English Spelling Performance in Writing Samples Among Spanish-Speaking ELLs

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Abstract

The depth of the English orthography makes reading and spelling in English a difficult task; particularly for English language learners (ELLs) whose first language (L1) has a shallow orthography. Mastering spelling in English is a critical component of increasing the English literacy of ELLs. This study investigated the English spelling of 569 Spanish-speaking ELLs in Grades 4 to 6. Participants' writing samples were analyzed for spelling errors. Latent class analysis was utilized to discover hidden categories within the data using eight spelling error categories: (a) Vowel Omission; (b) Vowel Addition; (c) Vowel Substitution; (d) Vowel Sequence; (e) Consonant Omission; (f) Consonant Addition; (g) Consonant Substitution; (h) Consonant Sequence. Consonant- and vowel-based errors were nearly equal in each grade level. Latent class analysis resulted in a two-class model. Students in Class 1 made more types of errors than students in Class 2. As the grade level increased, the percentage of students in Class 2 increased. The results of this study show the effects of English and Spanish orthographies on the spelling of Spanish-speaking ELLs, with spelling errors occurring among both vowels and consonants. As omissions were the most prevalent errors in both classes, spelling instruction aimed at decreasing omissions should be considered for ELLs.

Keywords

English language learners, latent class analysis, orthography, Spanish, spelling

Spelling is a skill required in many daily tasks, including writing letters, emails, text messages, or academic papers. Spelling impacts writing to such an extent that the Simple View of Writing (SVW) states that spelling is a building block of writing development (Berninger et al., 2002; Satangelo & Graham, 2015). If children struggle with spelling, their writing will be limited to the words they know how to spell (Moats, 2005) and their attentional resources will be devoted to spelling unknown words rather than to higher-level writing processes (Graham et al., 2011; Satangelo & Graham, 2015). In addition, spelling difficulties inhibit writing fluency, causing the writer to forget what they intended to write (Graham et al., 2011; Satangelo & Graham, 2015).

Beyond influencing writing development, spelling also influences the perception others may have of written work and the writer's intellect and abilities, according to the Presentation Effect (Graham et al., 2011; Satangelo & Graham, 2015). Given multiple written works containing the same content, a rater will assign a lower score to a paper with more spelling errors either due to the negative perception of the spelling errors, or due to a lack of the rater reading the entire paper and assigning a grade based only on a portion of the writing (Satangelo & Graham, 2015).

Spelling also impacts an individual's ability to read, and has been shown to predict future reading development and abilities (Abbott et al., 2010; Bahr et al., 2015; Caravolas et al., 2001; Chua et al., 2016; Desimoni et al., 2012; Ehri, 2000). While investigating the spelling development of 153 children longitudinally during the first 3 years of school, Caravolas et al. (2001) examined the relationship between spelling (phonological and conventional) and reading abilities. The results showed that spelling is one of the strongest longitudinal predictors of reading ability. The authors concluded that spelling is a strong foundation for the effective development of reading abilities in later grades.

Similarly, in an effort to improve early identification of reading disabilities, Chua et al. (2016) administered five inventories (i.e., phonological awareness, vocabulary, *Wide Range Achievement Test–4* spelling, rapid naming of digits, and letter identification) followed by the Wide Range

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Achievement Test–4 word-reading test to 127 bilingual (Spanish and English) children in kindergarten. The word-reading test was administered 6 months after the preceding inventories as the outcome measure. The results of this study showed that spelling was the best single predictor of reading disability diagnosis.

An individual's knowledge of the alphabetic principle, or the relationship between letters and sounds (Pittman et al., 2014), allows them to decode novel words while reading. According to the Theory of Automaticity (LaBerge & Samuels, 1974), as a reader's decoding abilities increase, their reading fluency increases, and more attentional resources may be devoted to comprehension. Thus, spelling is the building block from which reading abilities build and flourish.

