LESLLA Symposium Proceedings

Recommended citation of this article

Curinga, R., & Garrison-Fletcher, L. (2015). The Importance of First-Language Reading Skills in English Reading Comprehension for Adolescent Newcomers. LESLLA Symposium Proceedings, 9(1), 225–248. https://doi.org/10.5281/zenodo.8022580

Citation for LESLLA Symposium Proceedings

This article is part of a collection of articles based on presentations from the 2013 Symposium held at City College of San Francisco, San Francisco, California, USA. Please note that the year of publication is often different than the year the symposium was held. We recommend the following citation when referencing the edited collection.

Santos, M. G., & Whiteside, A. (Eds.) (2015). Low-educated second language and literacy acquisition (LESLLA): Proceedings of the 9th symposium. Lulu Publishing Services. https://lesllasp.journals.publicknowledgeproject.org/index.php/lesllasp/issue/view/474

About the Organization

LESLLA aims to support adults who are learning to read and write for the first time in their lives in a new language. We promote, on a worldwide, multidisciplinary basis, the sharing of research findings, effective pedagogical practices, and information on policy.

LESLLA Symposium Proceedings

https://lesllasp.journals.publicknowledgeproject.org

Website

https://www.leslla.org/

The Importance of First-Language Reading Skills in English Reading Comprehension for Adolescent Newcomers

Rebecca Curinga, The Graduate Center, City University of New York
Leigh Garrison-Fletcher, LaGuardia Community College, City University of New York

Abstract

This paper presents results from two studies, each looking at the development of reading comprehension in English as a second language (L2). The studies include a population of learners who have not often been included in L2 reading research, namely Spanish-speaking adolescent newcomers to New York City. Many of these students received limited or inconsistent education in their home countries before entering the U.S. school system in the upper grades. Thus, adolescent newcomers have a range of academic skills in their first languages (L1) upon entry to U.S. schools, and little is known about their development of L2 reading. The studies reported here address important questions about the role played by the L1 and include participants with low levels of L1 reading in order to get a comprehensive view of the development of L2 reading among adolescent emergent bilinguals. Study 1 looks at the relative contribution of L1 reading comprehension and L2 linguistic knowledge to L2 reading comprehension. Study 2 does a more in-depth analysis of the role of L1 in L2 reading by exploring the contribution of L1 morphological awareness to L2 reading. Study 2 considers mediating variables such as L1 and L2 reading vocabulary and L2 morphological awareness in L2 reading comprehension. Together, the studies find

that L1 reading comprehension and L1 morphological awareness do play crucial roles in the development of L2 reading among adolescent newcomers, above and beyond that of L2 vocabulary alone.

Introduction

In a paper summarizing the avenues for future research in second language literacy acquisition, Snow noted that "practitioners are desperate for information about how best to serve older immigrant students" (2006, p. 642). Newcomer adolescents have less time to develop second language (L2) academic skills than young children because they enter the school system in the later grades and must learn English while also acquiring the academic content needed to graduate from high school (Short & Fitzsimmons, 2007). Graduation rates for emergent bilinguals in U.S. schools are very low; about 23% of emergent bilinguals ages 16–24 are either not enrolled in school or do not have a high school diploma or the equivalent (Morse, 2005). Furthermore, many adolescent emergent bilinguals enter U.S. schools with limited literacy skills in their first languages (L1), and are underserved by secondary schools where most teachers are not equipped to teach foundational literacy skills, which are usually relegated to elementary school instruction (Short & Boyson, 2012).

Reading comprehension is a critical academic skill and one with which L2 learners have considerable difficulty. Studies that focus on a comparison of L2 learners and their monolingual peers show that both groups behave similarly in word-level skills (e.g., word reading and spelling). The difference is seen in higher-level skills such as reading comprehension (Lesaux, Koda, Siegel, & Shanahan, 2006). On the 2009 National Assessment for Educational Progress, 74% of emergent bilinguals enrolled in the eighth grade scored below the basic level on the reading portion, while only 3% reached proficiency and none scored at the advanced level (Short & Boyson, 2012). It is clear that these students struggle to acquire high levels of L2 academic literacy in U.S. schools, and research is needed to provide information on their

development of L2 reading (Francis, Rivera, Lesaux, Kieffer, & Rivera, 2006; Freeman & Freeman, 2002; Short & Fitzsimmons, 2007).

