (Flower & Hayes, 1981), the simple view of writing (Berninger, 2000), and the Direct and Indirect Effects Model of Writing (DIEW, Kim, 2020). For ideation to be translated into text, proficiency in the language is required. Syntax, along with other oral language skills such as vocabulary (Olinghouse & Wilson, 2013), constrain writing while developing (Berninger et al., 1992). In other words, oral language proficiency can also act as a bottleneck if not proficient because cognitive resources such as working memory and attentional control will be expended to retrieving vocabulary words and formulating sentences (Kim & Graham, 2022). Studies have shown the relations of the language skills to writing quality, including morphosyntax knowledge (Kim et al., 2011; Olinghouse, 2008).

The relation between written syntax features and writing quality has been under investigated. Jagaiah and colleagues (2020) conducted a systematic review on written syntax features of students enrolled in K-12 and found that only five studies examined them in relation to writing quality, none of which included primary grade students. Of these studies, three found significant relations. Beers and Nagy's (2009) investigation of Grade 7 and 8 students' mean length of clauses, mean length of utterances, and clauses per utterance to writing quality yielded inconsistent results with a large range in magnitudes ($-.49 \leq r_s \leq .44$). For instance, the relation between mean length of utterances and writing quality was weak and negative for argumentative essays ($r = -.29$) but moderate and positive for narrative essays ($r = .31$). Crossley and colleagues

examined essays by Grades 8, 11, and college freshmen and found that students in higher grades used more modifiers per noun phrase than students in lower grades. Lastly, Stewart and Grobe (1979) investigated mean length of utterances, mean length of clauses, and clauses per utterance to writing quality and found weak to moderate relations in Grade 5 ($.23 \leq rs \leq .37$) and weak relations in Grades 8 ($.02 \leq rs \leq .20$) and 11 ($-.19 \leq rs \leq .12$).

Spanish and English Syntax Features

Spanish and English share some basic syntax features. For instance, both languages use *-s* to create a plural. However, the other *-s* morpheme in English (possessives) does not translate to Spanish. In Spanish, a possessive is created through a prepositional phrase (e.g., *el libro de Natalie*), which is also used in English (e.g., *the book of Natalie*). In English, a possessive structure is selected due for formality or to put attention on either the possessor or the possessed. Articles also share some similarities across the two languages. Both English and Spanish have indefinite and definite articles. Indefinite articles are used the mostly same across the two languages to introduce a noun not previously known to the audience. Definite articles, on the other hand, vary quite a bit. For instance, a definite article in English is used as a referent to tell the audience that they already know of this noun (e.g., *Mountains are pretty* versus *The mountains are pretty*) or is used in titles (e.g., *The San Francisco Giants*). However, in Spanish, definite articles are required in front of nouns used in generalization statements in addition to known nouns (e.g., “*Las montañas son bonitas*” could mean either all mountains are beautiful or that a specific group of mountains being referred to are beautiful). There are other differences. For example, definite articles are also used for scheduled events instead of a preposition (e.g., *I’ll see you on Monday* versus *Te veo el lunes*).

Regarding Spanish and English syntax structures, in general, many subject-verb-object simple sentences could be directly translated, but this tends to not hold true as the two languages increase in complexity. As Spanish and English structures become more sophisticated, there are less similarities in syntax. For example, even though Spanish and English both have VO (verb-object) structures, Spanish is more flexible than English. Spanish also has a pronominal clitic system of reflexive verbs, and English has nothing comparable. In addition, complements in Spanish move for pragmatic purposes while, in English, complements are mostly fixed. As well, Spanish is a morphologically rich language (e.g., gender on nouns, conjugations of verbs, reflective clitics) while English has high grammatical density (e.g., one morpheme holds multiple meanings). To express the same information, Spanish may require more words that are also longer than English.

Syntactic Crosslinguistic Influence Between Spanish and English

Crosslinguistic influence can happen when proficiency in one language supports proficiency in a second language as both languages draw from the same underlying skills (Cummins, 1979) and function within the one cognitive system (Chung et al., 2019). When the languages share a unit, whether it be semantic, phonological, orthographic, or morphosyntactic, use of that unit cues production in the other language (MacWhinney, 2005; Proctor et al., 2010; Sierens et al., 2020). Yip and Matthews (2006) found that the language in which a multilingual speaker produced more complex syntax (i.e., longer mean length of utterances) was the language they sourced, influencing their other language.

The cognitive processes and mechanisms of crosslinguistic transfer described above vary as a function of different factors, including environment (Proctor et al., 2010). Social communities, where crosslinguistic production is part of the practice and grammar, may promote

a crosslinguistic relation (García & Lin, 2017). A written product is situated within in a community that is made up of not only the author and their collaborators (e.g., teachers), but also the community's purpose, history, environment, and other members as well as “macrolevel forces” (Graham, 2018, p. 259). Multilingual communities make use of translanguaging, that is, intentionally using multiple languages “to draw on all the linguistic resources of the child...in a dynamic and functionally integrated manner to organize and mediate mental processes” (Lewis et al., 2012, p. 655). In classrooms, translanguaging may enhance comprehension, support acquisition of both languages, and increase engagement and communication among students (Salmerón, 2022), and, specifically for writing, help with self-regulation (Velasco & García, 2014), development of author voice (Kiramba, 2017), and audience awareness (Salmerón, 2022). Therefore, a young dual language learner's written texts is a product of a flexible language environment where crosslinguistic sharing of syntax features while forming ideas in both languages may adhere to the emergent bilinguals' typical discourse and repertoire.

Young Spanish-English emergent bilinguals have been found to share linguistic knowledge across their languages. Gort (2006) studied eight Grade 1 emergent bilinguals in dual immersion instruction over six months and found that students often switched between their two languages, such as ideating orally in one while translating and transcribing in the other or borrowing language-specific features, which included syntax, from one language while writing in the other. In addition, analysis of oral production of children have found crosslinguistic relations between Spanish and English syntax features (Castilla et al., 2009). However, these studies did not examine crosslinguistic relations between written syntax features.

Potential Moderators of Written Syntax Features' Relation to Writing

Developmental Phase of Writing

DIEW posits that the relations between the different component skills of writing (e.g., higher order thinking, transcription, vocabulary, grammar, working memory) and writing are dynamic, varying as a function of development (Kim & Graham, 2002; Kim & Park, 2019). Specifically, the relations are impacted by transcription skills because transcription skills place a large constraint in the beginning phase of writing development and act as a bottleneck to writing until they are automatized. As transcription skills develop, writers have more cognitive resources available for other writing processes, such as formulating sentences and planning, to express more sophisticated ideas. Even though young speakers use sophisticated syntactic constructions (Lightbown & Spada, 2009), early writing is often simplistic in comparison (McCutchen, 1996; Pfenninger, 2020) because of the constraining role of transcription skills. As transcription skills rapidly develop during the primary grades, language skills such as grammatical knowledge and syntax features of writing will be represented to a greater extent in written compositions. In fact, more advanced writers tend to write more words per utterance (Crowhurst, 1980; Beers & Nagy, 2011) with fewer syntactic errors (Tejada-Sánchez & Pérez-Vidal, 2018) while also utilizing more complex sentence structures (Celaya, 2019) than less advanced writers. This might render the relation of written syntax to writing quality to be stronger for more developed writers than less developed writers.

To our knowledge, the hypothesis that as the relation between syntax and writing quality may increase in magnitude as developing writers become more proficient in writing has not been directly tested. However, the correlational studies that examined the relation between written syntax features and writing quality across different grade levels reported stronger relations for students in lower grades than in upper grades (Stewart & Grobe, 1979; Wagner et al., 2011).

First, Wagner and colleagues' (2011) investigation of monolingual English students showed Grade 1 students' syntactic complexity (T-unit length; clause density) had mostly moderate relations to writing measures (presence of a topic sentence; idea organization) while the relation was weak for Grade 4 students. Similarly, as previously stated, Stewart and Grobe (1979) found that the relation between syntactic complexity measures (words per T-unit, words per clause, and clauses per T-unit) and writing quality was weaker for students in higher grades than in lower grades when analyzing students in Grades 5, 8, and 11. However, neither conducted analysis that tested for a statistical difference between groups nor controlled for other variables that may be confounding results, such as language proficiency or socio-economic status. Thus, we address these gaps in the current study.

English Learner Status

If oral language proficiency is important to writing, then syntactic features in written composition in English are likely to differ as a function of English learner status. English learners by definition lack proficiency in English compared to children who are not English learners, and therefore, the syntactic features in English compositions might differ for English learners versus not.

Although no research to our knowledge has examined written syntax of English learners in dual immersion instruction, one study examined Spanish learners in Spanish-English dual immersion instruction (Fernández-Dobao & Herschensohn, 2020). Students between 9-10 years old who were classified as Spanish L1, Spanish heritage, and L2 speakers were assessed in Spanish oral and written language. Analysis of their morphosyntax production showed that, overall, Spanish L2s made significantly more errors than Spanish L1s while heritage speakers tended to be similar to L1s. Although this study did not examine the relations of morphosyntax

features to writing quality, findings suggest that oral and written syntax skills differ by language learner status.

Instructional Program

Environmental factors such as instruction are expected to impact language and writing skills (Kim & Graham, 2022). Depending on what instruction emphasizes, different skills may be more developed, and, not surprisingly, previous research confirmed that instructional program has an important impact on syntax development. For instance, heritage speakers—emergent bilinguals who do not receive formal support (instruction) in their home language—have been found to struggle producing complex structures, passives, and word orders, and, instead, rely on core, basic structures in their heritage language (Benmamoun et al., 2010; Scontras et al., 2015). In addition, children who received instruction in predominately English struggled producing structures in Spanish that were not crosslinguistically similar (Austin et al., 2013). On the other hand, students who received instruction in both heritage language and societal language reached similar language proficiencies in both languages (Manis et al., 2004). If instructional program impacts language development, then, theoretically, syntactic features in writing should differ by instructional program.

Few studies have analyzed syntax features produced by dual instruction students. An exception is a Lanauze and Snow's (1989) study that investigated Grade 4 and 5 Spanish-English bilingual children's essays and found fewer T-units and noun phrases in English than in Spanish compositions. As well, students who were either rated by their teachers as having "good" proficiency in both Spanish and English or "poor" in English and "good" in Spanish included greater T-units and noun phrases in their writing than the students identified as "poor" in both languages. On the other hand, another study of emergent bilinguals enrolled in dual immersion

found that oral production was syntactically comparable in the two languages (Gutierrez-Clellen, 2002). Eighty-six percent of the T-units (a main clause and its dependent clauses) of spontaneous speech samples of Spanish-English Grade 2 mostly enrolled in dual immersion instruction were grammatical in English and 85% were grammatical in Spanish.

These findings suggest that the influence of instruction—dual immersion or not—on written syntax. However, we have little empirical evidence about whether the instructional program impacts emergent bilinguals' written syntax skills or the relation to writing quality.

Present Study

In the current study, we aim to extend extant literature on the relation between written syntax and writing quality by investigating Spanish-English emergent bilinguals in primary grades. Written syntax features have been largely unexplored, and it is unclear which measures are useful for researchers and practitioners. We investigated mean length of utterances, number of verbs per utterance, number of agreement words (Spanish only), and subject agreement accuracy in relation to writing quality. Mean length of utterances, as described above, has been found related to writing quality (Beers & Nagy, 2009; Stewart & Grobe, 1979), and to capture linguistic development (Yip & Matthews, 2009), but it has yet to be examined in emergent bilinguals' two written languages. We examine utterance length by words rather than morphemes for crosslinguistic comparison purposes, to avoid the subjectivity involved in defining morphemes, and because both measures yield similar results (Ezeizabarrena & García Fernández, 2018). Next, we examined mean number of verbs per utterance, which has been previously examined in oral language for participants with disabilities (e.g., Grela, 2002) but not in writing. For Indo-European languages such as English and Spanish, the verb is the heart of the sentence, necessary to make it grammatical and meaningful (Pulverman et al., 2006). More

complex syntactic structures often include more verbs (e.g., subordination, embedded clauses). Total number of written verbs has been found related to writing quality for children with developmental language disorders ($r = .42$, Stuart et al., 2019). However, because verbs were not averaged across utterances, the finding may be confounded by production skills. Finally, we analyzed the number of subject agreement words per utterance and whether they were conjugated accurately. Error analysis of morphosyntactic units including subject agreement has been previously examined (Stapa and Izahar, 2010), but the relation between these measures and writing quality has yet to be investigated. Furthermore, English has a simple morphosyntactic system in comparison to Spanish, and for the most part, crosslinguistic sharing of structures is not possible.

The current research was guided by the following questions. First, what are the syntax features (mean length of utterances, verbs per utterance, subject agreement) of Spanish and English essays (narrative, opinion) written by emergent Spanish-English emergent bilinguals in Grades 1 to 3? Second, do syntax features in written compositions differ by grade, English learner status, and instructional program (dual immersion versus English-only) controlling for free and reduced lunch status? Third, do syntax features in one language predict syntax features in the other language with controls? Fourth, are syntax features in written compositions related to overall writing quality in English and Spanish, respectively, controlling for grade levels, English learner status, instructional program, and free and reduced lunch status within languages? Lastly, do relations between written syntax features and writing quality vary as a function of grade levels, English learner status, and instructional program, controlling for free and reduced lunch status?

We hypothesized the following. First, we predicted that emergent bilinguals would exhibit syntactic skills in both languages. Possibly, because Spanish has a more complex morphosyntactic system than English, we may find differences between the two languages in accuracy. We also predicted that syntax features would be related within and across languages (Cummins, 1979; MacWhinney, 2005). Second, we expected that there would be greater syntactic complexity with less errors in writing by more developed writers (i.e., higher grades), that English language learners would have more proficient syntax in Spanish and be less proficient in English than non-English learners, and that students in the dual immersion program would be more proficient in Spanish than those receiving English immersion instruction. Third, we predicted that there would be a positive relation between syntax measures and writing quality such that participants who wrote essays of greater complexity, accuracy, and agreement would have higher writing quality scores. In addition, we expected that writing quality in one language would be related to syntax features in the same language. Finally, in regard to the differential relation between syntax features and writing quality, we expected students in higher grades (e.g., Grade 3) to have weaker relations than students in lower grades (e.g., Grade 1), English learners to significantly differ from non-English learners in English, and dual immersion students to significantly differ from English immersion students in both languages, especially Spanish.

Method

Participants

Participants of this study were selected from a larger study (Kim et al., 2022) of Spanish-English emergent bilinguals' language and literacy development conducted in three elementary schools in an urban school district in the Southwest region of the US. Of the original 380 children, 278 were included in the current study because they showed some biliteracy in both

English and Spanish: they wrote at least one word in the target language in one of their two writing tasks per language. For Spanish essays, 105 students used at least one English word in their essay; 12 of whom wrote the majority of their essay in English. For English essays, 31 students used at least one Spanish word in their essay; 3 wrote the majority of their essay in Spanish.

The current sample of 278 children included 247 Latinx or Hispanic students, 214 English language learners, 142 who identified as female, 232 who were eligible to the free or reduced lunch program, and 9 who received disability services. Two-hundred-and-twenty-nine participants were enrolled in Spanish-English dual immersion and 50 were in English immersion instruction. Dual immersion instruction in this district starts with 90:10 Spanish-to-English instruction in Grade 1 and 80:20 Spanish-to-English in Grades 2 and 3. Table 1 shows descriptive information by grade.