Impact of Orthographical Consistency

The features of an orthography impact reading processes (Katz & Frost, 1992) and the ease with which spelling is acquired. In a shallow, transparent orthography such as Spanish, which is made up of 27 letters and two digraphs (*ll* and *ch*) that represent 29 graphemes and 24 to 25 phonemes (Gaintza & Goikoetxea, 2016), spelling is mastered relatively easily due to phoneme–grapheme consistencies (Ardila et al., 2017). Although the phoneme–grapheme relationships in Spanish are not perfect, the inconsistencies are few and are mostly consonant-based (Gaintza & Goikoetxea, 2016). For example, /b/ can be represented by *b*, *w*, and *v*, making it difficult for the speller to know which letter to use when the /b/ sound is heard (Defior et al., 2012; Gaintza & Goikoetxea, 2016; Serrano & Defior, 2012). In addition, the letter *h* is silent in Spanish, thus making it easy to omit when spelling a word that contains an *h*. More consonant-based errors than vowel-based errors have been found among individuals spelling in Spanish (Manrique & Signorini, 1994; Sun-Alperin & Wang, 2008; Zhang et al., 2020), which may be due to the consonant-based phoneme–grapheme inconsistencies and highlights the ease with which the spelling of vowels is mastered.

In contrast to the Spanish orthography, the English orthography is deep and opaque with 26 letters and about 44 phonemes (National Institute of Child Health and Human Development, 2000), resulting in many phoneme–grapheme inconsistencies among both vowels and consonants. The presence of inconsistencies among vowels in English adds an increased difficulty for English language learners (ELLs) learning to spell in English. Spelling inconsistencies are also a result of many different languages contributing to the English language throughout history including Greek, Latin, Anglo-Saxon, and Norman-French (Henry, 1988; Moats, 2005). In addition to the added challenge of vowel-based inconsistencies, ELLs must also learn the history of word origins to increase their English spelling abilities. Until ELLs with a shallow first language (L1) become proficient in the spelling patterns and word origins of English, they may apply letter-sound correspondences from their native language to their English spelling (Dixon et al., 2010). That is, native Spanish-speaking ELLs may spell English words phonetically, according to the rules of Spanish. Thus, the features of the orthography of an individual's native language affect their literacy acquisition in an additional language (Figueredo, 2006; Wang & Geva, 2003; Zhao et al., 2016).

Cross-Linguistic Transfer

The impact of a student's L1 on their L2 is in part determined by the differences in the orthographies. For instance, according to the Contrastive Framework (Lado, 1957), students whose L1 shares similarities with their L2 are able to capitalize on "positive transfer" wherein the shared aspects of the languages are more easily learned in L2 (Chung et al., 2019). Previous studies have established the transfer of different components of reading including phoneme–grapheme correspondences (Ziegler & Goswami, 2006) and morphological awareness (Ramirez et al., 2010) from Spanish to English when learning to read.

Similarly, the Transfer Facilitation Model (Koda, 2008) suggests that metalinguistic skills in L1 assist in the development of literacy in L2, assuming in part that the L1 skills are automatic and fluent (Chung et al., 2019). The phoneme–grapheme consistencies in Spanish allow students to master those relationships quickly; thus, native Spanish-speaking individuals are likely to be automatic and fluent in the phoneme–grapheme correspondences they have learned in Spanish and more able to transfer those skills to their L2 learning.

Empirical Evidence of L1 to L2 Relationships on Spelling

ELLs face a particular challenge when learning to spell in English as they must learn the complex rules of English, which may contradict the rules they have previously learned in their L1. Thus, their L1 spelling skills may negatively affect their L2 spelling development. For instance, Dixon et al. (2010) examined the influence of bilingual children's L1 orthography on their L2 spelling performance in English. The authors found that children learning English with a shallow L1 (e.g., Spanish) are likely to apply phoneme–grapheme correspondences from their L1 until they are able to master the more complex English spelling. These findings align with the findings of Figueredo's (2006) meta-analysis of 27 studies, which assessed the effects of students' L1 on their development of spelling in English. Figueredo found that students relied on phonological knowledge from their first language to guide their

English spelling. In addition, the author highlighted that, because ELLs' phonetic knowledge from Spanish provides them with an advantage where similarities exist (i.e., letters make the same sound), instruction in both English and Spanish is beneficial for these students until the complex rules of English are learned.

