Konin Language Studies
Faculty of Philology, State University of Applied Sciences in Konin, Poland
KSJ 6 (4). 2018. 455-482
http://ksj.pwsz.konin.edu.pl
doi: 10.30438/ksj.2018.6.4.5

Does knowledge of L1 grammatical morphology and L1 reading ability help achieve L2 proficiency?

Elena Zaretsky
Clark University, USA
https://orcid.org/0000-0003-3363-8273
ezaretsky@clarku.edu

Abstract

The issue of attaining English language proficiency (ELP) among English language learners (ELLs) from first language (L1) Spanish background occupies an important place in discussion of academic achievement. Given the increase in population of L1-Spanish ELLs in the USA and issues with continuing gaps in academic achievement, researchers are examining the degree to which L1 proficiency may influence attainment of proficiency in L2-English. This study took a closer look at the possible role that the knowledge of L1 grammatical morphology (early acquired skill in oral language) and L1 reading ability may play in becoming proficient in L2 for academic purposes. It has been shown previously that knowledge of grammar and reading ability in L1 may suggest certain proficiency in the first language and thus support acquisition of L2, implying the occurrence of crosslinguistic transfer. Our cohort was a group of 60 middle school students from low socioeconomic status with Spanish as L1. Our aim was to examine the influences of L1 grammatical morphology and L1 reading status on overall ELP and particularly on L2 reading comprehension. Our results indicated no effect of L1 inflectional morphology on L2 reading comprehension, but showed the effect of L1 reading ability, as well as strong interaction between L1 and L2 grammatical morphemes among readers in L1. The study also provides support for the low-level threshold hypothesis and offers some evidence for the occurrence of crosslinguistic transfer between oral L1 grammatical morphology and L2 grammatical morphology.

Keywords: ELLs; grammatical morphemes; crosslinguistic transfer; reading comprehension

1. Introduction

English language learners, or ELLs, are students who come from non-English speaking households, have limited English proficiency and are unable to achieve full academic potential in learning environments where instruction is conducted largely or entirely in English (Glossary of Education Reform, 2014). About 20% of school-age population in the United States are ELLs (Motel & Paten, 2012), and currently over 52.8% of all ELLs attending schools and being served by educational programs are Spanish speakers (Teale, 2009). The majority of those are concentrated in urban areas, attend Title I schools[1] and fall into low socioeconomic status (SES). The effect of low SES is well-documented, resulting in significantly lower scores on linguistic and basic intellectual measures compared to bilinguals from middle class families (Calvo & Bialystok, 2014). Children from low SES with Spanish as their first language (L1) may face difficulties in developing strong vocabulary skills in either one or both languages (Bialystok, Luk, Peets, & Yang, 2010; Hoff, Rumiche, Burridge, Ribot, & Welsh, 2014; Hammer, Hoff, Uchikoshi, Gillandres, & Castro, 2014; Collins, Toppelberg, Suárez-Orozco, O'Connor, & Nieto- Castañon, 2011), leading to difficulty in achieving grade-level expectations academically (Carrasquillo, Kucer, & Abrams, 2004).

Research with Spanish-speaking ELLs suggests that these children show a different pattern of language development in L1, which may impede acquisition of proficiency in the second language (L2, Hoff, 2013). US born children from Spanish-speaking background often acquire "heritage" language (Montrul, 2011) and come to school with deficits in L1 similar to L2 learners, such as, for example, poor vocabulary and knowledge of morphosyntactic structures. At the same time, research shows certain advantages for bilinguals, particularly in the area of attention control (Bialystok & Craik, 2010; Barac & Bialystok, 2012; Blom, Baerma, Bosma, Cornips. & Everaert, 2017).

Despite difficulty in acquiring vocabulary faced by children who speak Spanish as L1 in the US, such children possess better phonological awareness skills, an essential precursor to reading acquisition, than their monolingual peers (Bialystok, Majumder, & Martin, 2003). Not surprisingly, early literacy development of L1 Spanish-speaking ELLs may be similar to that of monolingual peers despite significant deficits in oral language complexity (Uchikishi, 2005; Geva & Massey-Garrison, 2013; Zaretsky, 2015, 2018) which continue to persist (Hoff, et al., 2014; Rojas & Iglesias, 2013). However, seemingly high achievements in early schooling do not show long-term effects in this population: ELLs appear to reach

[1] *Title I* schools receive funding from a federal program under *Title I of The Elementary and Secondary Education Act*. The funding is based on the percentage of children served by the school who qualify for the free lunch program. Only schools with a high poverty rate get Title I funding.

a plateau as they advance through the school years (Francis, Rivera, Lesaux, Kieffer, & Rivera, 2006; Kieffer & Lesaux, 2012). This contradicts the evidence from research suggesting children's exposure to English at school may be sufficient for academic language learning (Duursma, Romero-Contreras, Szuber, Proctor, Snow, August, & Calderon, 2007). Therefore, there is a need to identify specific aspects of L1 that may support the acquisition and academic use of L2 in the population of L1 Spanish-speaking children.

2. Morphological awareness and language proficiency

Morphological awareness refers to the ability to manipulate the structure of the word at the level of morphemes. Morphemes are considered to be the building blocks of spoken and written language and, as such, they provide cues for meaning, reading and spelling (Carlisle, 2003). Recent research also points to the contribution of morphological awareness to the development of reading abilities (e.g., Deacon & Kirby, 2004; Nagy, Berninger, & Abbott, 2006). However, morphological awareness is not a one-dimensional construct, but, rather, it consists of different components, such as inflections, derivations and compounding. While inflectional morphology reflects relationships between words in sentences, indicating syntactic awareness, derivational morphology reflects lexical knowledge, that is, the ability to generate new words or transform an existing word into a new grammatical category (Kirby, Deacon, Bowers, Isenberg, Wade-Woolley, & Parilla, 2012). Compounding morphology, in turn, is a way of combining two lexical items into a new word with its own special meaning (*air* + *plane* = *airplane*) (Zhang, Koda, & Sun, 2014). It has been suggested that morphological awareness may be a facilitator of broad vocabulary knowledge, which leads to better reading comprehension – an area of deficit for students who are ELLs. In addition, high morphological awareness may help students, including ELLs, to quickly and accurately identify words, as well as to extract semantic and syntactic information. Therefore, such students have more cognitive resources that can be allocated to reading comprehension (Kieffer & Lesaux, 2012).

Most of the research examining the interaction between morphological awareness and language proficiency among ELLs focuses on derivational morphology, which is a key vocabulary builder (Kieffer, Biancarosa, & Mancilla-Martinez, 2013; Kieffer & Lesaux, 2012; Pasquarella, Chen, Lam, Luo, & Ramirez, 2011; Ramirez, Chen, Geva, & Kiefer, 2010). Compounding morphology has also been pointed out as an important skill for literacy development in both L1 and L2, specifically for children from Korean, Chinese and Vietnamese backgrounds (Kieffer & Lesaux, 2012; Wang, Ko, & Choi, 2009; Zhang et al., 2014). The role of inflectional morphology, which is acquired relatively early in life in the process

of reading comprehension has been explored as well (see Kuo & Anderson, 2006, for an overview of the development and influence of inflectional morphology on reading). Some empirical evidence also supports the importance of inflectional morphology in improving reading comprehension. For example, Müller and Brady (2001), using a sample of Finnish-speaking first graders, showed that inflectional morphology is important for reading comprehension while not adding significant variances to the decoding skills. However, despite the established link between grammatical morphemes and reading comprehension, the exact relationship between inflectional morphology and reading comprehension is not fully accounted for in the literature examining populations of L1 Spanish ELLs from low SES. This population is of interest because not all L1 Spanish speakers may be readers in their L1, since morphological awareness manifests a bidirectional trend once a child begins to read (Kuo & Anderson, 2006; Zhang, 2013; Zhang, et al., 2014). Questions remain as to what possible effect the knowledge of L1 inflectional morphology, or morphosyntactic knowledge, may have on reading comprehension in L2 as a "provider" of meaningful connections between the words in a sentence (Kuo & Andersen, 2006).