Assessment

Participants were administered four writing tasks, two genres (one narrative, one opinion) per language. The narrative task was an adapted version of the Test of Early Written Language-Third Edition (TEWL). The directions explained that a high-quality story includes characters and beginning, middle, and end, and included an example story based on three sequential cartoons. Then students were given a new sequential illustration and were told to write their own story based on the images. For Spanish, participants wrote about two teams of children playing a soccer game and, for English, about three children skateboarding one of whom falls off his board and is injured.

The opinion task was the Wechsler Individual Achievement Test-Third Edition (WIAT) in English and an experimental task in Spanish. The directions asked students to answer the

question with at least three reasons. In English, participants wrote about their favorite game and, in Spanish, about their favorite animal. The Spanish version was adapted from a previous study on young English monolinguals (Kim et al., 2015; Wagner et al., 2011).

Written Syntax (or Syntax Features in Writing)

Essays were transcribed following Systematic Analysis of Language Transcripts (SALT, Miller & Iglesias, 2012) guidelines and coded for syntactic features, mean length per utterances (MLU), number of verbs (quantity and accuracy), and subject agreement (quantity and accuracy), in both English and Spanish essays. This resulted in five Spanish syntax features but English three syntax measures because only verbs agree with the subject in English so number of verbs and number of subject agreement scores are redundant. Reliability was calculated between two raters scoring 100 essays in each language, and exact agreement of .95 was met.

To measure syntactic complexity, mean length of utterances and the number of verbs per utterance were calculated. Each essay was broken up by utterance. An utterance was considered the smallest grammatical unit such as an independent clause that may or may not include one dependent clause. This meant that compound sentences were broken up. Many students wrote run-on sentences linked by multiple additives such as “and” throughout their entire essay. Similarly, if students started each new idea with “because,” the first “because” was treated as a dependent clause and the following were treated as new utterances.

Second, codes were used to count the number of subject agreement words and accuracy per utterance. Experimental codes marked verbs, articles, adjectives, comparatives, and demonstratives in Spanish and verbs in English as either agreed or disagreed with the subject. To be coded as accurate, the appropriate gender and person conjugation had to be used. Tense and

mood were not considered. We divided number of words with subject agreement accuracy by total number of utterances.

Writing Quality

Writing quality was scored using a 7-point rubric considering the quality of ideas and structure, following previous work (see Kim et al., 2015; Olinghouse et al., 2015). A score of 0 was given for a response that illegible, copied the directions, or was unrelated. Scores 1-3 were largely determined by the number of relevant ideas that were written because a minimum number of ideas are necessary for quality of ideas and organization. A score of 4 represented emerging structure for each genre. For an opinion text this may include transitional phrases or numbering of ideas and a topic sentence or conclusion. For a narrative text, emerging structure meant that there was a development of story grammar and a story description beyond that picture. This may include dialogue, evaluative language, emotions, or cause and effect. A score of 5 represented an essay that had some supporting ideas or further story development. A score of 6 was assigned for those with greater development of story structure and details. Finally, a score of a 7 captured an essay with all elements included. No essay received a 7 in the present sample. A copy of the rubric is available in Table 6.

Table 6

Writing Quality Scoring Rubric

<p><i>7 points Advanced Developed</i></p>	<p>The essay is on topic, logical, coherent, and well-stated throughout the entire essay and has a sophisticated sense of story or idea development. Overall, writing reads like a breeze. Readers are left with no questions.</p> <p>The essay includes three or more ideas with a clear macro structure (beginning, middle, end) and logical sequencing of ideas: The opinion essay has a clear topic sentence, well-organized middle (reasons and supporting details), and conclusion; The narrative task a clear structure of story grammar, Ideas are connected effectively using a combination of advanced transition</p>
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	<p>words and cohesive features that are skillfully and precisely used to transition through logical progression of ideas.</p> <p>Each big idea is well-developed with a complete elaboration and details. Idea elaboration is precise and effective using appropriate sentence structures. The essay is free of any problems or extraneous information.</p>
<p><i>6 points Emerging Developed</i></p>	<p>The essay is on topic, and logical, coherent, and well-stated with an apparent sense of story or idea development.</p> <p>The essay has three or more ideas with a clear macro structure, and has a topic and concluding sentence; however, one idea be difficult to distinguish from a big idea. Organizational structure is mostly effective, and ideas are presented in logical order. Connections of ideas are mostly effective, using a combination of transition words or other cohesive features (may include advanced expressions mixed with rudimentary ones). There may be a choppy place or abrupt transition.</p> <p>Most big ideas are developed with details and elaboration; elaborations are mostly expressed using appropriate sentence structures, but there may be rudimentary structures that could be improved.</p> <p>The essay does not contain any illogical, irrelevant, or repetitive information, but there may be minor problems in a few places that makes the reader pause. The essay is easy to read but there is a sense of room for further development. Readers may be left with a question regarding the text.</p>
<p><i>5 points Advanced Developing</i></p>	<p>The essay is on topic, and logical and coherent, but ideas may not be very well-stated. There is a clearer sense of story or idea development (a distinguishing feature from 4).</p> <p>There are three or more ideas with a sense of macro structure. However, the essay may only have topic or concluding sentences that may be difficult to distinguish from a big idea. Overall, ideas have logical and sequenced organization and are connected--transition words or cohesive features are used but they tend to be rudimentary. The essay may be choppy or a bit abrupt.</p> <p>Some big ideas (at least one) are developed with details and elaboration. However, idea elaboration is not very effective. Most ideas (if not all) may be expressed using rudimentary structure (e.g., compound predicate constructions), and there is limited variation of sentence structures.</p> <p>There may be minor problems or missing elements. Logic may feel awkward or incomplete in some places. Readers are left with several questions regarding the text. Extraneous information is minimal.</p>

<p><i>4 points Emerging Developing</i></p>	<p>The essay is on topic and logical and coherent. Although there is an emerging sense of story or idea development, but it is insufficiently development: In the narrative task, there is a story development that goes beyond simple description of the illustration (a distinguishing feature between the scores 4 and 3); In the opinion task, there is an emerging sense of development of topic and associated reasons.</p> <p>There is an emerging sense of macro-organization with three or more ideas but some elements may be missing (e.g., introduction or conclusion are not present or are not distinguishable from a big idea). Ideas are sequenced using limited rudimentary transition words and cohesive features. Most transitions and progressions of ideas are choppy or abrupt.</p> <p>Ideas are largely logical but simple. Most big ideas have no elaboration or details; expression of ideas is not effective as ideas may be expressed in simple sentences.</p> <p>There may be several problems. Essay does not feel complete. The reader is left with many questions. The essay may include extraneous information or redundancy.</p>
<p><i>3 points Improved Beginner</i></p>	<p>The essay is on topic but has minimal logic or coherence.</p> <p>There are three or more ideas (distinguishing feature between the scores of 2 and 3) but there is no sense of macro-organization. Ideas may be logically sequenced (e.g., chronologically) but there is a very limited sense of story or idea development or organizational structure (a distinguishing feature between the scores 3 and 4); ideas are presented like a list or string of facts.</p> <p>Most big ideas have no elaboration or details. This is manifested in a variety of combinations (e.g., two big ideas and a detail; 1 big idea and two simple details; three big ideas with no supporting details; two sentences but with extended supporting details). Connections between ideas or transitions are not effective; Transitions and progressions of ideas are noticeably choppy and abrupt.</p> <p>Idea elaboration is limited and does not contribute to story or idea development. Elaboration may be off topic.</p> <p>There may be many problems due to lack of development or extraneous information; the essay may include information that is vague, not supported, redundant, and illogical.</p>
<p><i>2 points Intermediate Beginner</i></p>	<p>The essay is on topic but is highly limited in content and length. Essay is bare bones with no story or idea development.</p>

	<p>There is little sense of organization, logic, and transition words due to limited ideas. The essay may include two simple ideas (a distinguishing feature between a score of 2 and above) regardless of the number of sentences (i.e., one sentence with two ideas or two sentences with two ideas or two phrases etc.).</p> <p>There is no elaboration of ideas and may include extraneous information or repetition. Expressions may be simple or incomplete.</p>
<p><i>1 point</i> <i>Low Beginner</i></p>	<p>The essay is on topic, but it is very bare bones due to extremely limited length and content.</p> <p>The essay has a single idea (a distinguishing feature between a score of 1 and 2), regardless of the number of sentences (e.g., may be repetitive).</p> <p>Organization, logic, and transition words are not present. There are few, if any, cohesive features.</p> <p>There is no elaboration. Expressions are simple or incomplete.</p> <p>The essay may contain extraneous information or repetition.</p>
<p><i>0 points</i></p>	<p>The essay is off-topic (text that is completely irrelevant or does not address the prompt) and has illegible content.</p>

Scoring was conducted by an English-Spanish bilingual doctoral student in education and three research assistants (two English speakers and two Spanish-English bilingual speakers). First, the team reviewed the rubric and identified several exemplar essays for each score. Then the team underwent a training period of several weeks where random selection of 20-30 essays from each grade and genre (narrative, opinion) were scored independently and then discussed together. Once all team members seemed to have a strong understanding of the scoring scheme, reliability sets of 100 essays per genre were completed (English by the English-speaking research assistants and Spanish by the two bilingual speakers). Interrater reliability in both languages was .96. The teams continued to meet weekly to discuss scoring until scoring was

completed. Then all scores were double checked by the other rater. Any discrepancies between scores were resolved through discussion between the four team members.

Procedures

Writing assessments were administered in spring at the participants' schools. Testing was conducted in a quiet room and students were given 30 minutes per essay. Typically, English and Spanish sessions were held in two separate sessions on different days in the same week. Students received clarification of directions if requested, but no other assistance was given.

Data Analytic Strategies

Research questions were addressed with the following analysis. The first research question was addressed by calculating means, bivariate correlations, and running T-tests to compare written syntax features in Spanish to those in English. To address the second research question, we used multiple regression models to test whether written syntax features differed by grade, English learner status (1 = English learner), or instructional program (1 = dual immersion; 0 = English immersion) controlling for free and reduced lunch status (1 = eligible for the free or reduced lunch program). Each written syntax feature was the outcomes in each model. For the third research question, we ran six multiple regression models with the syntax measure in one language predicted by its counterpart measure in the other language with controls. For the fourth research question, we ran regression models using writing quality as the outcome variable predicted by written syntax features within each language, controlling for grade level, English learner status, instructional program, and free and reduced lunch status. Each syntax feature with controls was run in its own model. For our last research question, an interaction term between syntax features and moderators (grade level, English learner status, and instructional program) were included, controlling for free and reduced lunch status.

Results

Research Question 1: Syntax Features of Spanish and English Essays

Descriptive information of written syntax features is shown in Table 7. Spanish and English essays were of comparable length (total utterances = 4.71 and 4.61, respectively), $t(277) = .90, p = .18$. However, overall, students' Spanish essays had a shorter mean length of utterances (6.65 words) than students' English essays (7.54 words), which was statistically different, $t(277) = -6.54, p < .00$. In addition, Spanish essays had an average of 2.47 words per utterance that required agreement with the subject (definite articles, demonstratives, quantifiers, comparatives, verbs, and adjectives). Of these, 1.14 were verbs while English essays had statistically significantly larger number of verbs with an average of 1.22, $t(276) = -6.54, p < .01$. Spanish essays had 85% accuracy in their agreement while English essays had statistically significantly higher accuracy in their agreement at 91%, $t(276) = 17.32, p < .00$.

Table 7

Descriptive Information of Syntax and Quality Writing Measures Averaged Across Two Spanish and Two English Essays

Variable	Mean	SE	Min	Max
<i>Spanish</i>				
Total utterances	4.71	2.42	1	20.5
Mean length of utterances (by words)	6.65	1.88	-1	12
Number of verbs*	1.14	.37	0	2
Total subject agreement words*	2.47	.87	0	5.29
Subject agreement accuracy*	2.09	.88	0	4.46
Composition quality	3.18	.65	1	5.5
<i>English</i>				
Total utterances	4.61	2.55	1	17.5
Mean length of utterances (by words)	7.54	2.10	-1	16.59
Number of verbs/subject agreement words*	1.22	.42	0	2.25
Subject agreement accuracy*	1.11	.42	0	2.17
Composition quality	3.27	.72	1	5

Notes. Asterisk (*) denotes averaged across total utterances. $N = 278$. A negative minimum suggests that the student had more unintelligible words than intelligible words.

Research Question 2: Syntax features by grade level, English learner status, and instructional program

As shown in bivariate correlation analysis in Table 8, syntax features were statistically related to each other within language (English: $.55 \leq rs \leq .94$, Spanish: $.49 \leq rs \leq .91$), and many were related across languages ($.05 \leq rs \leq .35$). In addition, Spanish measures were related to Spanish writing quality accuracy ($.28 \leq rs \leq .34$), and the same was found for English ($.29 \leq rs \leq .35$). Across languages, Spanish writing quality had significant, positive relations with English syntax features ($.19 \leq rs \leq .26$), and English writing quality statistically related with Spanish syntax features ($.15 \leq rs \leq .23$). Bivariate correlations between syntax features and writing quality are shown for each grade in Table 9, English learner status in Table 10, and instructional program in Table 11.

We ran regression models for each syntactic feature to examine whether syntactic features differed by grade level, English learner status, and instructional program controlling for free or reduced lunch status (Table 12). In Spanish, second graders and third graders wrote longer mean length of utterances (Grade 2: $\beta = .85, p = .001$; Grade 3: $\beta = 1.53, p < .000$) and had greater subject agreement accuracy (Grade 2: $\beta = .34, p = .001$; Grade 3: $\beta = .47, p = .001$) than first graders. In addition, students in dual immersion instruction wrote longer mean length of utterances ($\beta = .61, p = .04$), used more verbs (Dual: $\beta = .48, p = .00$), words that required subject agreement ($\beta = 1.02, p < .000$), and had greater subject agreement accuracy (Dual: $\beta = 1.06, p < .000$) than students enrolled in English immersion instruction. Therefore, in Spanish writing, students in higher grades and students in dual immersion instruction overall had greater morphosyntactic accuracy than students in lower grades and English immersion instruction, respectively.

In English, mean length of utterances differed by grade level but not instructional program or English learner status. Students in Grade 2 and Grade 3 wrote longer mean length of utterances (Grade 2: $\beta = 1.30, p < .000$; Grade 3: $\beta = 1.88, p < .000$), more words that required subject agreement (i.e., verbs) per utterance (Grade 2: $\beta = .21, p < .000$; Grade 3: $\beta = .39, p < .000$), and had greater subject agreement accuracy (Grade 2: $\beta = .18, p = .001$; Grade 3: $\beta = .37, p < .000$) than Grade 1 students. In addition, students enrolled in dual immersion instruction used less subject agreement words and were less accurate than students enrolled in English immersion instruction ($\beta = -.17, p = .011$; $\beta = -.17, p = .009$). Furthermore, English learners had less subject agreement accuracy than non-English learners ($\beta = -.15, p = .014$). In other words, students in higher grades, students in English immersion instruction, and students who were not English language learners wrote more verbs per utterance and had more accurate subject agreement than students in lower grades, students in dual immersion instruction, and students who were English language learners, respectively.