Rolla San Fransisco et al. (2006) also found that Spanish-English bilingual learners made Spanish-influenced errors when spelling English words. While Spanish literacy instruction was found to have the largest impact on Spanish-influenced English spelling, the authors also found that students with better Spanish vocabularies produced more spellings influenced by Spanish. With appropriate instruction and time, ELLs may reach spelling levels comparable with those of native English-speaking monolinguals (Lesaux et al., 2006; Zhao et al., 2016).

Spelling has not received as much research attention as reading (Gaintza & Goikoetxea, 2016; Zhao et al., 2016). However, examining the spelling performance among ELLs whose L1 orthography has different characteristics and depth from English (their L2) can help differentiate between errors made due to the influence of their L1 and errors that are possibly due to other factors such as exposure to literacy activities (Dixon et al., 2010). In addition, considering the relationship between spelling and reading and writing (Berninger et al., 2002; Ehri, 2000; Graham & Hebert, 2011; Graham & Santangelo, 2014; Pittman et al., 2014; Shanahan, 2006; Shankwiler et al., 1996), analyzing spelling errors may be beneficial in understanding the instructional needs of students and determining effective instruction (Gaintza & Goikoetxea, 2016; Joshi et al., 2008).

Method

Aims

The aim of this study was to investigate the English spelling errors committed by Spanish-speaking ELLs as a secondary data analysis of a prior randomized controlled study on reading comprehension. Up to four writing samples from each participant were analyzed for spelling errors. Our first aim was to discover hidden classes in the data using latent class analysis. Second, we aimed to examine the development of the English spelling among ELLs as grade level increased. We sought to answer the following research questions:

Research Question 1 (RQ1): Do more vowel-based than consonant-based spelling errors exist in the spelling mistakes of ELLs?
Research Question 2 (RQ2): Do student profiles explain the hidden classes of spelling errors?

Research Question 3 (RQ3): Does English spelling accuracy among these ELLs increase as the grade level increases?

For our first research question, we hypothesized that more vowel-based errors would occur than consonant-based errors due to the nature of the English orthography. In Spanish, the vowel letter-sound correspondences are one-to-one; this consistency does not exist in English as vowels in English can be read and written in many different ways. Thus, it was expected that students' spelling errors were made up of more vowel-based errors. For our second research question, we hypothesized that the student profiles may help explain the classes of spelling errors. For example, there may have been a lower performing class which was explained by containing the students who had low English proficiency. For our third research question, we hypothesized that the spelling accuracy would increase as grade level increased. This result would be expected because students would have received more instruction; however, the amount of time these ELLs had been receiving English instruction is unknown.

Participants

The study sample consisted of 569 native Spanish-speaking ELLs (female $n = 279$; male $n = 290$) in Grades 4 to 6 (Grade 4, $n = 142$; Grade 5, $n = 226$; Grade 6, $n = 201$) attending public schools in the western part of the United States with over 90% of the population being native Spanish speakers. ELL status was defined as students whose home or first language was Spanish and were learning English in school. These students were enrolled in dual language programs where instruction was provided in both English and Spanish on alternating days. Eleven of the students were reported as receiving special education services. During the research study, students used an intelligent web-based tutoring system throughout the school year in which they used a text structure strategy to improve reading comprehension. Before using the tutoring system, the Form B of the Gray Silent Reading Test (GSRT; Wiederholt & Blalock, 2000) was administered to each of the participants to obtain a pretest comprehension grade level equivalent score. These data were used in our analysis. Finally, Spanish and English proficiency was based on teacher-reported data. Students whose writing samples were unreadable were excluded from this study.

Procedures

During a previous randomized controlled study, students learned a reading comprehension strategy using text structures to generate main ideas and recalls of text. A web-based

intelligent tutoring system (ITSS) was used to present modeling, practice tasks, assessment, and feedback to the learners about the signal words for text structures, generating main ideas using specific patterns related to each text structure, and writing recalls of the passages. Five text structures (i.e., comparison, problem and solution, cause and effect, sequence, and description) were presented to the learners with approximately 10 lessons per text structure. Students used the software at least once a week for 30 to 45 min per week during a 6- to 7-month period while in school. At the end of the 6- to 7-month period during which the students used the tutoring system, the students took a posttest. No instruction on spelling was given to students within the ITSS software, and spelling corrections were not part of the feedback provided to the learners.