The role of L1 morphological awareness in L2 reading comprehension among ELLs is an area of increased interest for a number of reasons: 1) ELLs are not a homogeneous group and therefore the level of L1 morphological awareness depends on the structure and characteristics of their ambient language; and 2) ELLs may have different levels of exposure to and proficiency in their L1, that is, years of schooling and reading ability in L1, as exposure to reading enhances morphological awareness (Kirby et al., 2012). The examination of morphological awareness is also warranted by the issue of crosslinguistic transfer. The prominent views on crosslinguistic transfer is concerned with grammar and suggests that L2 learners will rely on their L1 knowledge to achieve L2 proficiency. In order to identify influential factors in crosslinguistic transfer, one may also note the facilitative nature of typologically close languages (Lado, 1957; Lardiere, 2009), paying attention, for example, to the similarities and differences between languages that may affect transfer. This view postulates that by systematically comparing and analyzing specific features of languages it would be possible to understand what particular features of L1 will facilitate L2 acquisition and what features will not (König & Gast, 2008). L1-L2 similarities will lead to positive transfer, while L1-L2 differences will interfere with L2 acquisition and trigger negative transfer.

As this paper examines the possible role of L1 (Spanish) grammatical morphology knowledge in L2 (English) reading comprehension, the structure of both languages has to be considered as well. Spanish is a direct descendant from Latin and English is a Germanic language. However, English has been heavily influenced by Latin, both languages share words of Latin origin (Chacón Beltràn,

2006), and both languages use Latin script. On the other hand, there are clear language-specific differences in the use of inflectional morphology between highly inflected Spanish and less inflected English. A good case in point is verb inflection: A learner of English marks verb tense as *-s*, *-ed,* or *ø* for present, past or future; however, a learner of Spanish has to acquire a very complex marking system for the same tenses, depending on verb group, for example, verbs ending on *-ar, -er,* or *-ir* (Montrul, 2011). In addition, Spanish marks verb/subject agreement for person and number, and nouns must be marked for gender and plurality. As mentioned above, these language-specific grammatical features are acquired relatively early in life (Paradis, 2010). Therefore, the knowledge of L1 grammar and the use of specific grammatical morphemes, as a metalinguistic skill, may either play a significant positive role in the acquisition of L2 grammar through application of L1 morphosyntactic knowledge to L2 as a cognitive task and reflecting L1 proficiency. Alternatively, it may interfere with the acquisition of L2 grammatical morphemes, leading to difficulties in attaining L2 proficiency. Koda (2008) proposed another explanation for crosslinguistic transfer, particularly in reading development, namely the *transfer facilitation model.* It postulates that L1-L2 transfer is supported by metalinguistic awareness, such as phonological and morphological awareness, and the development of these metalinguistic skills in L1 will positively affect the development of such skills in L2, thus promoting crosslinguistic transfer. An important aspect of this model is the fact that metalinguistic skills may be accessible cross-modally, for example, from L1 spoken language to L2 reading development. This aspect of transfer facilitation model is particularly relevant for addressing the population of ELLs who may not be readers in their native language and therefore can be assessed in oral modality only.

3. Reading in L1 and L2 achievement

If one assumes that there should be a positive effect of L1 on L2 development, and particularly L1 literacy achievement, as part of cognitive-academic language proficiency (CALP, Cummins, 1980), then individuals who are literate in their L1 should achieve higher levels of L2 proficiency (Zaretsky & Bar-Shalom, 2010; Zaretsky, 2014). Research examining the relationship between L1 and L2 reading as well as overall L2 proficiency draws on the framework of the interdependence hypothesis (Cummins, 1979) and the threshold hypothesis (Cummins, 1979, 2000). The first hypothesis suggests that L1 reading skills should transfer to L2 reading skills, given that students are strong L1 readers and thus understand the role of morphosyntactic awareness as a connector between the words in a sentence. The second hypothesis assumes that in order for L1 reading skills to transfer to L2 reading, a student needs to reach a certain level of proficiency in L2. Hence the term *threshold*,

as even skilled L1 readers will not be able to read in L2 at the same level as in L1 until they have reached a certain threshold level (Cummins, 1991).

Yamashita (2002) examined the relationship between L1 reading ability and L2 proficiency in accounting for L2 reading comprehension in a sample of Japanese-speaking college students learning English as a foreign language. The study provided clear evidence that L1 reading and L2 proficiency show mutual compensation, that is, the better L1 reading and L2 proficiency, the higher the levels of L2 reading comprehension. Genesee, Lindholm-Leary, Saunders and Christian (2005) provided a systematic review of the literature pertaining to L1-L2 transfer and particularly L1-L2 literacy development among ELLs attending US schools. Empirical evidence suggests that successful L1 readers see L2 reading as similar activities with language-specific differences and therefore apply a number of strategies (e.g., using prior knowledge, contextual cues as well as inferencing) to achieve better L2 reading comprehension. On the other hand, L1 readers who are less successful may see reading in L2 as confusing, because they do not see the commonalities between their two languages. More recently, Sparks, Patton, Ganschow, and Humbach, (2012) in a longitudinal study investigating the link between L1 reading achievement and L2 proficiency among students in grades 1 through 9, showed that stronger L1 reading skills predicted greater achievement in L2. All these results suggest that ELLs may benefit from continuous support in their native language, which leads to crosslinguistic transfer.

However, ELLs attending US schools encounter specific circumstances that influence L2 (English) acquisition. While all around the world English may be taught as a foreign language and is introduced in the third or fourth grade (depending on the country) when L1 proficiency can be established, ELLs are exposed to English as the main language of academic instruction, regardless of their exposure prior to schooling. This factor fits in with an important tenet of the threshold hypothesis (Cummins, 1979, 2000), which suggests that ELLs with low a level of proficiency in L1 and L2, the so-called "partial bilinguals", are at a disadvantage since this limits their interaction with the educational environment at the amount of input and output. Cummins (2000) also argued that impoverished academic knowledge is a result of educational practices that do not give students the opportunity to experience academic language and literacy with the support of both L1 and L2. Equal exposure to L1 and L2 academic language is vital in achieving balanced bilingualism which brings about cognitive advantages. This framework is particularly dependent on cognitive psychology, since emphasis is laid on the motivation to learn L2 and subsequent L2 proficiency, and points to the quality of instruction as an additional factor in facilitating L1-L2 skills transfer (Cummins, 2000).

4. The study

4.1. Aims and research questions

The aim of this study was to explore the relationship between the knowledge of L1 grammatical morphemes in the oral modality, that is, identifying correct use of inflectional morphology within syntactic structure, and L2 achievement in written language, particularly reading comprehension. Koda (2008) specifically pointed out that oral language skills in L1 may support L2 development in the written modality. Identifying the role of L1 inflectional morphology in the development of grammatical knowledge and reading comprehension in L2 also follows the suggestion made by Sparks, Patton, Ganschow, Humbach and Javorsky (2006) that the role of different L1 variables in L2 attainment should be examined.

Within the framework of the transfer facilitation hypothesis, we were interested in the possible influence of L1 oral language on L2 written language development (Koda, 2008), which would constitute crosslinguistic transfer. The presence of between-language interaction would support Koda's (2008) suggestion that L1 oral language may be influential in L2 written language achievement. In each language we were also interested in tracing the influence of grammatical morphemes on vocabulary knowledge and reading comprehension, as previous research yielded conflicting evidence, with some studies finding this relationship and others failing to do so (e.g., Cobo-Lewis, Pearson, Eilers, &, Umbel 2002; Gottardo, 2002; Koda, 2008; Ramirez et al., 2010). At the same time, we were interested in the interaction between L1 knowledge of grammatical morphemes and reading ability in L1, as well as the role of L1 and L2 grammatical morphemes in L2 reading comprehension. The research questions addressed in this study were as follows:

1) Does the knowledge of L1 inflectional morphology reflect the within-language relationship between L1 vocabulary and L1 reading among readers in L1, or can be attributed to years of uninterrupted L1 exposure, as inflectional morphology is an early acquired skill?
2) Is there a relationship between the knowledge of morphosyntactic structure in L1 oral modality and L2 written language achievement, suggesting crosslinguistic transfer?
3) Does reading ability in L1 play a role in L2 written language achievement with respect to decoding, spelling and reading comprehension?