Table 8*Bivariate Correlations between Measures*

	1	2	3	4	5	6	7	8	9
1. S MLU	--								
2. S Num of Verbs	.49*	--							
3. S S-Agree total	.62*	.82*	--						
4. S S-Agree acc	.61*	.72*	.91*	--					
5. S Quality	.30*	.34*	.28*	.30*	--				
6. E MLU	.35*	.13*	.18*	.18*	.26*	--			
7. E Num of Verbs	.17*	.05	.05	.07	.19*	.60*	--		
8. E S-Agree acc	.17*	.06	.09	.10	.20*	.55*	.94*	--	
9. E Quality	.23*	.20*	.15*	.17*	.52*	.29*	.34*	.35*	--

Notes. Significant correlations ($p < .05$) marked with asterisk (*). S MLU = Spanish mean length of utterances, S Num of Verbs = Spanish number of verbs per utterance, S S-Agree total = Spanish number of subject agreement words per utterance, S S-Agree acc = Spanish subject agreement accuracy per utterance, S Quality = Spanish writing quality, E MLU = English mean length of utterances, E Num of Verbs = English number of verbs/subject agreement words per utterance, E S-Agree acc = English subject agreement accuracy per utterance, E Quality = English writing quality. $N = 278$.

Table 9

Regression Analysis Where Syntax Measures in Written Compositions Were Predicted by Grade Level, English Learner Status, and Instructional Program

Variable	Syntax Features in Spanish Writing			Syntax Measures in English Writing		
	Coefficient	SE	<i>p</i>	Coefficient	SE	<i>p</i>
<i>MLU</i>						
Intercept	5.62	.43	< .00	7.56	.48	< .00
Grade 2	.85	.25	< .00	1.30	.27	< .00
Grade 3	1.53	.33	< .00	1.88	.36	< .00
EL	-.08	.28	.78	-.46	.31	.14
Dual	.61	.30	.04	-.43	.33	.20
FARL	-.07	.33	.84	-.26	.37	.47
<i>Number of verbs</i>						
Intercept	.77	.08	< .00	1.28	.09	< .00
Grade 2	-.01	.05	.88	.21	.05	< .00
Grade 3	.10	.06	.12	.39	.07	< .00
EL	-.09	.05	.08	-.12	.06	.05
Dual	.48	.06	< .00	-.17	.06	.01
FARL	.04	.06	.48	-.00	.07	.99
<i>Number of subject agreement words</i>						
Intercept	1.68	.19	< .00			
Grade 2	.14	.11	.21			
Grade 3	.25	.15	.08			
EL	-.16	.12	.18			
Dual	1.02	.13	< .00			
FARL	-.02	.15	.90			
<i>Subject agreement accuracy</i>						
Intercept	.91	.19	< .00	1.24	.09	< .00
Grade 2	.34	.11	< .00	.18	.05	< .00
Grade 3	.47	.14	< .00	.37	.07	< .00
EL	-.01	.12	.94	-.15	.06	.01
Dual	1.06	.13	.00	-.17	.07	.01
FARL	.08	.14	.59	-.03	.07	.71

Notes. SE = Standard error. *p* < .05 considered significant level. EL = English learner status. FARL = Received free or reduced lunch. Dual = Enrolled in dual immersion instruction. MLU = Mean length of utterances. *N* = 278.

Table 10

Regression Analysis of Crosslinguistic Relations Between Syntax Measures Controlling for Grade Level, English Learner Status, Instructional Program, and Free and Reduced Lunch Status

	Coefficient	SE	p	CI.LB	CI.UB
English outcomes					
<i>English Mean Length of Utterances</i>					
Spanish Mean Length of Utterances	.31	.07	< .000	.18	.44
<i>English Number of Verbs</i>					
Spanish Number of Verbs	.12	.07	.105	-.02	.26
<i>English Subject Agreement Accuracy</i>					
Spanish Subject Agreement Accuracy	.08	.03	.014	.02	.14
Spanish outcomes					
<i>Spanish Mean Length of Utterances</i>					
English Mean Length of Utterances	.25	.05	< .000	.15	.36
<i>Spanish Number of Verbs</i>					
English Number of Verbs	.09	.05	.105	-.02	.19
<i>Spanish Subject Agreement Accuracy</i>					
English Subject Agreement Accuracy	.30	.12	.014	.06	.54

Notes. SE = Standard error. $p < .05$ considered significant level.

Table 11

Multiple Regression Analysis of Written Syntax Features Predicting Writing Quality Including Moderations by Grade Level, English Learner (EL) Status, and Instructional Program (Dual)

	Model 1	Model 2	Model 3	Model 4
<i>Spanish Writing Quality</i>				
Intercept	2.49(.18)***	2.54(.28)***	1.91(.29)***	2.17(.24)***
Spanish MLU	.06(.02)**	.05(.04)	.14(.04)***	.11(.03)*
Grade 2	.28(.08)**	.16(.31)	.31(.08)***	.29(.08)***
Grade 3	.48(.11)***	.68(.50)	.50(.11)***	.49(.11)***
English learner	-.21(.09)*	-.21(.09)*	.55(.31)	-.21(.09)*
Dual immersion	.39(.10)***	.38(.10)***	.38(.10)***	.91(.27)*
FARL	-.07(.11)	-.07(.11)	-.05(.11)	-.08(.11)
Spanish MLU*G2		.02(.05)		
Spanish MLU*G3		-.03(.07)		
Spanish MLU*EL			-.11(.04)*	
Spanish MLU*Dual				-.08(.04)*
Intercept	2.52(.16)***	2.08(.26)***	2.14(.24)***	2.37(.19)***
Spanish number of verbs	.39(.11)***	.73(.19)***	.72(.19)***	.56(.16)*
Grade 2	.33(.08)***	.95(.27)***	.34(.08)***	.35(.08)***
Grade 3	.53(.11)***	.84(.37)*	.53(.11)***	.54(.11)***
English learner	-.18(.09)	-.18(.09)	.33(.26)	-.16(.09)
Dual immersion	.23(.11)*	.26(.11)*	.24(.11)*	.53(.24)*
FARL	-.09(.11)	-.07(.11)	-.10(.11)	-.10(.11)
Spanish NoV*G2		-.55(.23)*		
Spanish NoV *G3		-.28(.30)		
Spanish NoV *EL			-.45(.21)*	
Spanish NoV *Dual				-.31(.22)
Intercept	2.62(.16)***	2.35(.23)***	2.19(.25)***	2.45(.20)***
Spanish S-agree total	.12(.05)*	.21(.07)**	.28(.09)*	.22(.09)*
Grade 2	.31(.08)***	.70(.24)**	.33(.08)***	.33(.08)***
Grade 3	.53(.11)***	.83(.36)*	.56(.11)***	.54(.11)***
English learner	-.19(.09)*	-.19(.09)*	.34(.26)	-.17(.09)
Dual immersion	.30(.11)**	.33(.11)**	.30(.11)**	.57(.23)*
FARL	-.07(.11)	-.05(.11)	-.05(.11)	-.10(.11)
Spanish S-agree total*G2		-.16(.09)		
Spanish S-agree total*G3		-.12(.13)		
Spanish S-agree total*EL			-.22(.10)*	
Spanish S-agree total*Dual				-.14(.10)
Intercept	2.71(.15)***	2.55(.19)***	2.23(.23)***	2.48(.19)***
Spanish S-agree accuracy	.12(.05)*	.19(.07)**	.35(.10)***	.30(.11)**

Grade 2	.29(.08)***	.51(.20)*	.30(.08)***	.31(.08)***
Grade 3	.51(.11)***	.80(.31)*	.53(.11)***	.52(.11)***
English learner	-.21(.09)*	.20(.09)*	.37(.23)	-.18(.09)
Dual immersion	.30(.11)**	.32(.11)**	.28(.11)*	.62(.20)**
FARL	-.08(.11)	-.07(.11)	-.06(.11)	-.12(.11)
Spanish S-agree accuracy*G2		-.11(.09)		
Spanish S-agree accuracy*G3		-.14(.13)		
Spanish S-agree accuracy*EL			-.29(.10)**	
Spanish S-agree accuracy*Dual				-.23(.12)

Writing Quality in English

Intercept	2.84(.21)***	2.60(.25)***	3.25(.39)***	2.65(.34)***
English MLU	.03(.02)	.07(.03)*	-.01(.04)	.05(.04)
Grade 2	.60(.09)***	1.08(.30)***	.60(.09)***	.59(.09)***
Grade 3	.94(.12)***	1.48(.53)*	.94(.12)***	.94(.12)***
English learner	-.13(.09)	-.13(.09)	-.49(.39)	-.13(.10)
Dual immersion	-.04(.10)	-.07*.10)	-.05(.10)	.20(.36)
FARL	-.13(.11)	-.12(.11)	-.13(.11)	-.14(.11)
English MLU*G2		-.07(.04)		
English MLU*G3		-.07(.06)		
English MLU*EL			.04(.05)	
English MLU*Dual				-.03(.04)

Intercept	2.71*.19)***	2.61(.22)***	2.43(.35)***	2.17(.41)***
English number of verbs	.27(.10)*	.36(.14)*	.48(.23)*	.66(.27)*
Grade 2	.58(.09)***	.81(.24)*	.58(.09)***	.58(.09)***
Grade 3	.91(.12)***	.89(.48)	.90(.12)***	.89(.12)***
English learner	-.11(.09)	-.11(.09)	.22(.35)	-.09(.09)
Dual immersion	-.01(.10)	0.01(.10)	.01(.10)	.58(.40)
FARL	-.14(.11)	-.13(.11)	-.15(.11)	-.14(.11)
English NoV*G2		-.20(.20)		
English NoV*G3		-.01(.34)		
English NoV*EL			-.24(.25)	
English NoV*Dual				-.42(.28)

Intercept	2.68(.19)***	2.59(.21)***	2.22(.36)***	2.28(.37)***
English S-agree accuracy	.31(.10)*	.39(.15)**	.65(.25)**	.61(.26)*
Grade 2	.58(.08)***	.79(.22)***	.58(.08)***	.58(.08)***
Grade 3	.90(.12)***	.72(.42)	.88(.12)***	.89(.12)***
English learner	-.09(.09)	-.09(.09)	.40(.34)	-.07(.09)
Dual immersion	.00(.10)	.01(.10)	.04(.10)	.44(.35)
FARL	-.13(.11)	-.12(.11)	-.15(.11)	-.13(.11)
English S-agree*G2		-.20(.20)		
English S-agree*G3		.10(.31)		
English S-agree*EL			-.40(.26)	

English S-agree*Dual -.35(.27)

Notes. Significance level denoted by asterisks. * p value < .05, ** p value < .01, *** p value < .001. All models control for grade level, English learner status, instructional program, and free and reduced lunch status, Model 1 = Written syntax predictor of writing quality; Model 2 = Interaction between grade level and written syntax features on writing quality; Model 3 = Interaction between English learner status and written syntax features on writing quality; Model 4 = Interaction between instructional program and written syntax features on writing quality. MLU = Mean length of utterances; NoV = Number of Verbs; S-agree = subject agreement words; FARL = received free and reduced lunch; G2 = Grade 2; G3 = Grade 3; EL = classified as an English learner; Dual = Enrolled in dual immersion instruction.

Table 12

Bivariate Correlations between Syntax Features and Writing Quality by Grade

	Grade 1 (n = 93)	Grade 2 (n = 135)	Grade 3 (n = 49)
Spanish Writing Quality			
Spanish MLU	.23	.27	.03
Spanish Number of Verbs	.44	.23	.33
Spanish S-Agree Total	.39	.21	.13
Spanish S-Agree Accuracy	.35	.22	.07
English MLU	.23	.08	.10
English Number of Verbs	.09	.09	.09
English S-Agree Accuracy	.06	.13	.11
English Writing Quality			
English MLU	.22	.04	.00
English Number of Verbs	.22	.14	.24
English S-Agree Accuracy	.22	.16	.34
Spanish MLU	.12	.12	-.15
Spanish Number of Verbs	.22	.17	.15
Spanish S-Agree Total	.14	.14	-.02
Spanish S-Agree Accuracy	.14	.10	-.21

Note. Moderation analysis of grade levels with English learner status, instructional program, and free and reduced lunch status as controls showed no significant effect (see Table 11). MLU = Mean length of utterances; s-agree = subject agreement words.

Research Question 3: Crosslinguistic Relations Between Syntax Features

Table 13 shows the six regression models ran to test for crosslinguistic relations between syntax features. English mean length of utterances and subject agreement accuracy were significantly predicted by Spanish mean length of utterances ($\beta = .31, p < .000$) and subject agreement accuracy ($\beta = .08, p = .01$), respectively. Likewise, Spanish mean length of utterances and subject agreement accuracy were significantly predicted by English mean length of utterances ($\beta = .25, p < .000$) and subject agreement accuracy ($\beta = .30, p = .01$), respectively.

Table 13

Bivariate Correlations between Syntax Features and Writing Quality by English Learner Status

	English Learner ($n = 213$)	Non-English Learner ($n = 64$)
Spanish Writing Quality		
Spanish MLU	.24	.49
Spanish Number of Verbs	.29	.48
Spanish S-Agree Total	.26	.41
Spanish S-Agree Accuracy	.27	.52
English MLU	.27	.08
English Number of Verbs	.23	-.05
English S-Agree Accuracy	.21	-.02
English Writing Quality		
English MLU	.31	.13
English Number of Verbs	.31	.32
English S-Agree Accuracy	.29	.42
Spanish MLU	.27	.10
Spanish Number of Verbs	.23	.13
Spanish S-Agree Total	.22	.01
Spanish S-Agree Accuracy	.22	.11

Notes. MLU = Mean length of utterances; s-agree = subject agreement words. See Table 11 for statistical difference controlling for grade level, English learner status, and instructional program.

Research Question 4: The Relations of Syntax Features to Overall Writing Quality Within Languages

In Spanish, three different multiple regression models, shown in Table 14, found that writing quality was significantly predicted by mean length of utterances ($\beta = .06, p = .00$),

number of subject agreement words ($\beta = .12, p = .01$), and subject agreement accuracy ($\beta = .12, p = .01$). In English, the number of subject agreement words and subject agreement accuracy were significantly related to writing quality after controlling for grade levels, instructional program, English learner status, and free and reduced lunch status ($\beta = .28, p = .01, \beta = .30, p = .00$, respectively).

Table 14

Bivariate Correlations between Syntax Features and Writing Quality by Instructional Program

	Dual Immersion ($n = 228$)	English Immersion ($n = 49$)
Spanish Writing Quality		
Spanish MLU	.23	.44
Spanish Number of Verbs	.25	.38
Spanish S-Agree Total	.23	.30
Spanish S-Agree Accuracy	.24	.34
English MLU	.27	.31
English Number of Verbs	.23	.33
English S-Agree Accuracy	.22	.35
English Writing Quality		
English MLU	.26	.40
English Number of Verbs	.32	.49
English S-Agree Accuracy	.32	.47
Spanish MLU	.24	.25
Spanish Number of Verbs	.23	.36
Spanish S-Agree Total	.16	.36
Spanish S-Agree Accuracy	.21	.32

Notes. MLU = Mean length of utterances; s-agree = subject agreement words. See Table 11 for statistical difference controlling for grade level, English learner status, and instructional program.

Research Question 5: Differential Relations of Syntax Features and Writing Quality as a Function of Grade Levels, English Learner Status, and Instructional Program

After controlling for English learner status, instructional program, and free and reduced lunch status, grade level did not moderate the relation between any of the written syntax features and writing quality in either language (Table 11, Model 2). The only statistically significant relation was that of Spanish number of verbs to Spanish writing quality: the relation was weaker

in Grade 2 than Grade 1 ($\beta = -.54, p = .02$). After accounting for grade level, instructional program, and freed and reduced lunch, shown in Model 3 (Table 11), the relation of Spanish mean length of utterances ($\beta = -.11, p = .01$), Spanish number of verbs ($\beta = -.18, p = .01$), Spanish number of subject agreement words ($\beta = -.09, p = .01$), and Spanish subject agreement accuracy ($\beta = -.13, p = .00$) to Spanish writing quality was weaker for English learners than students who were not English learners. Furthermore, the relation of Spanish mean length of utterances to Spanish writing quality was weaker for students in the dual immersion program than for those in English immersion instruction ($\beta = -.08, p = .04$; Model 4 of Table 11), after accounting for grade level, instructional program, and free and reduced lunch.