The posttest data from the aforementioned study were used as secondary data in this study; therefore, the effects of the software are not included in this study. On the posttest, students were randomly assigned to read two of the four passages. Each student read a passage organized using the problem and solution text structure about dogs or rats and another passage using the comparison text structure about monkeys or penguins. After reading each passage, the students ripped the passage out of the booklet and placed it out of view, and wrote a recall of the passage. The Problem and Solution text structure passages contained 98 words each, while the comparison passages were 128 words each. Each student wrote a recall for both the problem solution and comparison passages. Two additional writing samples included the main idea students wrote for the comparison passage and a response to a question about the problem solution passage. The writing samples from each participant were compiled and evaluated for misspellings. Writing samples were used to analyze misspellings to allow students to choose and use words that are in their vocabulary and with which they have had experience (either reading or spelling). Students in Grade 4 wrote on average 106 words total across the four writing samples while students in Grade 5 wrote on average 124 words total, and students in Grade 6 wrote on average 109 words total. The misspellings were coded dichotomously for the statistical analyses. As dichotomous coding limits the information that can be gathered from the data (Figueredo, 2006), eight specific error categories were utilized: (a) Vowel Omission; (b) Vowel Addition; (c) Vowel Substitution; (d) Vowel Sequence; (e) Consonant Omission; (f) Consonant Addition; (g) Consonant Substitution; (h) Consonant Sequence. For the binary coding, if the student made a given error, they received a score of 1 for that error category; if they did not make a given error, they were assigned a score of 0 for that error category. For example, if a student spelled *different* as *diffrent*, omitting the *e*, they received a score of 1 for the Vowel Omission category; as they did not make any other errors in that word, the remaining error categories were coded as a 0. The coding allowed for students to make multiple errors on one word. For example, if a student misspelled *psychology* as *psycolgy*, they would receive a score of 1 for Vowel Omission for omitting the second *o*, and a score of 1 for Consonant Omission for omitting the *h*. Two individuals with doctorate degrees studied the requirements for each of the specific spelling error categories included in this study and independently coded the misspellings according to the categories. The results from each coder were then compared, and interrater reliability was calculated using percentage agreement and found to be .94. The coders then met to discuss and revise any coding disagreements.

After analyzing the data to determine the latent classes, cross tabulations were utilized to compare student profiles within classes to examine whether class membership could be attributed to the student profiles. The variables included in the student profiles were: Gender (1 = female, 0 = male), Grade (4, 5, 6), Spanish Proficiency (*low, medium, high*), English Proficiency (*low, medium, high*), GSRT Pretest Grade-level Equivalency (*below, equal, above*), and Special Education (1 = receives special education services, 0 = does not receive special education services).

Statistical Analysis

IBM SPSS Statistics (version 24) was used to calculate the errors made by students in each grade level and to examine student profiles. Hidden categories in the data were discovered by latent class analysis using MPlus, version 7.4 (Muthén & Muthén, 1998). The best model fit for the data was determined using information criteria-based fit statistics, entropy, and model comparisons likelihood ratio tests. Information criteria–based fit statistics used to determine goodness of fit are Akaike information criterion (AIC), Bayesian information criterion (BIC), and sample-size-adjusted BIC (SSA-BIC). Smaller values for these statistics indicate a better model fit (Singer & Willett, 2003). Entropy, which ranges from 0 to 1, was used to determine the model that most accurately classified the participants. Higher entropy values indicate higher accuracy in the assignment of individuals to classes (Muthén & Muthén, 2009). Model comparisons likelihood ratio tests, including the Lo–Mendell–Rubin likelihood ratio test (LMR) and Bootstrapped likelihood ratio test (BLRT), were used to compare neighboring models (e.g., three classes vs. four classes).

Results

Spelling Errors

For each of the grades, vowel- and consonant-based errors were nearly half and half (Grade 4: vowel-based = 55%, consonant-based = 45%; Grade 5: vowel-based = 56%, consonant-based = 44%; Grade 6: vowel-based = 57%, consonant-based

Table 1. Error Likelihood by Latent Class.