We hypothesized that within-language interaction between L1 knowledge of grammatical morphemes, vocabulary and reading will suggest L1 language proficiency. The presence of the relationship between L1 knowledge of morphosyntactic structure and L2 written language achievement would support the

interdependence hypothesis (Cummins, 2000), which relies on L1 proficiency to account for crosslinguistic transfer. The relationship between L1 grammar, even if acquired in the oral modality only, and L2 written language achievement would also support the transfer facilitation model (Koda, 2008), which postulated possible cross-modal transfer from oral to written language. The absence of interaction between L1 morphosyntactic knowledge and L2 written language proficiency would suggest that typological differences between English and Spanish may prevent crosslinguistic transfer (Lado, 1957; Lardiere, 2009), as well as supporting the threshold hypothesis (Cummins, 2000), according to which ELLs have to reach a certain level of L2 knowledge in order to progress in their L2 and fall back on crosslinguistic transfer.

4.2. Methodology

4.2.1. Participants

Sixty (N = 60, 24 females and 36 males, M_{age} = 11.78, SD = 1.16) ELLs, attending 5th and 6th grades in urban, Title I school participated in this study. All children were recruited from the same public school system in the second largest city in New England. All the participants in our sample were between Level 3 and 5 of English Language Proficiency (ELP), assigned through the ACCESS testing (*Assessing Comprehension and Communication in English State-to-State* for ELLs) to Level 1 = entering, Level 2 = beginning, Level 3 = developing (i.e., students at that level are readers and writers in English and can fully participate in the academic curriculum), Level 4 = expanding, Level 5 = bridging, and Level 6 = reaching (formerly ELL).

4.2.2. Assessment measures

Questionnaire
All participants filled out the questionnaire designed to identify: 1) the country of birth, 2) age of arrival in the US (if born outside of the US), which indicated uninterrupted exposure to L1 Spanish, 3) knowledge of English prior to arrival in the US, 4) years of schooling (if any) in the native country, and 5) reading in L1. The information gained through the questionnaire allowed us to examine the whole sample for the impact of L1 morphosyntactic knowledge on L2 proficiency, as well as identifying 31 children who were readers in L1 due to adequate formal schooling in their native country and 29 children who were non-readers in L1, even if they had some schooling in their native country.

Nonverbal intelligence

All students were administered *Matrices* subtest of KBIT-2 *(Kaufman Brief Intelligent Test-Second Edition*, Kaufman, & Kaufman, 2004) as a measure of fluid intelligence. The test has consistently high levels of reliability and validity, as well as cultural fairness in norming procedures and item selection. The test also allows responses in Spanish.

Vocabulary (L2 receptive and L1 expressive)

All the students were assessed on *Vocabulary Knowledge* subtest of KBIT-2. The test is similar in presentation to *Peabody Picture Vocabulary Test* (PPVT) and measures receptive vocabulary and concept knowledge. A subtest was also used to assess L1 expressive vocabulary by asking the participants to immediately provide Spanish equivalents of the words or concepts presented in English. The correct responses in L1 for each item presented were selected by a native speaker of Spanish. This format allowed us to obtain a good representation of vocabulary capabilities in both languages among our participants.

Single word reading

A set of 34 monosyllabic nonsense words constructed according to English phonotactic constraints (Kahn-Horwitz, Schwartz, & Share, 2011) were presented to the participants to assess decoding skills and identify possible struggling readers, as reading nonsense words provides a good representation of phoneme-grapheme mapping ability.

Single word spelling

The same set of words, but in a different order (Kahn-Horwitz, et al., 2011), was dictated to the participants for spelling in order to assess their ability to represent English spelling patterns (short and long vowels, silent *-e*, open syllables, consonant clusters, etc.).

L1 grammar assessment

Participants were requested to complete a grammatical judgment task, a perceptual measure successfully used in research to assess knowledge of grammatical structures in auditory modality, that is, listening to stimuli sentences and judging them as correct or incorrect. Ample empirical evidence supports the use of this task as a good representation of grammatical knowledge, especially if a person has had prolonged exposure to the ambient language (Ambridge, 2011; Ambridge & Rowland, 2013; McDonald, 2000; Zaretsky & Bar-Shalom, 2010). The task was chosen because half of our participants were not readers in L1, but were assumed to have mastered L1 grammatical structure. The participants

heard a total of 30 sentences, where 10 sentences were grammatically correct and meaningful (i.e., *La niña va a la cafetería a la hora del almuerzo*), 10 were grammatically plausible and also meaningful (i.e., *La niña y el mama comían helado*), and 10 violated the morphosyntactic structure of the sentence (i.e., *La maetra de Ingles les dio tarea a un estudiantes*). Participants were asked to identify grammatically correct (including plausible items) and incorrect sentences. The inclusion of sentences with plausible grammatical structure was dictated by the dialectic differences among the participants: grammatical constructions that are not used by natives of Costa Rica may be acceptable by speakers from Puerto Rican dialect. The focused on the grammatical morphemes under investigation, that is, tense, noun-verb agreement, 3rd person present tense, possessives, plurals and comparative and superlative adjectives.

L2 grammar assessment

Participants were administered grammatical knowledge task, which consisted of two parts. The first task required the participants to read sentences in English that were either grammatically correct or violated the rules of inflectional morphology in obligatory context (20 total). The task targeted the same morphemes as the Spanish task, except that is was a paper and pencil task, as all the participants were readers in L2. The second task was a cloze procedure and used nonsense words in a multiple choice format. Participants read a sentence with a missing word and had to fill out the blank by choosing a nonsense word out of three choices with the appropriate grammatical inflection within the meaningful content of the sentence (10 total). For example, in the sentence *My mother _____ the car to the grocery store,* the choices were a) *jeet*, b) *jeets*, c) *jeeter*. The nonsense words for this task were chosen from the *Single Word Reading* list (Kahn-Horwitz, et al., 2011) that all participants already decoded and spelled prior to the assessment of grammatical morphemes. Combined tasks for the measure of L2 grammar consisted of 30 items in total. Thus, L1 and L2 grammar assessment had the same number of items, addressed the same grammatical morphemes and targeted the same underlying knowledge of inflectional morphology.

No phonological awareness tasks were administered in this study. We argue against the assessment of phonological awareness skills because of the age of our participants: Although phonological awareness is considered a strong predictor of the acquisition of reading (Dickinson, McCabe, Clark-Chiarelli, & Wolf, 2004; Parris, 2005; Zaretsky, Kuvac Kraljevic, Core, & Lancek, 2009), it is not a valuable predictor of reading, and particularly reading comprehension beyond 4th grade (Hogan, Catts, & Little, 2005), while morphological awareness, including grammatical morphology, is becoming increasingly important for reading comprehension (Nagy, et al., 2006). Cronbach's Alpha (α) for all tests was close

to .79, which is considered reasonably high, as many methodologists recommend the minimum α coefficient between 0.65 and 0.8 (Cronbach, 1951).

ACCESS for ELLs 2.0 (*Assessing Comprehension and Communication in English State-to-State, https://www.wida.us/assessment/access20.aspx)*
A school-based comprehensive yearly measure designed to access reading, writing, reading comprehension, listening, and speaking English language skills for ELLs. It is a secure large-scale tool for assessing English language proficiency administered to kindergarten through 12th grade students identified as English language learners (ELLs). It is given annually in WIDA Consortium member states to monitor students' progress in acquiring academic English. The test yields several scores in oral and written language: the *oral score* consists of listening and speaking, the *literacy score* combines reading, writing and reading comprehension, while the *composite score* is a sum of oral and literacy scores and represents ELP levels (see explanations above). Since this test is widely used for assessment of ELLs growth in ELP, it was deemed appropriate for the purpose of this study. The test is administered close to the end of the academic year and the results are made available to schools at the beginning of the next school year. Since our testing was done during the first half of the academic year, the results were a good representation of the current level of performance for our participants. We used reading comprehension scores as our dependent measure of L2 reading achievement and ELP scores as a dependent measure of the overall acquisition of academic language.

Questionnaire for parents
The parents of our participants were asked questions regarding the level of their education at the time of arrival in the US and home literacy practices with their children. Since most of the parents had not finished high school in their native countries, we did not include parental education in our analysis.

4.2.3. Administration and scoring

All participants were tested individually, except for spelling and L2 grammatical knowledge that allowed group administration. The *Matrices* and *Vocabulary Knowledge* subtests of KBIT-2 were administered and scored according to the manual. All the other tasks were scored *1* for a correct answer and *0* for an incorrect one. The results were analyzed for skewedness and kurtosis and showed normal distribution. Therefore, we used raw scores for all tests in our analysis.