Discussion

We examined Spanish-English emergent bilinguals' written syntax features and their relations to writing quality for children in Grades 1 to 3. This is the first study, to our knowledge, to investigate written syntax in relation to writing quality in both of emergent bilinguals' languages. We hypothesized that written syntax features would be related within languages, that they would vary by grade level, English learner status, and instructional program, that they would be related to writing quality within language, and that relations would vary by grade level, English learner status, and instructional program (dual immersion versus English immersion). Many of our hypotheses were supported.

Written Syntax Features in English and Spanish

Participants tended to write more advanced syntax features in English than in Spanish. For instance, English essays had more words per utterance, more verbs per utterance, and greater accuracy in subject agreement than Spanish essays. Previous research of Spanish-English emergent bilinguals has found that syntax development is associated with language use (Baron et

al., 2018). Although the community where the study was conducted was composed of a large population of Latinos and Spanish was widely seen and used in the community, the participants lived in the United States and may have also been exposed to English in media and the community in addition to at school. Furthermore, they may have family members who spoke with them in both languages (Gutiérrez-Clellan & Kreiter, 2003; Hammer et al., 2009). These experiences may have provided sufficient opportunities to practice English (Tomasello, 2000), and, consequently, develop English language skills (Hammer et al., 2012).

Another potential explanation might be that students' writing may have been impacted by differences between Spanish and English's syntax rule systems. Spanish has an agglutinative morpheme structure which often leads to longer words and complex grammatical structures that can be constructed pragmatically while English mandates simple fusional structures with morphosyntax that repeats across persons (e.g., *I think, you think, we think, they think*). Therefore, the syntactically complex grammar system of Spanish compared to English may lead to slower development in Spanish syntax knowledge than in English syntax knowledge.

Also, written compositions by students in higher grades were overall more complex and accurate than written compositions by lower grades. This is in line with previous studies with monolingual English-speaking populations (e.g., Beers & Nagy, 2011; Crowhurst, 1980, Wagner et al., 2011), and our study extends these findings to emergent bilinguals. These results might reflect development of syntactic knowledge as children develop from lower grades to higher grade levels. Another explanation is less constraining role of transcription skills develop. As children's transcription skills develop with progression of grade levels, those in higher grade levels are able to represent their thoughts using more complex written syntax features (see DIEW, Kim & Graham, 2022).

English learners and dual immersion students wrote less syntactically complex and accurate essays in English than non-English learners and English immersion students, respectively. In addition, dual immersion students wrote more complex and accurate essays in Spanish. These findings align with DIEW (Kim & Graham, 2022; Kim & Park, 2019) which states that low proficiency of transcription and oral language skills constrain writing. If children's oral language skills are not proficient, they may not be able to construct utterances with the same complexity and accuracy as students who are more proficient, which, in return, can impact writing quality. Furthermore, Lanauze and Snow (1989) found that dual immersion students tended to use more T-units and noun phrases in written Spanish texts than English texts while Gutierrez-Clellen (2002) found comparable syntax features in dual immersion students' Spanish and English oral production. Our findings show that the language of instruction does lead to greater syntactic development in writing of that language.

Finally, we found evidence of positive crosslinguistic relations between syntax features. Mean length of utterances and subject agreement accuracy in one language was predicted by the same measure in the other language when controlling for grade level, English learner status, instructional program, and free and reduced lunch status. Crosslinguistic relations were predicted for emergent bilinguals because languages theoretically coexist in the same cognitive space, and they are also typically used together purposefully in a learning environment (translanguaging, Salmerón, 2022). Furthermore, knowledge in one language has been used to support language processing in the other language (MacWhinney, 2005), and young bilinguals have been observed to create an oral text in one language and then transcribe it into the other language (Gort, 2006). This study extends our understanding of the nature of crosslinguistic relations by illustrating that

written syntax features in one language are related to written syntax features in the other language.

The Relations of Written Syntactic Features to Writing Quality

Emergent bilinguals' syntax features were related to writing quality within languages in bivariate correlations and in regression models after controlling for grade level, English learner status, instructional program, and free and reduced lunch. In particular, Spanish mean length of utterances, English and Spanish number of verbs, Spanish number of subject agreement words, and English and Spanish accuracy of subject agreement were related writing quality, suggesting that use of more complex and accurate written syntax was positively related to higher quality writing. These results are convergent with previous research of monolingual English-speaking samples (e.g., Beers & Nagy, 2009; Cameron et al., 1995; Crowhurst, 1980; Hunt, 1970; Wagner et al., 2011). Our findings are in line with the role of syntactic knowledge in writing (Beers & Nagy, 2009; Kim, 2020; Kim & Graham, 2022) and expand it to Spanish-English bilingual children.

The relations between syntax features and writing quality did not differ by grade level. That is, although written syntax features developed during early primary grades as discussed above, the nature of their relation to writing quality did not change. According to the dynamic relations hypothesis of DIEW (Kim & Graham, 2022), the magnitude of relations changes as a function of development, which, in our study, was measured by grade level. As students become more proficient in foundational skills such as transcription skills, and the contributions of language and higher-order cognitive skills to writing quality are posited to become greater. However, this hypothesis was not supported in the current study. Our findings may be due to the relatively short developmental span examined in this study—children in Grades 1-3—who are in

the beginning phase of writing development. Future replications with children at a more advanced phase of writing development are needed to shed light on potential differential relations.

On the other hand, the relations between written syntax features and writing quality differed by English learner status and instructional program. Spanish written syntax features were less associated with writing quality in Spanish for English learners than they were for non-English learners and for English immersion students than for dual immersion students. This might be also explained by the dynamic relations hypothesis of DIEW (Kim & Graham, 2022) if we presume that English learners are more proficient in Spanish than students not classified as English learners and that students who receive Spanish instruction are more proficient in Spanish than students who receive only English instruction. This is the first study to our knowledge to examine whether the relation between written syntax features and writing quality varied as a function of English learner status and instructional program, paving the way for future research.

Limitations, Future Research, and Conclusion

The current study had some important limitations that we recommend be addressed in future research. First, language proficiency was not directly measured, and, instead, English learner status was used as a coarse proxy. English learner status is a common marker of English proficiency for public school students, and, in the current study, it statistically distinguished between Spanish and English written syntax features. Future research should employ a direct measure of language proficiency (e.g., syntactic knowledge, vocabulary, oral language,) in English and Spanish. Second, we had relatively small sample sizes in Grade 3 and in English immersion instruction. This could have impacted the statistical power. Our original sample was larger, but many students were not biliterate and could not be included. Finally, other measures

that address translanguaging such as analyzing essays for whether students borrow syntactic structures of the other language were unfortunately not appropriate because the essays did not elicit comparable structures (e.g., generalizations and use of definite articles) though prompts were similar (e.g., favorite game versus favorite animal). Future research can create writing measures that elicit structures that can be analyzed for crosslinguistic influence in addition to crosslinguistic relations to further examine translanguaging.

This study has some important practical implications. First, prior research has questioned whether analysis of written syntax measures, such as mean length of utterances, can capture development or proficiency (Ezeizabarrena & García Fernandez, 2018). The findings of our study suggests that written syntax skills do develop during the early grades, and, thus, measuring different aspects of written syntax such as mean length of utterances, number of verbs, and accuracy of subject agreement may be a useful tool for practitioners and researchers. In addition, written syntax skills predicted writing quality, and, thus, they might merit instructional attention to support writing development although experimental studies are needed to confirm this speculation. Lastly, this study contributes to the growing body of research exploring crosslinguistic relations (Manis et al., 2004; Proctor et al., 2010) and translanguaging communities (García & Lin, 2017).

In conclusion, the present study was the first study to our knowledge to examine emergent bilinguals' written syntax features and writing quality in both their languages. We hope our findings pave the way for future research to not only replicate but to also build upon, furthering our understanding of bilingual writing development.

Study 3

Quality writing presents ideas in a coherent and organized manner for an intended audience and purpose. One way to achieve this is to use cohesive ties effectively (Halliday & Hasan, 1976). Cohesive ties are organizational devices that *tie* different parts of a text together both locally and globally, functioning as signposts that guide the audience through meaning construction.

Written cohesive ties have been found to be related to writing quality through analyses of writing samples by developing L1 (e.g., Crowhurst, 1987) and L2 writers (e.g., Yang & Sun, 2012). However, cohesive ties have yet to be examined in writing by young emergent bilinguals in both of their languages. Emergent bilinguals, children who learn two languages simultaneously as opposed to second language learners who already have one well developed language before learning another one, are especially important to investigate as they have distinctive developmental trends (e.g., Collier & Thomas, 2017) and make up a large proportion of public-school enrollment. In the United States, where the current study was conducted, this growing population is predominantly Spanish speaking (~75%, National Center for Education Statistics, 2020), and dual immersion programs have become more widely available with approximately 3,600 programs available in 2021, of which 2,936 were in Spanish (American Councils for International Education).

The goal of the current work is to examine whether cohesive ties in Spanish and English essays by Spanish-English emergent bilinguals in Grades 1-3 vary as a function of development (grade level), language proficiency in English (English learner status), and instructional program (English immersion or dual immersion instruction), whether they have a crosslinguistic relations

with cohesive ties in the other language, and, finally, whether they are related to writing quality within and across languages.

Cohesive Ties

There is no clear consensus on how to operationalize cohesive ties. Halliday and Hasan's (1975) framework tends to be used the most widely, but even among researchers who adopt it, definitions of classes of cohesive ties are often unclear or inconsistent. In the current study, we examine three classes of cohesive ties, reference, conjunction, and lexical ties, because they are used the most frequently across languages and developmental stages (e.g., Allard & Ulatowska, 1991; Crowhurst, 1987; Witte & Faigley, 1981).

Reference ties are words that refer to another idea that is either prior knowledge or part of the text. In the current work, we examine textually internal ("endophoric") reference ties with a previously introduced ("anaphoric") reference. The referent class includes comparatives (e.g., *same, other; mismo, otro*), definite articles (*the; el, la, los*), demonstratives (e.g., *there, those; allá, eso*), and pronouns (e.g., *he, she, they; él, ella, ellos*). Pronouns and sometimes comparatives and demonstratives replace a noun so that the noun is not repeated (e.g., *A girl had a ball, and she threw it.; Una niña tenía una pelota y la tiró.*). Definite articles, comparatives, and demonstratives specify a noun that was previously introduced. Reference ties can make language seem less choppy by showing how ideas are connected, and, consequently, help the text flow.

Conjunction ties link ideas together to sequence ideas and express reasoning. They include connectives, coordinators, and transitional phrases. There are four types of conjunction ties: additive (e.g., *and, also; y también*), adversative (e.g., *but, however; pero, sin embargo*), causal (e.g., *so, because; entonces, porque*), and temporal ties (e.g., *first, next; primero,*

siguiente). Additive ties connect similar ideas while adversative ties contrast dissimilar ideas. For both, the ideas are of comparable weight and value. Causal ideas, on the other hand, show results and reasoning and temporal ideas order ideas. Both of these tie classes present connected ideas in a more hierarchical or progressive nature. Conjunction ties can be used to build many different grammatical structures (e.g., simple, compound, and subordinate sentences).

Lexical ties are related words, and they can make texts more engaging through sophisticated use of the lexicon. Lexical ties include repetition (i.e., a word stem used multiple times), synonyms (two words with the same meaning and are used interchangeably by the author, e.g., *child, kid; niño, chamaco*), and superordinates (a category that other words in the text belong to, e.g., *game: hopscotch, dice; juego: rayuela, dados*). Halliday and Hasan (1975) identified other subclasses of lexical ties, such as ellipsis and collocation. However, these were not examined in the current work because we found little presence of ellipsis in the children's writing and, because essays were short in length, the majority of the words were related semantically making it difficult to determine what was a collocation.

Cohesive Ties in Relation to Writing Quality

According to theoretical models of writing, written compositions require literacy, cognitive, and oral language skills and knowledge (Flower & Hayes, 1981; Berninger, 2000; Kim, 2020; Kim & Graham, 2022). Cohesive ties are linguistic means to connect ideas and build cohesion, which is necessary for establishing coherence in compositions. Cohesive ties draw from surface-level language skills, such as vocabulary and syntax, as well as deeper knowledge such as rhetoric and logical sequencing of ideas.

Research has largely confirmed that the number of written cohesive ties are positively related to writing quality. For example, stories and procedural essays written by English-

speaking children showed that cohesive ties, specifically lexical ties, were related to writing quality (Allard & Ulatowska, 1991; Cameron et al., 1995). In addition, L1 Korean Grade 1 students' conjunction ties (connectives) were moderately related to writing quality (Kim et al., 2013). Furthermore, analysis of L1 and L2 English-speaking university students' writing had positive relations between written cohesive ties and writing quality (Jafarpur, 1991; McCulley, 1985).

Cohesive Ties by Development (Grade Level), Proficiency (English Learner Status), and Effectiveness of Cohesive Tie Use

It is reasonable to posit that use of cohesive ties would be a function of their knowledge of cohesive ties. Therefore, as children develop their language skills (which includes cohesive ties), they are likely to use cohesive ties more frequently in written compositions. However, in the context of written compositions, knowledge of cohesive ties alone would not ensure their use. According to the dynamic relations hypothesis of DIEW (Kim & Graham, 2022), unautomated transcription skill demands cognitive resources such as working memory and attentional control, which places a large constraint is on the writing process and influences the extent to which oral language and higher order cognitions and knowledge are employed during writing. Therefore, written cohesive tie production would be constrained by transcription skills, particularly during the beginning phase of development when children are rapidly developing. Longitudinal investigations of young children's oral (Peterson and Dodsworth, 1991) and written (Rutter & Raban, 1982) cohesive ties found that more advanced individuals used a greater number of cohesive ties than less advanced individuals. In addition, children's writing in Grades 1 and 2 showed that children's use of cohesive ties was predicted by cohesive ties in their oral language during kindergarten and mediated by their transcription skills (Pinto et al., 2015). Also, more

advanced L2 writers used more conjunction and demonstrative ties than the two less advanced groups (Grant & Ginther, 2000). However, studies of writing by more advanced monolingual children showed less predictable patterns. Grade 3 students used more reference and conjunction ties but comparable lexical ties when compared to Grade 6 students (Fitzgerald and Spiegel, 1986), and analysis of writing by Grades 6, 10, and 12 students showed that those in the higher grades used significantly less causal, temporal conjunctions, and same word repetition but more synonyms than those in lower grades (Crowhurst, 1987).

The lack of consistent patterns in cohesive ties in more advanced participants may be explained by inconsistencies in using cohesive ties accurately. That is, once a writer advances beyond early writing stages, accurate use of cohesive ties rather than the quantity of cohesive ties may be more important to writing quality. For instance, a skilled writer may intentionally alternate a noun with its pronouns for pragmatic purposes while a less skilled writer may use only pronouns, not considering the audience. In addition, repetitive use of lower-level conjunctions (e.g., beginning every sentence with *because, and, then*) may be quite present in early writing while more advanced writing may utilize complex sentence structures, leading to less conjunctions. Similarly, repetition may be used heavily by a young writer who has a limited lexicon while an advanced writer may employ synonyms in addition to superordinate and subordinate words to elaborate ideas. Only one study, to our knowledge, examined the quality of cohesive ties in children finding that Grade 5 students used significantly more appropriate cohesive ties than Grade 3 students (Cox et al., 1990).