Error	Class 1	Class 2
Vowel Omission	.917	.511
Vowel Addition	.665	.291
Vowel Substitution	.826	.457
Vowel Sequence	.302	.168
Consonant Omission	.865	.500
Consonant Addition	.584	.208
Consonant Substitution	.516	.094
Consonant Sequence	.240	.007

= 43%). Across all grades, omission errors, on both vowels and consonants, were the dominant error type, while sequencing errors, on both vowels and consonants, were the least frequently occurring errors.

Model Fit

A two-class model resulted in the smallest values for each of the information criteria-based fit statistics (AIC = 5,276.9; BIC = 5,350.7; SSA-BIC = 5,296.8). The entropy result for the two-class model was 0.592, indicating the accuracy of the classification of participants. The LMR value was 206.1, $p < .01$, and the BLRT value was $-2,726.3$, $p < .01$, indicating that the two-class model was best fit for the data.

Latent Classes

Table 1 shows the probability of individuals in each class making each type of error. Class 1 is characterized by a high probability of making Vowel Omission, Vowel Substitution, and Consonant Omission errors. That is, an individual determined to be in Class 1 is most likely to make these spelling errors. Class 2 is characterized by a moderate probability of making Vowel Omission and Consonant Omission errors. A comparison of the probability of making each error type for individuals in the two classes is shown in Figure 1.

As the grade level increased, a higher percentage of students were in Class 2. In Grade 4, 27% of students were in Class 2, in Grade 5, 31% of students were in Class 2, and in Grade 6, 44% of students were in Class 2. The changes in class designation by grade are depicted in Figure 2.

For both classes, the student profiles were almost even on every variable. Class 1 and Class 2 were each made up of 49% female and 51% male participants. Spanish proficiency among participants in each class was very close to equal (Class 1: *low* = 9%, *medium* = 39%, *high* = 52%; Class 2: *low* = 8%, *medium* = 41%, *high* = 51%) as was English proficiency (Class 1: *low* = 19%, *medium* = 34%, *high* = 47%; Class 2: *low* = 18%, *medium* = 35%,
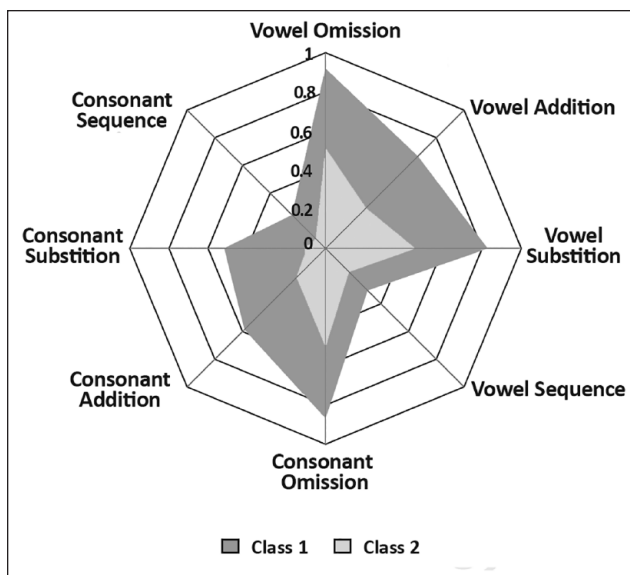
Figure 1. Error type by class.
Note. This figure depicts the probability of making each error type for an individual in each class.

high = 47%). The GSRT comprehension pretest grade-level equivalency for each class was nearly equal as well (Class 1: *below* = 93%, *equal* = 3%, *above* = 4%; Class 2: *below* = 90%, *equal* = 4%, *above* = 6%). The student profile variable that differed the most by class was special education designation. Class 1 contained 63% of the students receiving special education services while Class 2 contained 36%. The student profiles by class are displayed in Table 2. Descriptive statistics of spelling error types including mean and standard deviation by grade are displayed in Table 3 and by class in Table 4.