4.3. Results

4.3.1. Descriptive analysis

Table 1 represents descriptive statistics for all the participants and post hoc analysis for readers and non-readers in Spanish. As shown in the table, there were significant differences in favor of L1 non-readers for English language proficiency, L2 reading comprehension, L2 vocabulary, the knowledge of L2 morpho-syntactic structure (grammatical morphemes) as well as L2 decoding and spelling. The only advantage for L1 readers was knowledge of correct use of L1 grammatical morphemes. The two-group comparison provides initial insights into the possible trends in L2 acquisition between readers and nonreaders in L1.

Table 1 Descriptive statistics: age, uninterrupted L1, years of L2, and ELP, test results and post-hoc between group analysis

	N	(M/F)	*M*	*SD*	Range			
Participants	60	(36/24)						
Age			11;8	1.16	10;9-15;9[1]			
Spanish (L1) only			8;3	2.5	4;0 -14;0[2]			
Years of L2			3;5	1.77	0;11-7;8[3]			
ELP			3.34	1.3	2-6[4]			
			Full sample			*L1 reader/nonreader*		
Tests administered	*M*	*SD*	Range	$M_{Read}(SD)$	$M_{Nonread}(SD)$	*F*	*t*(58)	*p*
ReadComp (*ACCESS)*	3.68	1.6	1-6[5]	2.6(1.39)	4.8(1.08)	.79	-6.8	<.000
ELP (full sample above)				2.56(1.03)	4.1(1.1)	3.7	-5.6	<.000
NonVerbal IQ[6]	31.02	1.7	27-35	30.7(2.19)	31.3(1.2)	11.1	-1.3	.17
English Vocabulary[7]	28.6	8.9	11-42	24.8(10.0)	32.5(5.3)	30.4	-3.6	.001
Spanish Vocabulary[7]	21.8	9.1	4-39	23.4(9.3)	20.0(8.7)	.34	1.4	.14
GramJudgTotal[8]	20.4	4.76	3-30	22.7(4.4)	17.8(3.7)	1.3	4.6	<.000
GramMorph[8]	20.03	3.76	12-26	18.5(3.7)	21.5(3.1)	1.07	-3.3	.001
Decoding[9]	25.27	7.2	6-34	22.4(6.7)	28.3(6.6)	.95	-3.4	.001
Spelling[9]	18.82	7.9	6-31	13.6(5.7)	24.3(6.0)	.42	-6.9	<.000

Note. All test results represent raw scores. [1]The upper age limit is due to recent US arrivals being placed in 6th grade due to low L2 proficiency. [2]Years of speaking predominately L1. [3]Years of formal L2 instruction. [4]ELP – English language proficiency. [5]Reading comprehension (*ACCESS*) with results on the 1-6 scale. [6]*Matrices* subtest of KBIT-2. [7]Vocabulary subtest of KBIT-2. [8]Grammaticality judgment (L1), grammatical morphemes (L2). [9]L2 reading and spelling of nonsense words (negative *t* values show advantage for nonreaders).

4.3.2. Overall correlation analysis

Pearson bivariate correlations were used to further investigate the interaction between different L1 and L2 measures (see Table 2 for details). First, we looked at our sample as a whole to trace possible within- and between-languages interaction among different variables. The analysis yielded strong and significant

correlations between nonverbal intelligence and overall ELP, L1 and L2 vocabulary knowledge, knowledge of L2 grammatical morphemes and L2 spelling (r = .260, p = .045; r = .701, p =.000; r = .402, p = .001; r = .313, p = .015 and r = .279, p = .031 respectively). Within L2, strong correlations were revealed between L2 vocabulary and ELP, reading comprehension, knowledge of L2 grammatical morphemes, as well as length of exposure to L2 (r = .482, p = .000; r = .481, p = .000; r = .587, p = .000 and r = .327, p = .011 respectively). Strong correlations were observed between L2 spelling skills and L2 vocabulary, grammatical morphemes and years of exposure to L2 (r = .452, p = .000; r = .603, p = .000; and r = .727, p = .000, respectively). L2 decoding also correlated with L2 grammatical morphology and years of L2 exposure (r = .525, p = .000 and r = .460, p = .000). All these correlations were expected. Within L1, vocabulary did not show correlations with L1 morphological knowledge, nor did L1 reading skills, but schooling in L1 played a role in L1 vocabulary and grammatical morpheme knowledge (r = .270, p = .037; r = .557, p = .000).

Table 2 Correlation analysis for full sample of participants

	Overall	1	2	3	4	5	6	7	8	9	10	11	12
1.	NonVerbIQ	-	.260*	.189	.701**	.402**	.019	.313*	.121	.279*	-.054	.139	.178
2.	ELP			.913**	.482**	-.044	-.424**	.575**	.199	.542**	-.711**	.631**	.595**
3.	ReadComp				.481**	-.0.92	-.371**	.648**	.256*	.530**	-.779**	.670**	.668**
4.	EngVocab					.349**	-.021	.587**	.167	.452**	-.388**	.327*	.433**
5.	SpanVocab						.221	-.080	-.017	-.082	.122	-.021	.259*
6.	GramJudge[1]							.075	-.0.93	-.285*	.544**	-.555**	-.520**
7.	GramMorph[2]								.525**	.603**	-.572**	.511**	.403**
8.	Decoding									.718	-.428**	.460**	.410**
9.	Spelling										-.677**	.727**	.676**
10.	YearsSpan											-.929**	-.795**
11.	YearsEng												.768**
12.	ReadSpan												-

Note. *p significant at .05; **p significant at .01; [1]Gramm knowledge in L1; [2]Gramm knowledge in L2

Of interest were between-language correlations: strong and significant correlations were observed between L1 and L2 vocabulary measures (r == .349, p = 005), as well as between L2 vocabulary and L1 reading ability (r = .437, p = .001). L2 spelling and decoding skills also significantly correlated with reading ability in L1 (r = .410, p = .001; r = .676, p = .000). Reading in L1 strongly correlated with ELP (r = .595, p = .000).

4.3.3. Correlation analysis based on L1 reading status

As we were interested in identifying possible differences in L2 achievement among L1 readers and non-readers, as well as based on absence of within L1 correlations and presence of specific between language correlations, we ran separate correlation analysis for readers and non-readers in L1. Results of bivariate Pearson correlations are presented in Table 3.

Table 3 Correlation analysis for L1 readers and non-readers

Readers		1	2	3	4	5	6	7	8	9	10	11
1.	NonVerbIQ		.190	.048	.777**	.476**	.358*	.271	-.071	.173	.414*	-.315
2.	ELP	.236		.916**	.408*	.148	-.077	.416*	-.102	.332	-.480**	.302
3.	ReadComp	.218	.827**		.265	.051	.014	.536**	.018	.210	-.595**	.400*
4.	EngVocab	.432*	.191	.354		.576*	.339	.459**	-.006	.230	.176	-.357*
5.	SpanVocab	.442*	.028	.047	.351		.299	.123	.266	.176	.026	.026
6.	GramJudge[1]	-.377*	-.272	-.122	.108	-.063		.581**	.246	.092	.449*	-.388*
7.	GramMorph[2]	.278	.512**	.556**	.635**	-.179	.032		.477**	.323	-.143	.038
8.	Decoding	.304	-.021	-.088	-.027	-.161	.036	.374*		.539**	-.066	.144
9.	Spelling	.336	.150	.056	.295	-.056	.121	.707**	.780**		.084	.094
10.	YearsSpan	-.432**	-.504*	-.480**	-.677	-.153	-.026	-.910**	-.331	-.778**		-.747**
11.	YearsEng	.566**	.371*	.253	.623**	.382*	-.173	.711**	.351	.766**	-.911*	
Non-readers		11	10	9	8	7	6	5	4	3	2	1

Note. *p significant at .05; **p significant at .01

Within the L1 readers group strong correlations were found between non-verbal IQ, L1 and L2 vocabulary knowledge, and L1 grammatical morphemes (r = .777, p = .000; r = .476, p = .007; and r = .358, p = .048, respectively). Nonverbal IQ also positively correlated with years of uninterrupted Spanish (r = .414, p = .021). Among non-readers in L1 correlations were also seen between non-verbal IQ and L1 and L2 vocabulary (r = .432, p = .019 and r = .442, p = .016). However these correlations were not as strong as for L1 readers. L1 grammatical morphemes knowledge showed negative correlation with non-verbal IQ in this group, but positively correlated with years of using English (r = .566, p = .001). Of interest were almost identical strong correlations between ELP and L2 reading comprehension for both groups of children (r_{reader} = .916, p = .000 and $r_{non\text{-}reader}$ = .827, p = .000). However, in the case of L1 readers, there were links with both L2 vocabulary, morphological knowledge and years of uninterrupted L1 (r = .408, p = .023; r = .476, p = .007; r = .358, p = .048; and r = .414, p = .21, respectively), while for non-readers links were observed with L2 grammatical knowledge and years of English exposure (r = .512, p = .005 and r = .371, p = .047). Both groups showed negative correlations with years of uninterrupted L1.