Cohesive Ties by Instructional Program (English Immersion versus Dual Immersion)

Language is acquired through interaction (Ellis, 2017) and noticing (Schmidt, 2010), and it happens in many settings (e.g., school, home, community). Acquisition is “speeded by explicit

instruction” (p. 19, Ellis, 1994), and some skills such as structuring ideas with cohesive ties may in fact require instruction (Meyer et al., 2018). Therefore, for emergent bilinguals who are acquiring two languages simultaneously, the instructional program (English immersion versus Spanish-English dual immersion) may be especially impactful on their written cohesive ties. If an emergent bilingual is only receiving instruction in one language, their language experiences beyond the classroom may not provide sufficient opportunities to learn how to write with cohesive ties effectively in their other language. On the other hand, an emergent bilingual receiving instruction in both languages may be able to use cohesive ties in both languages.

No study to our knowledge has examined the role instruction plays in written cohesive ties. However, the numerous investigations of different instructional practices illuminate the impact instruction has on general oral language skills (e.g., Lee, 2003; Saddler & Graham, 2005; Spada & Tomita, 2010), from which, as previously stated, we believe are required for cohesive ties. For example, a longitudinal study of Inuit children found that those enrolled in Inuktitut instruction continued to develop Inuktitut language skills (e.g., conversational, academic, vocabulary) while those enrolled in English or French instruction performed significantly worse in comparison by the spring of kindergarten (Wright et al., 2000). As well, a comparison of L1 Korean speakers showed that those enrolled in English immersion instruction performed better on English oral language assessments and worse on Korean oral language assessments than students enrolled in a Korean-English dual immersion program (Choi et al., 2018). These studies, although not specific to cohesive ties, show how instructional program can impact language development.

Crosslinguistic Relations of Cohesive Ties

Cohesive ties draw on both language-specific and language-general skills. For instance, each language has its own system of the cohesive tie lexical unit (i.e., vocabulary word or phrase) and how it functions (morphosyntax). Spanish and English cohesive ties, though lexically different, largely function in the same way. An important difference is with reference ties. Although demonstratives are similar, definite articles and pronouns are not. Spanish requires that definite articles mark generalization statements while English requires no article (e.g., *Los leones son grandes, Lions are big*). In addition, conjugated verbs in Spanish imply a subject (e.g., *corren*), and, thus, unbound pronouns are optional while, in English, a subject is required in all grammatical clauses (e.g., *they ran*) but commands (e.g., *pick that up!*). A multilingual speaker may translate between languages at the lexical and syntactic level, and therefore we expect cohesive ties in one language to be related to cohesive ties in the other language.

Knowledge of when to use a cohesive tie in a text to structure ideas and to make the text impactful to the audience may also be language-general. Temporal transitions present ideas sequentially, time markers combine sentences using dependent clauses, additives and adversatives compare and contrast ideas, and repetition, synonyms, superordinate, and subordinate words connect ideas to make them clear and engaging, and these skills may contribute to underlying meta-linguistic skills. For instance, knowledge of how to use conjunctions in one language could potentially support structuring ideas in both languages. Even though every language has its unique cultural rhetoric (Celce-Murcia et al., 1995), recognizing when a temporal marker should be inserted to denote a time sequence may not be linguistically bound. Similarly with reference ties, the knowledge that a noun should be replaced with a

pronoun or a synonym to increase fluidity may transfer across languages. Therefore, cohesive ties in one language may also be related to writing quality in the other language.

Present Study

In the current study, we investigated written cohesive ties in Spanish and English essays by young emergent bilinguals. This is the first study to our knowledge to investigate written cohesive ties in two languages, to address whether written cohesive ties are impacted by instructional program (English immersion versus dual immersion), and to test whether written cohesive ties in one language are related to the written cohesive ties and writing quality in the other language.

We addressed the following research questions. First, what are the quantity and accuracy of reference, conjunction, and lexical cohesive ties in Spanish and English essays (narrative, opinion) written by English-Spanish emergent bilinguals in Grades 1 to 3? Second, do the quantity and accuracy of cohesive ties differ by grade level, English learner status, and instructional program (dual immersion versus English only)? Third, do cohesive ties in one language relate to cohesive ties in the other language controlling for grade level, instructional program, English learner status, and free and reduced lunch status? Finally, are cohesive ties related to writing quality within and across languages including the same control variables?

We expected that the quantities of cohesive ties in English and Spanish essays would differ. We also hypothesized that cohesive ties would vary as a function of grade level with students in higher grades using a greater number of cohesive ties that are also more accurate than students in lower grades. We also expected that a greater number of and more accurate English cohesive ties would be used by students who were not English learners than students who were English learners. Additionally, we hypothesized that students enrolled in dual immersion

instruction would use a greater number of and more accurate Spanish cohesive ties than students in English immersion, who would use more English cohesive ties in number and in accuracy. Third, we expected cohesive ties in one language to predict cohesive ties in the other language, especially conjunction ties that are very similar in nature in the two languages. Lastly, we predicted that cohesive ties would be related to writing quality both within and across languages.

Method

Participants

Data were collected in a Title I district in the Southwestern region of US that primarily serves low-income Latino students (81% qualify for free and reduced lunch status) as part of a larger study that examined the development of oral language and literacy skills. Students who were identified by their teachers as Spanish-English emergent bilinguals were invited to participate in the study (Kim et al., 2022). A total of 380 students were administered the writing tasks. However, many of the students were unable to write in both languages. Therefore, 278 students who were identified as biliterate students (could write at least one word in the target language in one of the two essays per language) were included in the current study. Participants' demographics are shown in Table 1. The majority of the students were enrolled in dual immersion, classified as English learners, of Latino descent, and qualified for the free and reduced lunch program.

Writing Measures

Two writing samples, one in the narrative genre and the other in the opinion genre, per language were collected. For the narrative task, students completed an adapted version of the Test of Early Written Language-Third Edition (TEWL). First, the administrator explained what the qualities of a good story are (beginning, middle, and end with characters) followed by

reading an example essay based on three sequential cartoons (Billy blowing balloons). After the demonstration, the children were given a different prompt of three sequential images (English: children skateboarding, Spanish: children playing soccer) and were asked to write their own story based on the new cartoon sequence. Students had 30 minutes to complete each writing task. In the opinion task, the Wechsler Individual Achievement Test-Third Edition (WIAT-3) was used in English, in which the child was asked to write about their favorite game and three reasons. In Spanish, a previously used researcher-developed task, favorite animal (Kim et al., 2015; Wagner et al., 2011) was adapted to and in the Spanish-adapted version of “Animal Favorito,” in which the child was asked to write about a favorite game or animal and to give at least three reasons why.

Writing assessments were administered by language in a quiet room on school premises. In a one-hour session, Spanish narrative and opinion were administered and later that week English narrative and opinion tasks were administered in another one-hour session.

Writing Quality

Essays were transcribed into digital texts by undergraduate bilingual research assistants who were trained in reading children’s handwriting. Then a team of two undergraduate research assistants corrected the spelling and punctuation of the essays. The corrected essays were coded for quality of ideas and organization, using a rating scale from 0 (illegible, unrelated, blank) to 7 (includes a topic, three big ideas with elaboration in own sentences, and a conclusion) that was adapted from previous studies (Hooper et al., 2002; Kim et al., 2015; Olinghouse & Graham, 2009; see Table 6). Overall, the principles for quality writing were the same for both narrative and opinion genres such that compositions with greater clarity and quality of ideas and clearer organizations received higher scores. However, differences in genres were also reflected. For

instance, scoring of opinion texts focused more on the participant's reasoning and development of text structure while scoring of narrative texts gave more weight to story development (e.g., inclusion and development of characters, events, problem, resolution). Based on blinded double scoring of 100 essays in each language and genre ($n = 400$), interrater reliability was 95%.

Cohesive Ties

Essays were prepared for Systematic Analysis of Language Transcripts (SALT) software analysis. To do this, essays were separated by utterance, and experimental codes were given to all reference, conjunction, and lexical cohesive ties, using an adapted version of Halliday and Hasan (1976)'s framework (Table 15).

Table 15

Adapted Version of Halliday and Hasan's (1976) Cohesive Tie Indices

Tie	English	Spanish
<i>Reference/referencias lingüísticas</i>		
Pronominals/personales	<i>they, them</i>	<i>ellos, ellas, se</i>
Demonstratives/demonstrativos	<i>that, those</i>	<i>ese, este</i>
Comparatives/comparativos	<i>such people,</i>	<i>estas personas</i>
Definite articles/artículos definidos	<i>the</i>	<i>el, la, los, las</i>
<i>Conjunction/conjunción</i>		
Additive/aditiva	<i>and, also, as well,</i>	<i>y, también, tampoco</i>
Adversative/adversativa	<i>yet, but, however,</i>	<i>todavía, pero, sin embargo</i>
Causative/causal	<i>so, therefore, that's why,</i>	<i>por eso, entonces</i>
Temporal/temporal	<i>first, then, next, finally,</i>	<i>primero, después, luego, finalmente</i>
Continuative/continuativo	<i>anyway, well, of course,</i>	<i>de cualquier modo, pues, bien, por supuesto</i>
<i>Lexical/léxicos</i>		
Repetition/repetición	<i>car, car</i>	<i>coche, coche</i>
Synonym/sinónimo	<i>car, automobile</i>	<i>coche, automóvil</i>
Superordinate/superordinado	<i>car, vehicle</i>	<i>coche, vehículo</i>

Notes. Spanish grammar, unlike English, includes verb-mandated reflexive clitics (e.g., *me ducho, se cayó*). On the other hand, pronominal clitics (e.g., *dáselo, se lo da*) behave similarly to pronouns. Collocation, substitution, and ellipsis were not included in the analysis.

Reference and conjunction ties were coded for both quantity and accuracy while lexical ties, on the other hand, were scored only for quantity and not also for accuracy because repetition, by nature, is a frequency count, and superordinates were used too sparingly to rate. Codes were given were to all cohesive ties to calculate counts by class. For accuracy codes, pronominal and demonstrative subclasses were coded as accurate if there was a reference noun preceding them. Inconsistencies such as switching person or gender were coded as an error. The definite article subclass was treated differently by language. In English, it was scored as an error if it was used for general claims (e.g., *The games are fun*), and in Spanish it was counted as an error if an article was missing for general claims (e.g., *Juegos son divertidos*). For the conjunction class, each subclass (e.g., additive, adversative, causative) was coded as accurate if they presented a logical sequencing of ideas. Examples of errors include illogical sequencing such as using temporal conjunctions out of order (e.g., *next* followed by *first*) or an inappropriate causal conjunction (e.g., *His leg hurt, so he fell* when student meant *because*).

After a training period on experimental codes, interrater reliability was conducted by a graduate student and a research assistant. Blind scoring of 60 essays that required 1,005 codes resulted in 92% agreement.

Analytic Approach

To address the first research question, we examined cohesive ties by cohesive tie class (reference, conjunction, lexical) and computed means and standard deviations. For the second research question, we ran regression models to test whether the frequency and accuracy of cohesive ties differed by grade level, English learner status, and instructional program while controlling for free and reduced lunch status. Each cohesive tie class (reference, conjunction, lexical) was tested in its own model with all predictor and control variables. To address the third

research question, regression analysis was conducted to test whether cohesive ties in one language were related to cohesive ties in the other language while holding grade level, instructional program, English learner status, and free and reduced lunch status constant. Lastly, we tested whether cohesive ties were related to writing quality using regression analysis within and across languages. For crosslinguistic models, we included controlling for cohesive tie measures in the writing quality language to test for an independent crosslinguistic relation.

Results

Research Question 1: What are the Quantity and Accuracy of Cohesive Ties in Spanish and English Essays?

As shown in Table 16, students wrote comparable length essays in Spanish and English. English essays averaged of 8.89 utterances, 65.52 words, and 27.51 cohesive ties per essay. Spanish essays averaged 9 utterances, 59.47 words, and 24.81 cohesive ties per essays. Although similar, writers used significantly more cohesive ties per utterance in English than in Spanish, $t(277) = 4.31, p < .00$. When examined by cohesive tie class, this difference held true for reference ($t(277) = 6.82, p < .00$) and conjunction ($t(277) = 2.13, p = .02$) ties but not lexical ties ($t(277) = -.43, p = .33$). When examining cohesive ties by accuracy, English essays had statistically more accurate cohesive ties than Spanish essays ($t(277) = 2.80, p < .00$). This again held true for reference ties ($t(277) = 4.75, p < .00$) but not for conjunction ties ($t(277) = -.07, p = .47$). Lastly, we examined whether there was a difference in the proportion of cohesive ties that were accurate per utterance by language. English essays had proportionally more accurate ties per utterance than Spanish essays for total ($t(277) = -1.88, p = .03$) and reference ($t(277) = -2.34, p = .01$) ties but again not for conjunction ties ($t(277) = -.05, p = .48$).

Table 16

Descriptive Cohesive Tie and Writing Quality Data from Spanish and English Narrative and Opinion Essays

	Mean	SD	Min	Max
<i>English</i>				
Number of cohesive ties (total)	27.51	21.76	0	153
Reference	14.32	10.47	0	73
Conjunction	6.21	5.61	0	31
Lexical	6.99	7.28	0	58
Number of accurate cohesive ties (total)	13.01	10.40	0	63
Reference	6.81	5.89	0	38
Conjunction	6.20	5.39	0	31
Word count (total)	65.52	44.78	0	314
Number of utterances (total)	8.89	5.06	1	35
Quality of writing (average)	3.27	.72	1	5
<i>Spanish</i>				
Number of cohesive ties (total)	24.81	19.90	0	159
Reference	11.60	8.64	0	58
Conjunction	5.94	5.44	0	34
Lexical	7.27	7.55	0	67
Number of accurate cohesive ties (total)	11.54	10.21	0	81
Reference	5.32	5.42	0	45
Conjunction	6.22	5.53	0	36
Word count (total)	59.47	39.20	0	306
Number of utterances (total)	9.00	5.06	1	41
Quality of writing (average)	3.18	.65	1	5.5

Note. $N = 278$. Cohesive ties, word count, and utterances are a total amount from the two essays (opinion and narrative). Quality scores are an average score.

Research Question 2: Do the Quantity and Accuracy of Cohesive Ties Differ by Grade

Level, English Learner Status, and Instructional Program (Dual Immersion versus English Immersion)?

Results of regression models are shown in Table 17. In English essays, all measures of cohesive ties (quantity and accuracy) per utterance differed by grade level. Students in higher grades wrote significantly more cohesive ties than students in lower grades. For example, overall Grade 2 wrote 1.54 and Grade 3 wrote 2.32 more cohesive ties per utterance than Grade 1 ($ps <$

.000). These findings also held true when examined by cohesive tie class. Additionally, the number of accurate cohesive ties per utterance and number of accurate conjunctions per utterance significantly varied as a function of English learner status. English learners wrote less accurate cohesive ties than students who were not classified as English learners (total: $\beta = -.38, p = .03$; conjunctions: $\beta = -.23, p = .03$). Lastly, students enrolled dual immersion instruction wrote less total ($\beta = -.41, p = .04$) and accurate ($\beta = -.26, p = .03$) reference ties than students enrolled in English immersion instruction.