Discussion

The purpose of this study was to investigate the English spelling errors made by native Spanish-speaking ELLs. The impact of orthographic inconsistency was exhibited in the results of this study. The Spanish orthography is transparent and highly consistent, with few consonant-based inconsistencies, while the English orthography is more opaque, with many inconsistencies among both vowels and consonants. While investigating our first research question, we found that the effects of the English and Spanish orthographies were present in the results of this study by the nearly equal occurrence of vowel-based and consonant-based spelling errors in all grade levels. This finding adds to the existing literature because while the vowel-based errors were slightly higher than the consonant-based errors, they were not as high as expected when considering previous studies which highlight the ease with which students can master the spelling of vowels in Spanish (e.g., Sun-Alperin & Wang,
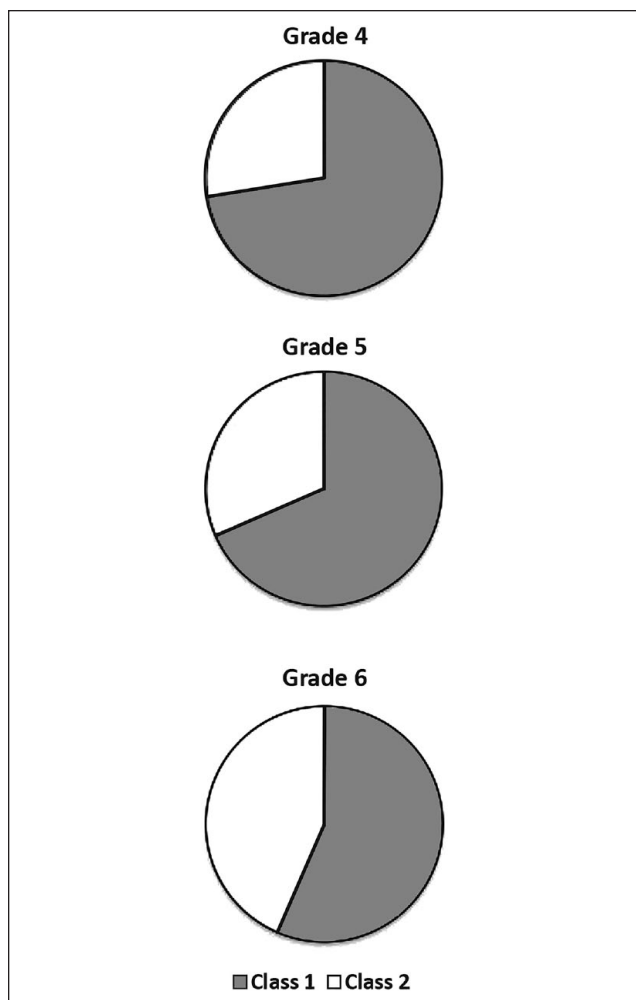
Figure 2. Class by grade.
Note. This figure depicts the changes in class designation by grade.

Table 2. Student Profiles by Latent Class.

Student profile	Class 1	Class 2
Gender		
Female	49	49
Male	51	51
Grade		
4	28	20
5	42	36
6	30	44
Spanish proficiency		
Low	9	8
Medium	39	41
High	52	51
English proficiency		
Low	19	18
Medium	34	35
High	47	47
GSRT grade level		
Below	93	90
Equal	3	4
Above	4	6
Special education	63	36

Note. All values reported are percentages. GSRT = Gray Silent Reading Test.

2008; Zhang et al., 2020). The differences in vowel letter-sound correspondences between English and Spanish lead us to hypothesize that vowel errors would be more dominant. The nearly equally high occurrence of consonant-based errors is indicative of the impact of the Spanish orthography as inconsistencies (though there were not many) among letter-sound correspondences in Spanish exist among consonants. Thus, consonant-based inconsistencies present in both English and Spanish have resulted to these ELLs struggling to accurately spell consonant sounds.

In investigating our second research question, we found that the student profiles did not explain class membership, as the student profiles were nearly identical for each of the classes. Whereas the percentage differences between students receiving special education services in Class 1 (63%) and Class 2 (36%) appear to be large, only 11 students out of the total 569 students received special education services. In addition, the number of students with high, medium, and low proficiency in both English and Spanish was nearly even in Class 1 and Class 2, as was the number of students at each reading level (above grade level, at grade level, below grade level).

The inclusion of multiple grade levels allows for a developmental examination of the spelling errors made by native Spanish-speaking ELLs. The higher percentage of students in Class 2 as the grade level increased indicates that as students progress through grades, their English spelling performance increases. This is to be expected of students as spelling instruction and exposure to the English language increases. However, even though a higher percentage of students were in Class 2 in higher grades, Class 1 was still the dominant class for each grade. This indicates that our hypothesis for our third research question was correct: spelling accuracy increases as grade level increases. However, even though spelling improved as the grade levels increased, there is still much spelling improvement needed by these students.