Reading comprehension in both groups predictably strongly correlated with knowledge of English grammatical morphology, suggesting the importance of morphosyntactic knowledge in L2 reading comprehension. In both groups, the length of exposure to L1 was negatively related to L2 reading comprehension. Both groups showed strong correlations between L2 vocabulary knowledge and L2 grammar (r_{reader} =. 459, p = .009; $r_{nonreader}$ = .635, p = .000.) as well as inter-correlation of L1 and L2 vocabulary (r = .576, p = .001). Of interest was a significant correlation between L1 and L2 grammatical morphemes knowledge in the reading group (r = .581, p = .001), but not in the non-reading group. In both groups, L2 morphological knowledge correlated with L2 decoding, but only for non-readers

were there also correlations with spelling. In the reading group there were intercorrelations between L2 decoding and spelling. In both groups spelling strongly correlated with length of exposure to English.

4.3.4. L1 reading ability, knowledge of L1 grammatical morphemes and L2 reading comprehension

To investigate the possible influence of L1 reading ability on L2 written language achievement, and on reading comprehension in particular, we ran a multiple regression analysis on the full sample of participants, that is, readers and non-readers in L1. First, we wanted to see the influence L1 and L2 grammatical morphemes and L1 and L2 vocabulary on overall ELP, as well as L1 reading and L1 schooling. We argued that all these variables represent specific aspects of L1 and L2 that were included in our assessment and should support acquisition of L2 proficiency. The inclusion of L1 reading and L1 schooling was warranted in order to answer our specific research question regarding the role of L1 reading in L2 reading comprehension. With ELP as our dependent variable, Model 1 included L1 and L2 vocabulary as well as L1 and L2 grammatical morphemes knowledge as independent variables; Model 2 also included L1 reading and, finally, Model 3 took account of L1 schooling, as we had participants who had gone to school in their native country but did not read in L1. All three models yielded significant relationships ($R_{\text{Model 1}} = .757$, $F(4) = 18.49$, $p = .000$; $R_{\text{Model 2}} = .768$, $F(5) = 12.87$, $p = .000$; $R_{\text{Model 3}} = .779$, $F(6) = 11.03$, $p = .000$). Knowledge of L2 grammatical morphology consistently accounted for 47-56 % of the variables. L1 morphological knowledge also contributed significantly to all models, but had a negative effect on ELP. Neither L1 reading nor schooling had any influence on achieving ELP. The Durbin-Watson value was 1.89, where a value approaching 2 indicates a non-autocorrelation between variables.

Next we ran regression analysis with Reading Comprehension as our dependent variable but with the same set of independent variables (see Table 3 for details). Again, all the three models were significant ($R_{\text{Model 1}} = .777$, $F(4) = 20.9$, $p = .000$; $R_{\text{Model 2}} = .813$, $F(5) = 21.02$, $p = .000$; $R_{\text{Model 3}} = .821$, $F(6) = 18.26$, $p = .000$). As with ELP, knowledge of L1 grammatical morphology made a significant but negative contribution to all three models, accounting for between 20% and 40% of the variances. L2 grammatical morphology accounted for over 50% of variances in each model. Neither L1 nor L2 vocabulary added any value to the models. However, reading in L1 made a significant contribution in Models 2 and 3, accounting for 34% and 29% of the variances, respectively. The Durbin-Watson value was the same as in the first regression analysis.

Table 4 Results of multiple regression analysis

ELP as dependent variable								
Model 1	*R*	R^2	*df*	*F*	Sig	*ß*	*t*	*p*
	.757	.574	4	18.496	.000			
GramJudge (L1 morph)						-.479	-5.173	.000**
GramMorph (L2 morph)						.563	4.461	.000**
EngVocab						.136	1.012	.316
SpanVocab						.038	.316	.738
Model 2	*R*	R^2	*df*	*F*	Sig	*ß*	*t*	*p*
	.768	.590	5	12.878	.000			
GramJudge						-.391	-3.578	.001**
GramMorph						-.391	.527	4.139
EngVocab						-.391	.059	.413
SpanVocab						-.391	.079	.689
ReadSpanish						-.391	.185	1.477
Model 3	*R*	R^2	*df*	*F*	Sig	*ß*	*t*	*p*
	.779	.607	6	13.627	.000			
GramJudge						-.391	-.339	-2.989
GramMorph						-.391	.471	3.581
EngVocab						-.391	.023	.158
SpanVocab						-.391	.118	1.014
ReadSpanish						-.391	.124	.950
SchoolSpan						-.391	.198	1.494
L2 Reading Comprehension as Dependent Variable								
Model 1	*R*	R^2	*df*	*F*	Sig	*ß*	*t*	*p*
	.777	.603	4	20.905	.000			
GramJudge						-.391	-.415	-3.641
GramMorph						-.391	.641	5.266
EngVocab						-.391	.102	.789
SpanVocab						-.391	-.015	-.134
Model 2	*R*	R^2	*df*	*F*	Sig	*ß*	*t*	*p*
	.813	.661	5	21.029	.000			
GramJudge						-.391	-.251	-2.518
GramMorph						-.391	.574	4.954
EngVocab						-.391	-.041	-.316
SpanVocab						-.391	.062	.595
ReadSpanish						-.391	.345	3.024
Model 3	*R*	R^2	*df*	*F*	Sig	*ß*	*t*	*p*
	.821	.684	6	18.596	.000			
GramJudge						-.391	-.204	-1.975
GramMorph						-.391	.523	4.373
EngVocab						-.391	-.074	-.566
SpanVocab						-.391	.097	.917
ReadSpanish						-.391	.290	2.441

5. Discussion

The issue of crosslinguistic transfer is a very important area in research in bilingualism. Much of the research focuses on the idea of the bilingual advantage in executive control (Bialystok & Craik, 2010; Barac & Bialystok, 2012; Blom, Baerma, Bosma, Cornips, & Everaert, 2017). The issue of how between-languages similarities/differences influence acquisition of an additional language, particularly in the domain of written language, has generated a lot of interest and discussion. Researchers are also examining what actual skills have a better chance of being transferred and the importance of L1 language proficiency in the acquisition of L2 literacy.

As mentioned earlier, ELLs in the US represent a very specific group of children who speak languages other than English at home, but are educated almost exclusively in English. The group is not homogeneous, because children can be US-born with no exposure to English prior to school entry as well as children who arrived in the US at different stages of L1 proficiency. Children who are US-born are learning a "heritage" language (Montrul, 2011) and therefore their knowledge of L1 may be impoverished. They also exhibit a different trajectory of language development compared to monolingual children. Children who are brought to the US at any time during school age have radically different experiences with L1 and English as L2. They may or may not have attended school in their native countries and therefore may not have had real instruction in academic subjects in L1. In fact, they may have only 1-2 years of formal instructions, which is not enough for achieving full L1 proficiency. The older they are when they come to the US, the less exposure to L2 they have prior to entering school, which significantly diminishes their initial L2 proficiency required for academic learning.