In Spanish essays, all cohesive ties differed by grade level except the number of reference ties. For example, Grade 2 students wrote .69 and Grade 3 wrote 1.22 more cohesive ties per utterance than Grade 1 ($ps < .00$). English learners used less total cohesive ties ($\beta = -.66, p = .03$), reference ties ($\beta = -.35, p = .04$), lexical cohesive ties ($\beta = -.38, p < .00$), and less accurate reference ties ($\beta = -.24, p = .02$) than students not classified as English learners. Finally, on all Spanish cohesive tie measures, students enrolled in dual immersion instruction wrote a greater quantity of and more accurate cohesive ties per utterance than students enrolled in English immersion instruction (e.g., quantity: $\beta = 2.68, p < .00$; accuracy: $\beta = 1.50, p < .00$).

Table 17

Regression Analysis of Cohesive Ties Predicted by Grade, Instructional Program, and English Learner Status, Controlling For Free and Reduced Lunch Status

	Coef	SD	p	CI.LB	CI.UB
<i>English</i>					
Cohesive tie total					
Grade 2	1.54	.29	.000	.97	2.11
Grade 3	2.32	.39	.000	1.55	3.08
Dual	-.58	.35	.101	-1.28	.11
English learner status	-.37	.33	.261	-1.01	.28
FARL	.01	.39	.972	-.76	.78
Intercept	5.22	.51	.000	4.22	6.22

Reference total					
Grade 2	.76	.16	.000	.44	1.07
Grade 3	.96	.22	.000	.53	1.38
Dual	-.41	.20	.038	-.80	-.02
English learner status	-.29	.18	.108	-.65	.07
FARL	-.03	.22	.882	-.46	.40
Intercept	3.06	.28	.000	2.51	3.62
Conjunction total					
Grade 2	.45	.10	.000	.25	.64
Grade 3	.60	.13	.000	.34	.85
Dual	-.08	.12	.495	-.32	.15
English learner status	-.20	.11	.068	-.42	.02
FARL	.24	.13	.068	-.02	.50
Intercept	.95	.17	.000	.61	1.28
Lexical total					
Grade 2	.34	.11	.004	.11	.56
Grade 3	.76	.15	.000	.46	1.06
Dual	-.09	.14	.517	-.37	.18
English learner status	.13	.13	.327	-.13	.38
FARL	-.20	.15	.205	-.50	.11
Intercept	1.21	.20	.000	.82	1.61
Cohesive tie accuracy					
Grade 2	.75	.15	.000	.45	1.04
Grade 3	1.20	.20	.000	.81	1.60
Dual	-.24	.18	.185	-.60	.12
English learner status	-.38	.17	.027	-.71	-.04
FARL	.19	.20	.338	-.20	.59
Intercept	2.39	.26	.000	1.87	2.90
Reference accuracy					
Grade 2	.45	.10	.000	.26	.65
Grade 3	.62	.13	.000	.36	.87
Dual	-.26	.12	.03	-.50	-.03
English learner status	-.14	.11	.201	-.36	.08
FARL	.01	.13	.926	-.25	.27
Intercept	1.35	.17	.000	1.01	1.69
Conjunction accuracy					
Grade 2	.29	.09	.002	.11	.47
Grade 3	.58	.12	.000	.34	.83
Dual	.02	.11	.885	-.21	.24
English learner status	-.23	.10	.026	-.44	-.03
FARL	.18	.12	.147	-.06	.43

Intercept	1.03	.16	.000	.72	1.36
<i>Spanish</i>					
Cohesive tie total					
Grade 2	.69	.26	.008	.18	1.21
Grade 3	1.22	.35	.001	.53	1.90
Dual	2.68	.32	.000	2.06	3.31
English learner status	-.66	.29	.027	-1.23	-.08
FARL	.41	.35	.245	-.28	1.10
Intercept	2.30	.46	.000	1.40	3.19
Reference total					
Grade 2	.21	.15	.159	-.08	.50
Grade 3	.36	.20	.070	-.03	.75
Dual	1.02	.18	.000	.66	1.37
English learner status	-.35	.17	.037	-.68	-.02
FARL	.13	.20	.517	-.26	.52
Intercept	1.53	.26	.000	1.02	2.04
Conjunction total					
Grade 2	.29	.09	.001	.12	.46
Grade 3	.39	.11	.001	.17	.62
Dual	.82	.10	.000	.61	1.02
English learner status	.08	.10	.424	-.11	.27
FARL	.25	.12	.034	.02	.47
Intercept	.00	.15	.991	-.29	.30
Lexical total					
Grade 2	.19	.11	.098	-.04	.42
Grade 3	.46	.15	.003	.16	.77
Dual	.85	.14	.000	.58	1.13
English learner status	-.38	.13	.003	-.64	-.13
FARL	.03	.15	.829	-.27	.34
Intercept	.77	.20	.000	.37	1.16
Cohesive tie accuracy					
Grade 2	.50	.14	.001	.22	.79
Grade 3	.92	.19	.000	.54	1.29
Dual	1.50	.18	.000	1.15	1.84
English learner status	-.23	.16	.148	-.55	.08
FARL	.24	.19	.216	-.14	.62
Intercept	.56	.25	.027	.07	1.05
Reference accuracy					
Grade 2	.21	.09	.015	.04	.39
Grade 3	.44	.12	.000	.21	.67

Dual	.67	.11	.000	.46	.88
English learner status	-.24	.10	.017	-.43	-.04
FARL	.07	.12	.577	-.17	.30
Intercept	.39	.15	.011	.09	.70
Conjunction accuracy					
Grade 2	.29	.09	.002	.11	.47
Grade 3	.48	.12	.000	.24	.72
Dual	.82	.11	.000	.60	1.04
English learner status	.00	.10	.982	-.20	.21
FARL	.17	.12	.160	-.07	.42
Intercept	.17	.16	.304	-.15	.48

Research Question 3: Do Cohesive Ties in One Language Predict Cohesive Ties in the Other Language?

All cohesive ties were significantly related to other cohesive ties in the same language regardless of whether they were measured by quantity or accuracy. For English, correlations between cohesive tie classes ranged from weak to strong in magnitude ($.25 \leq rs \leq .56$). For instance, reference ties and lexical ties were strongly related ($r = .56$). Analysis of Spanish cohesive ties yielded similar values ($.17 \leq rs \leq .51$). Bivariate correlations across languages were mostly weak but statistically related at the significant level. The strongest crosslinguistic relations of the number of accurate English cohesive ties to the number of accurate Spanish conjunction ties ($r = .30$) and the number of accurate Spanish cohesive ties ($r = .29$). Correlations are shown in Table 18.

Table 18*Bivariate Correlations Between Cohesive Ties and Writing Quality*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2	.88*	--													
3	.62*	.32*	--												
4	.78*	.56*	.25*	--											
5	.79*	.71*	.67*	.43*	--										
6	.69*	.76*	.33*	.40*	.80*	--									
7	.55*	.34*	.74*	.27*	.77*	.23*	--								
8	.39*	.34*	.24*	.33*	.35*	.46*	.08	--							
9	.28*	.24*	.19*	.22*	.19*	.20*	.10	.18*	--						
10	.18*	.20*	.04	.15*	.08	.16*	-.03	.12	.83*	--					
11	.24*	.14*	.36*	.10	.27*	.17*	.26*	.12*	.54*	.17*	--				
12	.23*	.18*	.10	.24*	.12*	.13*	.05	.17*	.81*	.51*	.24*	--			
13	.25*	.18*	.28*	.15*	.29*	.22*	.23*	.22*	.76*	.56*	.68*	.48*	--		
14	.19*	.17*	.09	.16*	.16*	.20*	.04	.24*	.75*	.74*	.28*	.56*	.80*	--	
15	.23*	.13*	.36*	.09	.30*	.16*	.32*	.13*	.52*	.23*	.81*	.27*	.85*	.36*	--
16	.26*	.21*	.10	.28*	.20*	.30*	.01	.52*	.36*	.26*	.24*	.30*	.38*	.40*	.24*

Notes. $N = 278$. 1 = number of English cohesive ties per utterance, 2 = number of English reference ties per utterance, 3 = number of English conjunction ties per utterance, 4 = number of English lexical ties per utterance, 5 = number of English cohesive ties used accurately per utterance, 6 = number of English reference ties used accurately per utterance, 7 = number of English conjunction ties used accurately per utterance, 8 = English writing quality, 9 = number of Spanish cohesive ties per utterance, 10 = number of Spanish reference ties per utterance, 11 = number of Spanish conjunction ties per utterance, 12 = number of Spanish lexical ties per utterance, 13 = number of Spanish cohesive ties used accurately per utterance, 14 = number of Spanish reference ties used accurately per utterance, 15 = number of Spanish conjunction ties used accurately per utterance, 16 = Spanish writing quality.

We ran regression models to examine crosslinguistic relations between cohesive ties, controlling for grade level, English learner status, instructional program, and free and reduced lunch status. Table 19 shows the results. Measures of cohesive ties were significantly predicted by cohesive ties in the other language. For instance, an increase of one cohesive tie per utterance in Spanish was associated with an increase of .29 cohesive ties per utterance in English ($p < .00$), and one cohesive tie written in an English essay was positively associated with .23 cohesive ties written in a Spanish essay ($p < .00$). In addition, reference ties in English were positively predicted by all cohesive tie measures in Spanish when measured both by quantity (total: $\beta = .15, p < .00$; reference: $\beta = .22, p < .00$; conjunction: $\beta = .33, p = .01$; lexical: $\beta = .25, p = .01$) and accuracy (total: $\beta = .12, p = .01$; reference: $\beta = .17, p = .02$; conjunction: $\beta = .14, p = .04$). Spanish reference ties were significantly predicted by English total cohesive ties (quantity: $\beta = .08, p = .01$), reference ties (quantity: $\beta = .19, p < .00$; accuracy: $\beta = .13, p = .02$), and lexical ties (quantity: $\beta = .17, p = .03$) but not conjunction ties. Also, English conjunction ties were positively predicted by Spanish total ties (accuracy: $\beta = .12, p = .00$) and conjunction ties (quantity: $\beta = .38, p < .00$; accuracy: $\beta = .33, p < .00$). Spanish conjunction ties were predicted by English total cohesive ties (quantity: $\beta = .07, p < .00$; accuracy: $\beta = .17, p < .00$), reference ties (quantity: $\beta = .09, p = .01$; accuracy: $\beta = .12, p = .04$), and conjunction ties (quantity: $\beta = .29, p < .00$; accuracy: $\beta = .32, p < .00$). Finally, English lexical ties were positively associated with Spanish cohesive ties ($\beta = .09, p = .00$), reference ties ($\beta = .10, p = .01$), and lexical ties ($\beta = .24, p < .00$). Spanish lexical ties were predicted by English total cohesive ties (quantity: $\beta = .08, p = .00$), reference ties (quantity: $\beta = .12, p = .01$), and lexical ties (quantity: $\beta = .24, p < .00$).

Table 19

Spanish And English Crosslinguistic Regression Models of Cohesive Ties in One Language Predicting Cohesive Ties in the Other Language Controlling for Grade Level, Instructional Program, English Learner Status, and Free and Reduced Lunch (Separate Models, Controls Not Shown)

	Coef	SD	p	CI.LB	CI.UB
English cohesive ties (total)					
Spanish cohesive ties	.29	.07	.000	.16	.42
Spanish reference ties	.32	.11	.009	.08	.55
Spanish conjunction ties	.79	.20	.000	.38	1.19
Spanish lexical ties	.52	.15	.001	.21	.82
English reference ties (total)					
Spanish cohesive ties	.15	.04	.000	.08	.23
Spanish reference ties	.22	.07	.000	.09	.35
Spanish conjunction ties	.33	.12	.005	.10	.55
Spanish lexical ties	.25	.09	.005	.08	.42
English conjunction ties (total)					
Spanish cohesive ties	.04	.02	.059	-.00	.09
Spanish reference ties	-.01	.04	.831	-.09	.07
Spanish conjunction ties	.38	.07	.000	.24	.51
Spanish lexical ties	.03	.05	.550	-.07	.14
English lexical ties (total)					
Spanish cohesive ties	.09	.03	.001	.04	.14
Spanish reference ties	.10	.05	.006	.09	.54
Spanish conjunction ties	.08	.08	.315	-.08	.25
Spanish lexical ties	.24	.06	.000	.12	.36
English cohesive ties (accuracy)					
Spanish cohesive ties	.24	.06	.000	.12	.37
Spanish reference ties	.13	.11	.209	-.08	.34
Spanish conjunction ties	.47	.10	.000	.27	.66
English reference ties (accuracy)					
Spanish cohesive ties	.12	.04	.005	.04	.20
Spanish reference ties	.17	.07	.017	.03	.30
Spanish conjunction ties	.14	.07	.037	.01	.27

English conjunction ties (accuracy)					
Spanish cohesive ties	.12	.04	.002	.05	.20
Spanish reference ties	-.03	.07	.632	-.16	.10
Spanish conjunction ties	.33	.06	.000	.21	.45
Spanish cohesive ties (total)					
English cohesive ties	.23	.05	.000	.13	.34
English reference ties	.40	.10	.000	.21	.60
English conjunction ties	.31	.16	.059	-.01	.64
English lexical ties	.46	.14	.001	.19	.73
Spanish reference ties (total)					
English cohesive ties	.08	.03	.009	.02	.14
English reference ties	.19	.06	.001	.08	.30
English conjunction ties	-.02	.09	.831	-.21	.17
English lexical ties	.17	.08	.031	.02	.33
Spanish conjunction ties (total)					
English cohesive ties	.07	.02	.000	.03	.10
English reference ties	.09	.03	.005	.03	.16
English conjunction ties	.29	.05	.000	.19	.39
English lexical ties	.05	.05	.315	-.04	.14
Spanish lexical ties (total)					
English cohesive ties	.08	.02	.001	.03	.13
English reference ties	.12	.04	.005	.04	.21
English conjunction ties	.04	.07	.550	-.10	.19
English lexical ties	.24	.06	.000	.12	.36
Spanish cohesive ties (accuracy)					
English cohesive ties	.22	.06	.000	.11	.33
English reference ties	.25	.09	.005	.08	.43
English conjunction ties	.29	.09	.002	.11	.48
Spanish reference ties (accuracy)					
English cohesive ties	.05	.04	.209	-.03	.12
English reference ties	.13	.05	.017	.02	.24
English conjunction ties	-.03	.06	.632	-.14	.09
Spanish conjunction ties (accuracy)					
English cohesive ties	.17	.04	.000	.10	.25
English reference ties	.12	.06	.037	.01	.24
English conjunction ties	.32	.06	.000	.21	.44

Notes. $N = 278$. Each predictor was run in its own model with controls.

Research Question 4: Are Cohesive Ties Related to Writing Quality Within and Across Languages?

For within language relations, there was a positive association between writing quality and cohesive ties (Table 20). Specifically, English writing quality was statistically predicted by the number of English cohesive ties ($\beta = .06, p < .00$), accurate ties ($\beta = .11, p = .00$), number of reference ties ($\beta = .11, p = .00$), accurate reference ties ($\beta = .57, p < .00$), and lexical ties ($\beta = .16, p < .00$). Similarly, Spanish writing quality was statistically predicted by the number of Spanish cohesive ties ($\beta = .07, p < .00$), accurate cohesive ties ($\beta = .13, p < .00$), number of reference ties ($\beta = .11, p < .00$), accurate reference ties ($\beta = .27, p < .00$), and the number of lexical ties ($\beta = .14, p < .00$).