Finally, the results of this study showed omission errors among vowels and consonants to be the most prevalent errors in both Class 1 and Class 2. This result indicates that explicit spelling instruction aimed at decreasing omission errors would be beneficial for native Spanish-speaking ELLs. The omission errors made during spelling may be reflected in the students' reading as they may have difficulty reading units of the English language that are not present in

Table 3. Number of Error Types by Grade.

Grade	M	SD
4	4.38	1.789
5	4.14	1.664
6	3.67	1.825

Table 4. Number of Error Types by Class.

Class	M	SD
1	5.00	1.133
2	2.03	1.018

Spanish (e.g., specific digraphs and trigraphs). Further investigation into these students' word-reading errors may provide more insight to how their English spelling errors relate to their English word-reading abilities.

These findings highlight instructional needs of Spanish-speaking ELLs. The spelling difficulties these students face will impact their writing abilities as spelling is an essential building block of writing development (Berninger et al., 2002; Satangelo & Graham, 2015). Appropriate spelling instruction targeting the high-frequency error types made by these students will help them to be more fluent writers which will allow them to devote their attentional resources to higher order writing processes (Graham et al., 2011; Satangelo & Graham, 2015). In addition, the reader's perception of their knowledge and writing abilities will be improved according to the Presentation Effect (Graham et al., 2011; Satangelo & Graham, 2015).

An increase in spelling ability will also positively impact these students' reading abilities, as spelling has been found to be a strong predictor of later reading abilities (Abbott et al., 2010; Bahr et al., 2015; Caravolas et al., 2001; Chua et al., 2016; Desimoni et al., 2012; Ehri, 2000) and reading disability diagnoses (Chua et al., 2016). With these previous findings in mind, it is reasonable that appropriate, effective spelling instruction for ELLs would help decrease the high numbers of ELLs with a special education designation due to reading difficulties and those at risk for learning disabilities.

Limitations and Future Research

One limitation of this study is the limited background information of the participants. Information including how long these ELLs have been learning English would be beneficial to future studies. It is possible that Class 1 consistently contained the most students, percentage wise, due to a high amount of students who were newly learning English. It cannot be assumed that all students began learning English before or during the fourth grade, which is the lowest grade included in this study. Thus, the English spelling of students in Grade 6 has not necessarily been increasing or decreasing since Grade 4 or before.

In addition, insight into the spelling instruction these students are receiving would allow for a more in-depth analysis of their spelling errors. For example, knowing whether or not students are receiving instruction regarding word origin in English would provide insight regarding errors such as misspelling *psychology* as *psycology*, or *chemistry* as *kemistry*. It has been documented that word origin instruction in English is beneficial to spelling performance (Henry, 1988); however, without knowledge of the instruction these students are receiving, this cannot be confirmed by the present study.

Finally, this study examined writing samples from ELLs rather than a set list of spelling words. Writing samples were used in an effort to examine students' spelling abilities in written context, or how they spell while also focusing on higher order writing processes rather than solely on spelling. A specific list of target spelling words may be beneficial in future studies. This would allow for items-based classes to be discovered using latent class analysis in addition to the student-based classes that were included in this study. That is, the types of errors being made on a specific word, or type of word, would be discoverable and comparable. This analysis would provide additional insight regarding appropriate and beneficial spelling instruction for native Spanish-speaking ELLs.

Future research focusing on delivering effective and appropriate English spelling instruction, including explicit instruction regarding the differences between the English and Spanish orthographies, to ELLs with or at risk for learning disabilities who struggle with reading may help alleviate literacy difficulties these students face. In the fall of 2017, ELLs represented 14.3% of the student population receiving services under the Individuals with Disabilities Education Act (IDEA; National Center for Educational Statistics, 2019). As this is a large portion of students receiving special education services, this population warrants further research dedicated to improving their literacy skills as it may help reduce the number of ELLs receiving special education services due to reading-related learning disabilities and help prevent at-risk students from needing special education services.

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