Nevertheless, research has shown a positive relationship between L1 knowledge and L2 proficiency. The question still remains what aspects of L1 are most influential for L2 achievement and can transfer with relative consistency. Phonological awareness has been continuously shown to be an attribute that transfers from one language to another, even between languages that are typologically distant (Chow, McBrida-Cheng, & Burgess, 2005; Sparks, et al., 2009). The role of morphological awareness in crosslinguistic transfer is beginning to take the center stage but most research has concentrated on derivational morphology, because it leads to a major increase in vocabulary breadth and depth (Pasquarella, et al., 2011; Ramirez, Chen, & Paquarella, 2013; Zhang, 2013). The role of inflectional morphology, although also relevant to the examined skill, has not attracted so much attention, since grammatical morphemes are acquired relatively early in language development and, once acquired, their use does not change in later stages. However, knowledge of grammatical morphemes plays a

significant role in acquisition of literacy (Kaivapalu & Martin, 2007) and particularly in reading comprehension as it shows meaningful relationship between the words in a sentence. Our goal was to examine the role that knowledge of L1 grammatical morphology may play in L2 acquisition, particularly within the domain of written language, with a focus on reading comprehension. Moreover, we were also interested in possible crosslinguistic transfer between L1 oral modality and L2 written modality, as many ELLs are not readers in their L1 and research suggests that there is a bi-directionality in morphological development in exposure to written language (Kieffer et al., 2013; Koda, 2007). We also wanted to see whether L2 achievement differed based on the ability to read in L1 and having attended school where the native language was spoken.

As the results of correlations based on the full sample of participants indicated, there were within- and between-language correlations among constructs under investigation. Contrary to the finding of Gotardo (2002), we did see strong between-language correlations in L1 and L2 vocabulary, as well as the role of schooling in L1 in acquisition of L2 vocabulary. L2 decoding and spelling skills strongly correlated with L1 reading, suggesting crosslinguistic transfer, as reading in L1 (letter-sound correspondence) supported the same skill in L2. The absence of positive correlations between L1 grammatical morphemes and all aspects of L2 written language suggests that in this group of ELLs, there was no cross-modal transfer between L1 oral and L2 written language modalities. The absence of cross-modal transfer also supports the findings of Gottardo, Javier, Farnia, Mak and Geva (2014), suggesting that although there may be correlations between specific L1 and L2 language constructs (vocabulary in our sample), it does not mean the presence of crosslinguistic transfer. The profiles of our L1 readers and non-readers yielded very specific differences in L1 and L2 skills. While there were no differences in nonverbal IQ between the two groups, L1 non-readers outperformed their counterparts in every aspects of L2 written language skills. This was a predictable trend: L1 non-readers had on average longer exposure to L2 and longer time of school attendance in L2. As could be expected, L1 readers were much better at knowledge of L1 grammatical morphology supporting the previous findings that the process of reading increases the recognition and knowledge of linguistic elements. A surprising result was the fact that L1 vocabulary knowledge of readers and non-readers was almost identical and did not bring advantages to L1 readers. One possible explanation may be that students who did have some schooling in their native language but it was not long enough to ensure a higher level of academic vocabulary, which would have allowed them to reach the “critical mass” required for an experienced speaker of any language. Thus, they mostly used the lower-level vocabulary of everyday interactions, just as the ELLs growing up in the US.

The results of correlational analyses strongly suggested that nonverbal IQ was important for vocabulary acquisition in both languages for L1 readers and non-readers. Not surprisingly, ELP was associated with both L2 vocabulary and knowledge of L2 grammatical morphemes in L1 readers, but only with L2 grammatical morphemes in non-readers. Our interpretation of this interaction is that non-readers have overall better vocabularies due to longer exposure to L2, but knowledge of inflectional morphology provides essential information in all aspects of language, oral and written, which eventually leads to better reading comprehension. In the case of readers, this interaction supports the threshold hypothesis (Cummins, 1981), which posits the need to attain a specific level of linguistic knowledge in order to proceed with overall language proficiency. In the non-reading group both decoding and spelling skills were strongly correlated with knowledge of L2 grammatical morphemes, but L1 readers did not show this association. However, the inter-correlation between decoding and spelling was seen only in L1 readers, suggesting that the better they can decode, the more likely they are to use this information for spelling. As expected, years spent learning in L2 directly affected L2 reading comprehension among L1 readers, and impacted every aspect of ELP for L1 non-readers. One manifestation of crosslinguistic transfer among L1 readers was the strong correlation between L1 and L2 knowledge of grammatical morphemes, which was not seen in the non-reading group. This interaction indicates that grammatical knowledge in one language supports learning the same constructs in another language. This finding provides direct support for Koda's (2008) transfer facilitation model, which suggests that metalinguistic awareness (morphological awareness in our case) in L1 promotes L1-L2 transfer, that is, metalinguistic skills in L1 positively affect the development of the same skills in L2. This is a very important contribution to research on crosslinguistic transfer. This is because this indicates not only the importance of grammatical morphology in achieving language proficiency, but also suggests that when L1 grammatical morphology is supported by reading in the native language, this may help students to identify the same meaningful units of grammatical morphology in L2 written language. The fact that L2 grammatical morphology was strongly associated with every L2 written language skill testifies to the importance of this particular aspect for overall L2 as well as the interdependency of skills within language. As regards Koda's (2008) suggestion that metalinguistic skills may be accessible cross-modally (e.g., from L1 spoken language to L2 reading development), we did not see this interaction among readers and non-readers in L1. It is possible to assume that this transfer may be more applicable to derivational morphology, but not in the case of grammatical morphemes.

The research question regarding the influence of L1 grammatical knowledge on L2 reading comprehension, or the possibility of crosslinguistic transfer, was

addressed through multiple regression analysis. Contrary to our hypothesis that the knowledge of grammatical morphemes in L1 may influence reading skills in L2, our results indicated that L1 grammatical knowledge did not affect L2 reading comprehension, nor did it affect overall ELP, which encompasses both oral and written language. However, the strong contribution of L2 grammatical morphology to L2 reading comprehension and overall ELP speaks to the importance of knowledge acquired early in providing meaningful interpretation of any written text. Schooling in L1 also did not play any role in L2 reading comprehension and overall ELP. This finding is not exactly in line with the claims of Cárdenas-Hagan, Carlson and Pollard-Durodola (2007) regarding the importance of instruction. On the other hand, these results suggest that incomplete proficiency in L1 may interfere with the acquisition of L2 among L1 readers. However, we can also offer a different interpretation of greater achievement in all aspects of L2 among non-readers in L1. While on average they had slightly longer exposure to L2, a number of non-readers in our sample had also been taught in L1, thus limiting their exposure to L2. Based on the information regarding school attendance in L1 for both L1 readers and non-readers, it is possible to postulate that not being able to acquire reading skills in L1 despite school attendance suggests early interruption in L1 academic language development. In that case, non-readers were approaching L2 acquisition "denovo", without the benefit and support of L1 proficiency, simply by utilizing teaching strategies provided by their educators and reaching the "critical mass" required for ELP. This interpretation strongly supports the threshold hypothesis (Cummins, 1981, 2000), since readers in L1 did not show the same L2 achievement despite proficiency in their L1. Regarding the use of teaching strategies by non-readers in L1, in a separate study addressing spelling acquisition among ELLs and comparing them to native English speakers, we saw striking similarities in the patterns of spelling used by ELLs and monolingual English speakers with clear evidence that ELLs were applying the strategies taught to them in school (Zaretsky, 2017). However, the most important finding of this study was the undeniable contribution of L1 reading skills to L2 reading comprehension. This shows language connections between languages and supports the interdependence hypothesis (Cummins, 1981), further emphasizing the importance of reading in the native language in acquisition of L2 reading skills and meaningful interpretation of L2 academic reading material.

6. Conclusion

The present study addressed the important issue of crosslinguistic transfer of specific linguistic skills, that is, grammatical morphology, as well as the role of L1 reading among L1-Spanish ELLs in supporting the acquisition of L2 reading

comprehension and overall proficiency. Examining the possible occurrence of crosslinguistic transfer among ELLs is an important area of investigation in the acquisition of L2 language proficiency, since the results of such studies may shed light on concrete educational challenges faced by this group of children. As highlighted above, ELLs are not a homogeneous group, manifest different patterns of L1 and L2 development (Hoff, 2006), acquire L1 as a "heritage language" (Montrul, 2011), may have no or very limited exposure to English (L2) prior to school entry, and yet, predominantly benefit from L2 as the language of instruction. In effect, empirical investigations of specific linguistic constructs that may facilitate achieving English language proficiency (ELP) are extremely important. Any information that can increase our knowledge of that process and support theories of bilingual language acquisition is an important step forward for bilingual research.