For crosslinguistic relations, cohesive ties were positively related to writing quality. For example, one accurately used reference tie in Spanish was associated with a .13 increase in English writing quality score ($p = .03$). However, when this model was tested with English reference ties added as a control, the relation was no longer significant ($p = .13$). Spanish writing quality was positively predicted by the number of English cohesive ties ($\beta = .04, p = .04$), reference ties ($\beta = .06, p = .04$), lexical ties ($\beta = .13, p < .00$), and accurate reference ties ($\beta = .18, p < .00$). When models were run with the corresponding Spanish cohesive tie predictors included as controls, the number of English lexical ties ($\beta = .11, p = .02$), accurate reference ties ($\beta = .15, p < .00$), and accurate conjunction ties ($\beta = -.13, p = .02$) were significant.

Table 20

*Regression Models of Cohesive Ties Predicting Writing Quality Within and Across Languages
Controlling for Grade Level, Instructional Program, English Learner Status, and Free and
Reduced Lunch (Separate Models, Controls Not Shown)*

	<i>Coef</i>	<i>SD</i>	<i>p</i>	<i>CI.LB</i>	<i>CI.UB</i>
English writing quality					
<i>English predictors (within language)</i>					
English cohesive ties total	.06	.02	.000	.03	.10
English reference ties total	.11	.03	.001	.05	.17
English conjunction ties total	.04	.05	.439	-.06	.15
English lexical ties total	.16	.04	.000	.07	.25
English cohesive ties accuracy	.11	.03	.001	.05	.18
English reference ties accuracy	.28	.05	.000	.18	.38
English conjunction ties accuracy	-.01	.06	.807	-.12	.10
<i>Spanish predictors (across languages)</i>					
Spanish cohesive ties total	.02	.02	.247	-.02	.06
Spanish reference ties total	.03	.04	.378	-.04	.10
Spanish conjunction ties total	.03	.06	.572	-.09	.15
Spanish lexical ties total	.05	.05	.285	-.04	.14
Spanish cohesive ties accuracy	.15	.04	.138	-.02	.13
Spanish reference ties accuracy	.13	.06	.027	.01	.25
Spanish conjunction ties accuracy	.01	.06	.825	-.10	.12
<i>Spanish predictors controlling for English predictors</i>					
Spanish cohesive ties total	.01	.02	.791	-.03	.05
Spanish reference ties total	.01	.04	.839	-.06	.08
Spanish conjunction ties total	.02	.06	.742	-.11	.15
Spanish lexical ties total	.01	.05	.808	-.08	.10
Spanish cohesive ties accuracy	.03	.04	.439	-.04	.10
Spanish reference ties accuracy	.09	.06	.126	-.02	.20
Spanish conjunction ties accuracy	.02	.06	.751	-.10	.14
Spanish writing quality					
<i>Spanish predictors (within language)</i>					
Spanish cohesive ties total	.07	.02	.000	.04	.11
Spanish reference ties total	.11	.03	.001	.05	.18
Spanish conjunction ties total	.10	.06	.099	-.02	.21
Spanish lexical ties total	.14	.04	.001	.06	.23
Spanish cohesive ties accuracy	.13	.03	.000	.07	.20
Spanish reference ties accuracy	.27	.05	.000	.16	.38
Spanish conjunction ties accuracy	.08	.05	.141	-.03	.19
<i>English predictors (across languages)</i>					
English cohesive ties total	.04	.02	.039	.00	.07

English reference ties total	.06	.03	.038	.00	.13
English conjunction ties total	-.05	.05	.366	-.15	.05
English lexical ties total	.13	.04	.002	.05	.22
English cohesive ties accuracy	.04	.03	.189	-.02	.11
English reference ties accuracy	.18	.05	.000	.09	.28
English conjunction ties accuracy	-.09	.05	.098	-.20	.02
<i>English predictors controlling for Spanish predictors</i>					
English cohesive ties total	.02	.02	.262	-.01	.05
English reference ties total	.04	.03	.150	-.02	.11
English conjunction ties total	-.08	.05	.124	-.19	.02
English lexical ties total	.11	.04	.016	.02	.19
English cohesive ties accuracy	.02	.03	.649	-.05	.08
English reference ties accuracy	.15	.05	.002	.05	.25
English conjunction ties accuracy	-.13	.06	.023	-.24	-.02

Discussion

In the current study, we investigated written cohesive ties in English and Spanish essays written by Spanish-English emergent bilinguals in Grades 1, 2, and 3. We build on prior research as the first study, to our knowledge, to investigate written cohesive ties by biliterate children. We addressed whether cohesive ties differed by grade level, English learner status, and instructional program and whether they were related to cohesive ties in the other language. In addition, we examined cohesive ties' relation to writing quality within and across languages.

Cohesive Ties Differed by Language and Were Predicted by Grade Level, English Learner Status and Instructional Program

The number and accuracy of cohesive ties differed by language. The Spanish-English bilingual child in primary grades in this study wrote more cohesive ties per utterance in English essays than in Spanish essays. When cohesive ties were compared by class, English essays had more reference and conjunction ties but not more lexical ties. When examined by the number of accurate cohesive ties per utterance and by proportion of cohesive ties that were accurate, overall, English essays had more accurate cohesive ties than Spanish essays. In addition, more reference ties were used correctly in English than in Spanish, but there was no difference

between the number of accurate conjunction ties. It is interesting that utterances in English tended to be longer than utterances in Spanish, but this was not due to conjunctions.

We hypothesized that cohesive ties would vary as a function of grade level because higher grades would have a more advanced understanding of how to use cohesive ties and be less constrained by transcription processes (Kim & Graham, 2022). Our hypothesis was largely confirmed. All measures of Spanish and English cohesive ties varied as function of grade level except for the number of Spanish reference ties per utterance when controlling for English learner status, instructional program, and free and reduced lunch status. There has been speculation as to the developmental trajectory of cohesive ties (Cox et al., 1990; Mosenthal & Tierney, 1984), and our findings show that young children use them with more frequency and accuracy as they develop oral language skills. Perhaps once transcription processes become more automatic in higher grades, we might find that cohesive ties are used more selectively for rhetorical purposes.

Additionally, English learners used significantly more accurate English conjunction ties and Spanish lexical and reference ties when controlling for grade level, instructional program, and free and reduced lunch status. These findings were surprising because they suggest that being classified as an English learner negatively impacted cohesive tie use in both languages, rather than only in English. Explanations for these findings are unclear and require future replications and investigations.

We also expected that students in English immersion would use more English cohesive ties while students in dual immersion would use more Spanish cohesive ties. Our findings were partially confirmed. In English, only reference tie quantity and accuracy were impacted by instructional program with dual immersion students using them less in general and accurately

than English immersion students. On the other hand, in Spanish, all measures of both quantity and accuracy showed that students in dual immersion outperformed students in English immersion. Therefore, for written cohesive ties, formal interaction, such as instruction, is important for development. Usage-based theories (e.g., Ellis, 1994, 2017; Tomasello, 2007) have posited that language develops through frequency of exposure. Our findings show that dual immersion instruction provided enough exposure for written cohesive ties to develop in both languages.

Crosslinguistic Relations Between Written Syntax Features

In line with our hypothesis, we found that Spanish and English cohesive ties were positively related to each other. We posited that because cohesive ties largely function similarly in Spanish and English and, especially for conjunction ties which often have direct translations, that there may be shared knowledge that supports production in both languages. In addition, accurate use of cohesive ties draws on one's understanding of logical sequencing. Hence, use of cohesive ties may be crosslinguistically related, and the more similar languages are, the more likely transfer will occur (MacWhinney, 2005). Our findings show that for Spanish-English speakers, use of written cohesive ties in one language is related to their use in the other language.

Interestingly, not all cohesive ties were related. For example, English conjunction ties were only predicted by Spanish conjunction ties whereas Spanish conjunction ties were predicted by English conjunction and reference ties but not lexical ties. Conjunction ties may draw more from text sequencing and grammatical knowledge because their purpose is to combine ideas logically and syntactically while reference and lexical ties require more audience awareness and vocabulary knowledge to appropriately repeat a noun or to use a synonym or

pronoun. Because of this, a writer may use them differently. For instance, a writer may focus on using lexical and reference ties sparingly to regularly remind the writer what ideas they are referring to while adding conjunction ties whenever possible to exhibit how ideas are connected. Overuse of lexical and reference ties, even if grammatically accurate, may make a text less coherent. On the other hand, an increase in accurate conjunction ties may better show how ideas are related to each other.

Cohesive Ties' Relation to Writing Quality Within and Across Languages

Reference ties and lexical ties, but not conjunction ties, predicted writing quality in the same language when controlling for grade level, English learner status, instructional program, and free and reduced lunch. DIEW (Kim & Graham, 2022) posits that oral language, higher order thinking, and text structure knowledge are important for writing. We hypothesized that cohesive ties also draw on these skills, and thus would be related to writing quality. Our findings support this speculation, suggesting that for emergent Spanish-English bilingual children, greater number of and accuracy of cohesive ties are associated with better writing quality.

We found that English cohesive ties predicted Spanish writing quality when controlling for the Spanish cohesive tie counterpart along with grade level, English learner status, instructional program, and free and reduced lunch status. We speculated that this relation may be attributed to the fact that written cohesive ties and writing quality would both require meta-cognitive knowledge, such as rhetorical and reasoning skills, in addition to language specific skills. Although these findings are in line with the developmental interdependence hypothesis (Cummins, 1979), this relation did not go in both directions; Spanish cohesive ties did not predict English cohesive ties. This might be because the participants in the current study were

more proficient in English if the more proficient language supports production in both languages (MacWhinney, 2012).

Practical Implications

Our study has some important practical implications. First, findings suggest that instruction mattered for children's use of cohesive ties in Spanish and English. These results indicate the importance of instructional exposure for language and literacy development, at least for written cohesive ties. Second, use of cohesive ties differed by quantity and accuracy. Therefore, for measurement of young Spanish-English emergent bilinguals, using both aspects, quantity and accuracy, in future work can reveal developmental differences in cohesive ties. Third, not all conjunction ties were crosslinguistically related (e.g., Spanish reference and lexical ties did not predict English conjunction ties) nor were they all related to writing quality (e.g., conjunction ties did not predict writing quality within languages), which suggest that future work can further explore differences by cohesive tie class. Lastly, we found that Spanish and English reference and lexical cohesive ties predicted Spanish and English writing quality within languages, and English total lexical, accurate reference, and conjunction ties predicted Spanish writing quality. Therefore, potentially teaching children how to use cohesive ties correctly in both languages will enhance writing quality in both languages.

Limitations, Future Research, and Conclusion

There are several limitations that can be addressed in future research. First, we did not measure language proficiency in either language. Knowledge of cohesive ties is part of oral language skills, and therefore, it would be interesting to examine the relations among language proficiency, written cohesive ties, and writing quality. In the present study, we used English learner status as a proxy for oral language proficiency, but direct measures of oral language

skills in both L1 and L2 are needed. Next, we did not examine the quality of cohesive ties beyond grammatical and logical accuracy. Future research can examine a more extensive scoring system for cohesive ties, especially for conjunction ties, that considers genre appropriateness, variation, and frequency (e.g., academic words versus common words). In addition, our Grade 3 sample size of English immersion students ($n = 10$) was smaller than that for Grades 1 ($n = 14$) and 2 ($n = 25$). Our original sample included more Grade 3 students in both instructional programs. However, very few Grade 3 English immersion students met the criterion of writing at least the one word in Spanish. Finally, the generalizability of the current findings are English-Spanish emergent bilinguals in a similar socio-economic contexts in the US. Therefore, we recommend that this study be replicated with speakers of other languages and those at a more advanced stage of development.

In conclusion, this was the first study to our knowledge to investigate cohesive ties of emergent bilinguals in different instructional programs and whether they were related to writing quality. The crosslinguistic relation between cohesive ties extends our understanding of how languages interact for emergent bilinguals. Additionally, cohesive ties may require some of the same skills as writing quality and could potentially be a useful indicator for researchers and practitioners of writing quality.

Contributions to the Field

The three studies described in this dissertation make an important contribution to theory, research, and practice. They pave the path for further inquiry regarding the writing of emergent bilinguals. For instance, this dissertation is one of the first studies to examine writing in both of emergent bilinguals' languages in written compositions and, to our knowledge, is the first to compare writing features of students in different instructional programs.

This dissertation extended current writing and bilingual theories. We found that the writing framework we utilized, DIEW (Kim, 2020; Kim & Graham, 2022), addresses developing biliterate children in addition to monolingual children. DIEW hypothesizes that writing requires a range of skills and knowledge, including transcription, oral language, and higher-order thinking, and that the extent to which these skills contribute to writing varies as a function of several factors such as transcription skills. We found that spelling, syntax, and cohesive devices varied as a function of grade level, English learner status, and instructional program, and that syntax features and cohesive ties were related to writing quality. Furthermore, Study 2 demonstrated that written syntax features predicted writing quality within the same language and that the relation varied as a function of English learner status, and Study 3 showed that cohesive ties were related to writing quality within and across languages (English cohesive ties to Spanish writing quality). These findings confirm DIEW's hypotheses, show the relations of development (grade levels) and instruction to writing skills, and demonstrate that English learner status, a proxy for English proficiency, moderated the relation between syntax measures and writing quality.

This dissertation builds on the limited prior research of emergent bilinguals' Spanish and English writing skills. For example, Study 1 revealed that emergent bilinguals make spelling

errors that may be due to crosslinguistic influence in both languages, though typically the writer tended to only make errors in one language. That is, a participant who made one crosslinguistic error influenced by the other language typically made other crosslinguistic errors in that language and did not make crosslinguistic errors in the other language. This finding suggests a unidirectional relation of crosslinguistic influence, which has been previously proposed (e.g., Cummins, 1979; MacWhinney, 2012), but not addressed in bilingual spelling previously. Study 2 showed that emergent bilinguals develop written syntax features in both languages, but skills may not be balanced. Specifically, students tended to formulate longer utterances in English than in Spanish. Lastly, Study 3 illuminated that emergent bilinguals used cohesive ties in both languages even as early as Grade 1.

This dissertation revealed crosslinguistic relations between different dimensions of writing. Study 1 showed that emergent bilinguals make spelling errors that may be due to influence from their other language. Features in one language potentially cued production in the other language (MacWhinney, 2005). In Study 2, we found that syntax features in one language significantly predicted syntax features in the other language, providing evidence for an interdependent relation between languages (Cummins, 1979; Proctor et al., 2010). Study 3 showed that cohesive ties were related not just at the surface level crosslinguistically, but also to writing quality. Possibly cohesive ties and writing quality require meta-cognitive skills in addition to language specific skills (Cummins, 1979; Kim et al., 2022). English cohesive ties predicted Spanish writing quality, but not the other way around, further evidence of unidirectional relations (MacWhinney, 2012).