Our results clearly support the interdependence hypothesis and the threshold hypotheses, put forward by Cummins (1981, 2000), as well as the transfer facilitation model, proposed by Koda (2008). Indeed, reading ability in L1 seems to positively influence reading comprehension in L2. However, L1 will support L2 acquisition only when an individual has achieved full proficiency in L1. Having some education in native language does not guaranty crosslinguistic transfer. While attending school in L1 for a short period of time has some benefits in terms of exposure to the academic setting and school demands, it does not allow systematic acquisition of all aspects of language and literacy that lead to language proficiency. The connection between the knowledge of grammatical morphemes in L1 and L2 clearly supports the transfer facilitation model (Koda, 2008). However, the threshold hypothesis (Cummins, 1981) is also applicable to our results. This is because, in order for crosslinguistic transfer to occur, a student has to reach a certain level of L2 proficiency in order for L1 skills to be applicable and supportive of L2 development. This study also examined the role of L1 inflectional morphology in the oral modality in the process of the acquisition of L2 written language. Although the transfer facilitation model posits possible cross-modal transfer between oral and written language, we did not find any evidence for this.

For future research, careful consideration of the educational settings should be part of any investigation of crosslinguistic transfer. Dual language approaches, prominent in Canada and Wales, which provide instruction in both English and children's heritage language, are associated with high levels of academic achievement among bilingual children (Genesee & Lindholm-Leary, 2012), but this is not a prevalent method of instruction in US schools. Any study of crosslinguistic transfer has to account for the composition of the group under examination: ELLs, even from Spanish-speaking backgrounds, have different countries of origins, which may be an important confounding factor in examining crosslinguistic transfer among ELLs from low SES. Students' involvement in all aspects of school

life that may promote L2 acquisition, such as participation in after-school activities or preference for L2 use in different contexts, is also an important factor in the acquisition of L2 proficiency, as it provides a social context for learning (Cummins, 2012). As L2 may eventually become the dominant language of academic and social interactions, we may expect increase in L2 proficiency.

References

Ambridge, B. (2011). Paradigms for assessing children's knowledge of syntax and morphology. In E. Hoff (Ed.), *Guide to research methods in child language* (pp. 113-132). London: Blackwell-Wiley.

Ambridge, B., & Rowland, C. F. (2013), Experimental methods in studying child language acquisition. *Wiley Interdisciplinary Reviews Cognitive Science, 4,* 149-168.

Barac, R., & Bialystok, E. (2012). Bilingual effects on cognitive and linguistic development: Role of language, cultural background, and education. *Child Development*, *83*(2), 413-422.

Bialystok, E., & Craik, F. I. (2010). Cognitive and linguistic processing in the bilingual mind. *Current Directions in Psychological Science*, *19*(1), 19-23.

Bialystok, E., Majumder, S., & Martin, M. M. (2003). Developing phonological awareness: Is there a bilingual advantage? *Applied Psycholinguistics*, *24*(1), 27-44.

Bialystok, E., Luk, G., Peets, K. F., & Yang, S. (2010). Receptive vocabulary differences in monolingual and bilingual children. *Bilingualism: Language and Cognition*, *13*(4), 525-531.

Blom, E., Boerma, T., Bosma, E., Cornips, L., & Everaert, E. (2017). Cognitive advantages of bilingual children in different sociolinguistic contexts. *Frontiers in Psychology*, 8. https://www.frontiersin.org/articles/10.3389/fpsyg.2017.00552/full

Calvo, A., & Bialystok, E. (2014). Independent effects of bilingualism and socioeconomic status on language ability and executive functioning. *Cognition*, *130*(3), 278-288.

Carrasquillo, A., Kucer, S. B., & Abrams, R. (2004). *Beyond the beginnings: Literacy interventions for upper elementary English language learners*. Multilingual Matters.

Cárdenas-Hagan, E., Carlson, C. D., & Pollard-Durodola, S. D. (2007). The cross-linguistic transfer of early literacy skills: The role of initial L1 and L2 skills and language of instruction. *Language, Speech, and Hearing Services in Schools*, *38*(3), 249-259.

Carlisle, J. F. (2003). Morphology matters in learning to read: A commentary. *Reading Psychology*, *24*(3-4), 291-322.

Chacón Beltrán, R. (2006). Towards a typological classification of false friends (Spanish-English). *Revista Española de Lingüística Aplicada*, (19), 29-40.

Chow, B. W. Y., McBride-Chang, C., & Burgess, S. (2005). Phonological processing skills and early reading abilities in Hong Kong Chinese kindergarteners learning to read English as a second language. *Journal of Educational Psychology*, *97*(1), 81-87.

Cobo-Lewis, A. B., Pearson, B. Z., Eilers, R. E., & Umbel, V. C. (2002). Effects of bilingualism and bilingual education on oral and written English skills: A

multifactor study of standardized test outcomes. In D. K. Oller & R. E. Eilers (Eds.), *Language and literacy in bilingual children* (pp. 3-21). Clevedon, UK: Multilingual Matters.

Collins, B. A., Toppelberg, C. O., Suárez-Orozco, C., O'Connor, E., & Nieto-Castañon, A. (2011). Cross-sectional associations of Spanish and English competence and well-being in Latino children of immigrants in kindergarten. *International Journal of the Sociology of Language*, 208, 5-23.

Cronbach L. (1951). Coefficient alpha and the internal structure of tests. *Psychomerika, 16,* 297-334.

Cummins, J. (1979). Linguistic interdependence and the educational development of bilingual children. *Review of Educational Research, 49,* 222-251.

Cummins, J. (1980). The cross-lingual dimensions of language proficiency: Implications for bilingual education and the optimal age issue. *TESOL Quarterly, 14,* 175-187.

Cummins, J. (1981). The role of primary language development in promoting educational success for language minority students. In California State Department of Education (Ed.), *Schooling and language minority students: A theoretical framework* (pp. 3-49). Sacramento, CA: California Department of Education.

Cummins, J. (1991). Conversational and academic language proficiency in bilingual contexts. *AILA Review, 8,* 75-89.

Cummins, J. (2000). *Language, power, and pedagogy: Bilingual children in the crossfire*. Multilingual Matters.

Cummins, J. (2012). The intersection of cognitive and sociocultural factors in the development of reading comprehension among immigrant students. *Reading and Writing, 25*, 1973-1990.

Deacon, S. H., & Kirby, J. R. (2004). Morphological awareness: Just "more phonological"? The roles of morphological and phonological awareness in reading development. *Applied Psycholinguistics*, *25*(2), 223-238.

Dickinson, D. K., McCabe, A., Clark-Chiarelli, N., & Wolf, A. (2004). Cross-language transfer of phonological awareness in low-income Spanish and English bilingual preschool children. *Applied Psycholinguistics*, *25*(3), 323-347.

Duursma, E., Romero-Contreras, S., Szuber, A., Proctor, P., Snow, C., August, D., & Calderón, M. (2007). The role of home literacy and language environment on bilinguals' English and Spanish vocabulary development. *Applied Psycholinguistics*, *28*(1), 171-190.

Francis, D. J., Rivera, M., Lesaux, N. K., Kieffer, M. J., & Rivera, H. (2006). Practical guidelines for the education of English language learners. Presentation at LEP Partnership Meeting, Washington, DC. http://www. centeroninstruction.org.

Genesee, F., Lindholm-Leary, K., Saunders, W., & Christian, D. (2005). English language learners in US schools: An overview of research findings. *Journal of Education for Students Placed at Risk*, *10*(4), 363-385.

Genesee F., & Lindholdm-Leary, K. (2012). The education of English Language Learners. In K. R. Harris, S. Graham, & T. Urdan (Eds.), *APA education psychology handbook: Volume 3. Application to learning and teaching* (pp. 499-526). Washington, DC: American Psychological Association.

Geva, E., & Massey-Garrison, A. (2013). A comparison of the language skills of ELLs and monolinguals who are poor decoders, poor comprehenders, or normal readers. *Journal of Learning Disabilities*, *46*(5), 387-401

Glossary of educational reform. (2014). http://edglossary.org/english-language-learner/

Gottardo, A. (2002). The relationship between language and reading skills in bilingual Spanish-English speakers. *Topics in Language Disorders*, *22*(5), 46-70.

Gottardo, A., Javier, C., Farnia, F., Mak, L., & Geva, E. (2014). Bidirectional cross-linguistic relations of first and second language skills in reading comprehension of Spanish-speaking English learners. *Written Language & Literacy*, *17*(1), 62-88.

Hammer, C. S., Hoff, E., Uchikoshi, Y., Gillanders, C., Castro, D. C., & Sandilos, L. E. (2014). The language and literacy development of young dual language learners: A critical review. *Early Childhood Research Quarterly*, *29*(4), 715-733.

Hoff, E. (2006). How social contexts support and shape language development. *Developmental Review*, *26*(1), 55-88.

Hoff, E. (2013). Interpreting the early language trajectories of children from low-SES and language minority homes: Implications for closing achievement gaps. *Developmental Psychology*, *49*(1), 4-14.

Hoff, E., Rumiche, R., Burridge, A., Ribot, K. M., & Welsh, S. N. (2014). Expressive vocabulary development in children from bilingual and monolingual homes: A longitudinal study from two to four years. *Early childhood research quarterly*, *29*(4), 433-444.

Hogan, T. P., Catts, H. W., & Little, T. D. (2005). The relationship between phonological awareness and reading: Implications for the assessment of phonological awareness. *Language, Speech, and Hearing Services in Schools*, *36*(4), 285-293.

Kahn-Horwitz, J., Schwartz, M., & Share, D. (2011). Acquiring the complex English orthography: A triliteracy advantage?. *Journal of Research in Reading*, *34*(1), 136-156.

Kaivapalu, A., & Martin, M. (2007). Morphology in transition: Plural inflection of Finnish nouns by Estonian and Russian learners. *Acta Linguistica Hungarica*, *54*(2), 129-156.

Kaufman, A. S., & Kaufman, N. L. (2004). *Kaufman brief intelligence test*. New York: John Wiley & Sons.

Kieffer, M. J., Biancarosa, G., & Mancilla-Martinez, J. (2013). Roles of morphological awareness in the reading comprehension of Spanish-speaking language minority learners: Exploring partial mediation by vocabulary and reading fluency. *Applied Psycholinguistics*, *34*(4), 697-725.

Kieffer, M. J., & Lesaux, N. K. (2012). Direct and indirect roles of morphological awareness in the English reading comprehension of native English, Spanish, Filipino, and Vietnamese speakers. *Language Learning*, *62*(4), 1170-1204.

Kirby, J. R., Deacon, S. H., Bowers, P. N., Izenberg, L., Wade-Woolley, L., & Parrila, R. (2012). Children's morphological awareness and reading ability. *Reading and Writing*, *25*(2), 389-410.

Koda, K. (2007). Reading and language learning: Crosslinguistic constraints on second language reading development. *Language Learning*, *57*, 1-44.

Koda, K. (2008). Impacts of prior literacy experience on second-language learning to read. In K. Koda & A. M. Zehler (Eds.), *Learning to read across languages: Cross-linguistic relationships in first- and second-language literacy development* (pp. 68-96). Mahwah, NJ: Routledge.

König, E., & Gast, V. (Eds.). (2008). *Reciprocals and reflexives: Theoretical and typological explorations*. Berlin: Walter de Gruyter.

Kuo, L. J., & Anderson, R. C. (2006). Morphological awareness and learning to read: A cross-language perspective. *Educational Psychologist*, *41*(3), 161-180.

Lado, R. (1957). *Linguistics across cultures: Applied linguistics for language teachers*. Ann Arbor: University of Michigan Press.

Lardiere, D. (2009). Some thoughts on the contrastive analysis of features in second language acquisition. *Second Language Research*, *25*(2), 173-227.

McDonald, J. L. (2000). Grammaticality judgments in a second language: Influences of age of acquisition and native language. *Applied Psycholinguistics*, *21*(03), 395-423.

Montrul, S. (2011). Multiple interfaces and incomplete acquisition. *Lingua*, *121*(4), 591-604.

Motel, S., & Patten, E. (2012). *Characteristics of the 60 largest metropolitan areas by Hispanic population.* Washington, DC: Pew Hispanic Center.

Müller, K., & Brady, S. (2001). Correlates of early reading performance in a transparent orthography. *Reading and Writing*, *14*(7-8), 757-799.

Nagy, W., Berninger, V. W., & Abbott, R. D. (2006). Contributions of morphology beyond phonology to literacy outcomes of upper elementary and middle-school students. *Journal of Educational Psychology*, *98*(1), 134-147.

Paradis, J. (2010). The interface between bilingual development and specific language impairment. *Applied Psycholinguistics*, *31*(02), 227-252.

Parris, S. (2005). Reinterpreting the development of reading skills. *Reading Research Quarterly, 40*(2), 184-202.

Pasquarella, A., Chen, Xi, Lam, K., Luo, Y., & Ramirez, G. (2011). Cross-language transfer of morphological awareness in Chinese-English bilinguals. *Journal of Research in Reading, 34*(1), 23-42.

Ramirez, G., Chen, X., Geva, E., & Kiefer, H. (2010). Morphological awareness in Spanish-speaking English language learners: Within and cross-language effects on word reading. *Reading and Writing*, *23*(3-4), 337-358.

Ramírez, G., Chen, X., & Pasquarella, A. (2013). Cross-linguistic transfer of morphological awareness in Spanish-speaking English language learners: The facilitating effect of cognate knowledge. *Topics in Language Disorders*, *33*(1), 73-92.

Rojas, R., & Iglesias, A. (2013). The language growth of Spanish-speaking English language Learners. *Child Development*, *84*(2), 630-646.

Sparks, R. L., Patton, J., Ganschow, L., Humbach, N., & Javorsky, J. (2006). Native language predictors of foreign language proficiency and foreign language aptitude. *Annals of Dyslexia*, *56*(1), 129-160.

Sparks, R., Patton, J., Ganschow, L., & Humbach, N. (2009). Long-term crosslinguistic transfer of skills from L1 to L2. *Language Learning*, *59*(1), 203-243.

Sparks, R. L., Patton, J., & Ganschow, L. (2012). Profiles of more and less successful L2 learners: A cluster analysis study. *Learning and Individual Differences*, *22*(4), 463-472.

Teale, W. H. (2009). Students learning English and their literacy instruction in urban schools. *The Reading Teacher*, *62*(8), 699-703.

Uchikishi, Y. (2005). Narrative development in bilingual kindergarteners: Can Arthur help?. *Developmental Psychology*, *41*(3), 464-478.

Wang, M., Ko, I. Y., & Choi, J. (2009). The importance of morphological awareness in Korean–English biliteracy acquisition. *Contemporary Educational Psychology*, *34*(2), 132-142.

Zaretsky, E., (2014). The role of L1 and L2 reading on L1 preservation and positive cross-linguistic transfer among sequential bilinguals. *Written Language & Literacy*, *17*(1), 139-164.

Zaretsky, E. (2018, in press). Verbal working memory and early literacy acquisition: Do ELLs allocate resources similar to their typical monolingual peers or monolingual children with SLI? *International Journal of Bilingual Education and Bilingualism.*

Zaretsky, E., & Bar-Shalom, E. G. (2010). Does reading in shallow L1 orthography slow attrition of language-specific morphological structures? *Clinical Linguistics & Phonetics*, *24*(4-5), 401-415.

Zaretsky, E., Kuvac Kraljevic, J., Core, C., & Lancek, M. (2009). Literacy predictors and early reading and spelling skills as a factor of orthography: Cross-linguistic evidence. *Written Language and Literacy, 12,* 1, 52-81.

Zhang, D. (2013). Linguistic distance effect on cross-linguistic transfer of morphological awareness. *Applied Psycholinguistics*, *34*(5), 917-942.

Zhang, D., Koda, K., & Sun, X. (2014). Morphological awareness in biliteracy acquisition: A study of young Chinese EFL readers. *International Journal of Bilingualism, 18*(6), 570-585.

Yamashita, J. (2002). Mutual compensation between L1 reading ability and L2 language proficiency in L2 reading comprehension. *Journal of Research in Reading*, *25*(1), 81-95.