Our findings may also be useful for practitioners. For example, Study 1 provided a spelling pattern list that identified common errors Spanish-English bilinguals made in their

writing. This list could be used to develop a word list for spelling assessment or as a resource to measure student writing. Also, this work could help teachers have a better understanding of the cause of the spelling error (i.e., possibly due to crosslinguistic influence). Study 2 showed that that mean length of utterance, number of verbs per sentence, number of subject agreement words, and accuracy of subject agreement words can be useful indicators of writing quality in both languages. Practitioners may want to consider this when developing a scoring scheme of writing quality. Furthermore, this could help students to describe different features of written syntax and illustrate how to use them to formulate syntax constructions. Study 3's findings suggest that teaching how to effectively use cohesive ties may improve student writing, but that instructing and assessing cohesive tie classes separately may be advisable. Lastly, the three studies bring attention to the intricate relation between English and Spanish and suggest that skills in one language are related to skills in the other language. Therefore, teachers may want to purposefully translanguage, if feasible, to enhance students' acquisition, as has been recommended by previous researchers (e.g., García & Lin, 2017).

We recommend that future research examines how spelling error patterns, syntax features, and cohesive ties are related to each other and to writing quality in one model, which was beyond the scope of the current research. Theoretically, drawing from DIEW (Kim & Graham, 2022), transcription skills act as a bottleneck on other writing processes. Therefore, as students make less spelling errors, more cognitive resources may become available to focus on other writing processes, such as using syntax and cohesive tie knowledge. This in return, could result in greater writing quality. In addition, transcription skills are hypothesized to have a bidirectional relation with oral language skills, and syntax skills may be needed to successfully use cohesive ties to combine and organize ideas into syntactic constructions. Therefore, we

expect that these different writing skills are related to each other, and that these relations may be impacted by the same moderators examined in the current work, grade level, English learner status, and instructional program.

In conclusion, we conducted this work to further our understanding of young bilingual students' writing development. We hope that future studies consider the implications detailed above and address our limitations to build upon our findings.

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Appendix

Student 1 (Grade 1, English Learner, Dual Immersion, Reduced Lunch)

English Opinion

May favorite game es Legos piquas yu quen beld a home en yu quen beld lats of tings en yu que gow buy a Lego home.

My favorite game is Legos because you can build a home. And you can build lots things. And you can go buy a Legos home.

English Narrative Essay

wan dey et was da frust day tu practes tu squeit bat miguel was practesin went jis frens bat dat dax miguel faqa dawn en jis bladn bat jis frend jaup jis frend.

One day, it was the first day to practice to skate. But Miguel was practicing with his friends. But that day, Miguel fell down and he's bleeding. But his friend help his friend.

Spanish Opinion Essay

Mi animal faborito es un chiquito es un !antanita; me gusta porque es muy bonito y no me muerda y me gusta mucho y mucho y mucho y mucho y mucho y mucho y mucho solo es muy chiquito pero unas dias mi antanita se sube

Mi animal favorito es un chiquito. Es un arañanita! Me gusta porque es muy bonito y no me muerde y me gusta mucho y mucho y mucho y mucho y mucho y mucho y mucho. Solo es muy chiquito. Pero unos días mi arañanita se sube.

Spanish Narrative Essay

Un dia dos grupos estaban jagando Futbol y ese dia una niña queria a ganar pero la atra grupo miro que ella va a ganar y ellos asieron un idea y quando ella corrio ellos gano porque sataba corrinendo. Pero ellos gano porque no corrio y gano y el grupo gano y todo yamaron ¡ema emma emma! y todos estabam felises.

Un día, dos grupos estaban jugando futbol. Y ese día, una niña quería a ganar pero el otro grupo miro que ella va a ganar. Y ellos hicieron una idea. Y cuando ella corrió, ellos ganaron porque no corrió y ganó. Y el grupo ganó y todos llamaron, "¡Emma, Emma, Emma!" Y todo estaban felices.

Student 2 (Grade 1, English Learner, Dual Immersion, Free Lunch)

English Opinion Essay

Y lac tu jad a naf gan daro bi coz wen wi go tu mi tías Máriaa dicaz jes chenjens wi pei naf gon daro

I like to had a nerfgun because when we go to mi tia's, Maria, because his children's, we play nerfgun.

English Narrative Essay

Yo sio ters niños y uno se callo y estaba llorondo y cuando su mama dino y le estada sagarando.

Yo veo tres niños y uno se calló y estaba llorando. Y cuando su mama vino y le estaba sangrando.

Spanish Opinion Essay

Yo tengo un hamster y lo soy yo papá y lo bi comba y se llama gordo y mi hermano tiene un guinepig y es su mama.

Yo tengo un hámster y yo soy su papa. Y lo di comida. Y se llama Gordo. Y mi hermano tiene un "Guinea pig" y es su mama.

Spanish Narrative Essay

Un día mire un futbol y mire muchos niños de futbol y juegan con la pelota i pasan la pelota de futbol y faltan a echar un gol y eran 6-6 ora tiene a char un gol ma 6-7 gno los amarillos y garrou la trofeo y fueren a casa y fataron y garno. toro tofeo.

Un día, mire un futbol y mire muchos niños de futbol. Y juegan con la pelota y pasan la pelota de futbol y a faltan a echar un gol. Y eran 6-6. Ahora tiene echar un gol más. 6-7. Ganó los amarillos y agarran el trofeo y fueron a casa y festejaron y ganaron otro trofeo.

Student 3 (Grade 1, English Learner, Dual Immersion, Free Lunch)

English Opinion

fornait cas I not lrd and nau aim lrdin jau tu play fornait wef mai drodr.

Fortnight cuz I not learned and now I'm learning how to play Fortnite with my brother.

English Narrative

I lrd jau tu rait a sceipor. En wan dei I feld an da sceipor and I cad mom and mai mom gev a dandei so dai frenz.

I learned how to ride a skateboard. And one day I fell on the skateboard. And I called Mom and my mom gave a bandaid. So, bye friends.

Spanish Opinion Essay

Mi animal es gat y perro y pescados porque tengo pescados porque es mi fadarito porque me gusta la animales porque le amo mucho y derzarte mucho y todo la dia porque te amo gato y perro y peses te amo mucho.

Mi animal es gato y perro y pescados. Porque tengo pescados porque es mi favorito. Porque me gusta los animales. Porque los amo mucho. Y besarte mucho y todo el día. Porque te amo gato y perro y peses. Te amo mucho.

Spanish Narrative Essay

I play sacr wen et play taim wen I score the dal to the dascet the orenjes playllos wan the dlu was deren wan the Topcats jad 6 ndad jas 7 the Bluebirds deren llan casdel jad 6 poins soooou sari Blu playllrs chai nex taim.

I play soccer when it's play time. When I score the ball to the basket, the orange players won. The blue ones didn't win. The Topcats had 6 and has 7. The Bluebirds didn't win cuz they had 6 points. So, sorry Blue players. Next time.

Student 4 (Grade 1, English Learner, English Immersion, Free Lunch)

English Opinion Essay

My favorite game is hide and seek. I have fun and my. Friends they like it to. have. So much fun.

My favorite game is hide and seek. I have fun. And my friends, they like it too. Have so much fun.

English Narrative Essay

First, there are three kids. Then, one fell down he got. Hurt also, he was bleeding!

First, there are three kids. Then one fell down. He got hurt. Also, he was bleeding!

Spanish Opinion Essay

Me favoreto animal es el gato me gusta por ce es thertetho e si me papa me theha petho yevar el gato al el parke.

Mi favorito animal es el gato. Me gusta porque es divertido y, si mi papa me deja, puedo llevar el gato al parque.

Spanish Narrative Essay

En el pemero huego stavan 7 neas en 4 mas. Neas en las 7 neas ganaro. En perdyo los Bluebirds.

En el primero juego, estaban 7 niñas y 4 más. Niñas y las 7 niñas ganaron. Y perdió los Bluebirds.

Student 5 (Grade 2, English Learner, Dual Immersion, Denied Free or Reduced Lunch)

English Opinion

my faivret gaem es jaeren go sit. first, yo now way a laeck des geim pickus my frends dey play jaeren go sit my farvret frend es Danna she ouwuys play weft mi she dosent now ighlis picks she ceam from méxico and she waner to play wetf mi and my frend Nazly

My favorite game is hide and go seek. First, you know why I like this game? Because my friends, they play hide and go seek. My favorite friend is Danna. She always play with me. She doesn't know English because she came from Mexico and she wanted to play with me and my friend, Nazly.

English Narrative

in the story it touwas wat es hapinig en the stori. farst, en the pecher I si dat 3 doys are sceiring. secend a boy chript 2 boys war locing to the boy chript and tey derent waner to scair mor picos the boy chrip and las flon list. A boy set to the ourer boy and the boy was sad picks he chript and tey woner to set en the gras and the boy was bliding from jes fit and hes pans rempt.

In the story, it was what is happening in the story. First, in the picture, I see that 3 boys are skating. Second, a boy tripped. 2 boys were looking to the boy tripped and they didn't want skate more because the boy tripped. And last not least, a boy said to the other boy. And the boy was sad because he tripped, and they went to sit on the grass. And the boy was bleeding from his foot. And his pants ripped.

Spanish Opinion

Primero, mi animal favorito es un perro que no muerde y es suavesito y la rason porque a mi me gusta los perrs que no muerde. Segundo, yo quiero que sea monito con pelo blanco y sus ojos seran negro con un poquito de blanco no cafe pero blanco y negro seran monito con esos colores|color/s y otro color más para sus pies son un poquito de rojo y

Primero, mi animal favorito es un perro que no muerde y es suavecito. Y la razón porque a mí me gusta los perros que no muerde. Segundo, yo quiero que sea bonito con pelo blanco y sus ojos sean negros con un poquito de blanco no café pero blanco y negro. Sean bonitos con esos colores. Y otro color más para sus pies. Son un poquito de rojo y

amarillo. tercero, se va ver un poquito de diferente de esos colores a mi me gustan esos colores a mi perrito chiquito va a ser lindo

amarillo. Tercero, se va ver un poquito de diferente de esos colores. A mí me gustan esos colores. A mi perrito chiquito va a ser lindo.

Spanish Narrative

todos los niños y las niñas juegan. Primero todos patean la pelota pero no a una niña que patea la pelota. Segundo un niño patió la pelota y lo cansó y una niña estaba feliz el niño no podemos ver su cara pero yo pienso que esta feliz por último. todos los niños y las niñas estaban felices sobre un color amarillo pero dos niñas no estaban felices

Todos los niños y las niñas juegan. Primero, todos patean la pelota, pero no a una niña que patea la pelota. Segundo, un niño pateó la pelota y lo cansó. Y una niña estaba feliz. El niño, no podemos ver su cara, pero yo pienso que está feliz. Por último, todos los niños y las niñas estaban felices sobre un color amarillo pero dos niñas no estaban felices.

Student 6 (Grade 2, English Learner, Dual Immersion, Free Lunch)

English Opinion Essay

I like the game tiny hands. 1 reason is you put on the tiny hands and you do something with the tiny hands. 2 reason is that if you do it wrong you are out. The 3 reason is that it is a fun game you need it in the game.

I like the game, Tiny Hands. 1 reason is you put on the tiny hands and you do something with the tiny hands. 2 reason is that if you do it wrong, you are out. The 3 reason is that it is a fun game. You need it in the game.

English Narrative Essay

Some boys were skating one of them fell and hurt his leg. he said it hurts his mom came to help him. the boy said he be careful next time.

Some boys were skating. One of them fell and hurt his leg. He said, "it's hurts." His mom came to help him. The boy said, "I'll be careful next time."

Spanish Opinion Essay

my favorite pet is the bunny. 1 reason is that it is so fluffy. the 2 reason is that it is so cute. 3 reason is the bunny is the best pet for me!

My favorite pet is the bunny. 1 reason is that it is fluffy. The 2 reason is that it is so cute. 3 reason is the bunny is the best pet for me!

Spanish Narrative Essay

Los niños y niñas están jugando. 1 razón es la amado la san kando. la 2 razón es un niño de la amado la patea dentro. 3 razón es la amado nanan la gego.

Los niños y niñas están jugando. 1 razón es el amarillo lo están ganando. La 2 razón es un niño de amarillo la pateó adentro. 3 razón es el amarillo ganaron el juego.

Student 7 (Grade 3, Redesignated Learner, English Immersion, Reduced Lunch)

English Opinion Essay

My favorite game is four square. Its because you can take players out. Its also because

My favorite game is Four Square. It's because you can take players out. It's also

when you are king, you tell the rules. Its my favorite game because 4 players get to play in the game. This is why my favorite game is four squar.

English Narrative Essay

There are three kids playing at the park They are skating. One of them fell. The rest of them stop and came to him. One of them told someone near by. The kid was bleding from his leg.

Spanish Opinion Essay

mi favorito animal es one pero. mi gusta proca esta sabe. mi gusta por que ayos benen y qea los otros. mi gusta por que ayos esta bonitos. sto son mi razones porque mi gusta la pero.

Spanish Narrative Essay

I ones ninōs que stand hogando. Los ninōs stand hogando socoe. Los rahanas sado un goal. Los rahanas ganado. Los asules pedo. Los ruhanas sta flece. Y los asules sta sad.

Student 8 (Grade 3, Redesignated Learner, English Immersion, Free Lunch)

English Opinion Essay

My favorite game is Fornite. Fornite is fun because I get to play with my cousins. I also like Fornite because you can buy dances and skins to look like a good player. My last reason is that the game it very entertanig to play with people. Fornite is the best game to play in my opion.

English Narrative Essay

Once upon a time, there were three boys named Jay, Erick, and Mike. The three boys were stake boarding and having lots of fun. There were stake boarding until two of the boys (Mike and Jay) saw Erick fall down. Mike called his mom to show her what happend to Erick. She saw that Erick's pants were riped and his leg was bleeding.

because when you are king, you tell the rules. It's my favorite game because 4 players get to play in the game. This is why my favorite game is Four Square.

There are three kids playing at the park. They are skating. One of them fell. The rest of them stopped and came to him. One of them told someone nearby. The kid was bleeding from his leg.

Mi favorito animal es un perro. Me gusta porque esta suave. Me gusta porque ellos vienes y cuidan los otros. Me gusta porque ellos están bonitos. Estos son mis razones porque me gusta al perro.

Hay unos niños que están jugando. Los niños están jugando soccer. Los naranjas hicieron un gol. Los naranjas ganaron. Los azules perdieron. Los naranjas están felices. Y los azules están "sad."

My favorite game is Fornite. Fornite is fun because I get to play with my cousins. I also like Fornite because you can buy dances and skins to look like a good player. My last reason is that the game it very entertaining to play with people. Fornite is the best game to play in my opinion.

Once upon a time, there were three boys named Jay, Erick, and Mike. The three boys were skateboarding and having lots of fun. There were skateboarding until two of the boys (Mike and Jay) saw Erick fall down. Mike called his mom to show her what happened to Erick. She saw that Erick's pants were ripped and his leg was bleeding.

Spanish Opinion Essay

Me favorito animal es un serval. A me me vusa la serval porce se meda van voneto. Tamane me vusa porce is un cato e a me vusa catos. Tamane me vusa porce tenen me favorito coldes madeo y negrow.

Spanish Narrative Essay

Ono ninas stan hegando football. Aye stan dos teams. Los ninas son amegas. Areta stan hegando porcece ceden a medan ceden va ganad. Los ninas va medo van a ganad. Los topcats sedon oon tempo. Los tops cats gano.

Mi favorito animal es un serval. A mí me gusta el serval porque se mira tan bonito. También me gusta porque es un gato y a me gusta gatos. También me gusta porque tienen mis favoritos colores, amarillo y negro.

Unas niñas están jugando futbol. Allí están dos teams. Las niñas son amigas. Ahorita están jugando porque quieren a mirar quien va ganar. Las niñas va mero van a ganar. Los Topcats hicieron un tiempo. Los Topcats ganó.