In the limited research on L2 reading comprehension among adolescent emergent bilinguals, the focus has been on students with age-appropriate L1 academic skills rather than those with low levels of L1 literacy. This paper reports on two studies which address some of the gaps in previous research by looking at the role of the L1 in the development of L2 reading comprehension for adolescent newcomers who exemplify the full spectrum of L1 reading proficiency, from very limited to advanced.

It is critical to study the role of L1 in the development of L2 academic skills. Many researchers have shown that L1 academic skills transfer to the L2 and may contribute to higher L2 reading proficiency (Bernhardt & Kamil, 1995; Cummins, 2000; Dressler & Kamil, 2006; Koda, 2008; van Gelderen, Schoonen, Stoel, De Glopper, & Hulstijn, 2007), yet we still know little about which skills transfer and whether skills transfer for learners with lower academic and literacy proficiency in the L1. Therefore, including students with both low and high levels of L1 academic skills is essential. Studying the two groups can provide educators with important information on how to help address the needs of their students, both those with well-developed academic skills in the L1 and those who come to the task of L2 (English) learning with limited L1 academic skills. Both of these studies compare students with a wide variety of L1 literacy levels, ranging from second- to 11th-grade proficiency in L1 (Spanish) reading comprehension.

While previous research has looked at the role of a student's L1 reading in the development of L2 reading, the focus has been more on the importance of L2 language proficiency in L2 reading. This is due to the findings that L2 linguistic skills play a stronger role in L2 reading development than L1 reading proficiency (e.g., Bernhardt & Kamil, 1995; Brisbois, 1995; Lee & Schallert, 1997); hence, many educators emphasize the importance of L2 vocabulary (for a review, see Graves, August, & Mancilla-Martinez, 2013). Because the majority of previous research has included only students with age-appropriate L1 reading, we

believe the role of the L1 in L2 reading needs to be further addressed to get a comprehensive view of the development of L2 reading among adolescent newcomers with a range of L1 proficiencies. The first study (Study 1) looks at the relative importance of L1 reading comprehension and L2 linguistic skills to the development of L2 reading comprehension. The second study (Study 2) further investigates the role of L1 reading skills by looking specifically at the contribution of L1 morphological awareness to L2 reading comprehension. This research provides insight into the value of L1 Spanish reading skills while acquiring L2 English language and literacy in a high school context.

Methodology

The two studies reported on in this paper are part of a larger study that measured many different linguistic and reading variables in the L1 and L2. We include one section on methodology to describe only the procedures and materials used for these two studies.

Participants

The participants were adolescent newcomers all attending the same New York City public high school. A total of 72 students were tested. The majority of them were ninth graders who had been in U.S._schools for two months or less (60%); the remainder were 10th graders who had been in the United States no longer than 14 months (39%). Their ages ranged from 15 to 20 years (M = 17.4, SD = 1.2); 40 were males, and 32 were females. All were native Spanish speakers, mostly from the Dominican Republic (86%); the others were from Honduras, Ecuador, Mexico, and Colombia. Participants' L1 Spanish reading comprehension range was from second to 11th grade; this is indicative of the diversity that many teachers of emergent bilinguals face in their classrooms.

Measurements and Testing Procedures

Data collection took place in two sessions; the first session involved all L1 measures, and the second included the L2 measures. All assessments are described below.

Reading comprehension measures (L1 and L2). The Academic Language and Literacy Diagnostic (ALLD) was used to assess both Spanish and English reading comprehension. The test, designed for high school immigrant students in NYC, is a cumulative assessment that includes passages and test items from the second through the 11th grade. The test format follows that of typical academic standardized reading comprehension tasks, with passages followed by multiple-choice questions. The passages are either informational or functional; informational passages are nonfiction (e.g., a story on mosquitoes), and functional passages convey information encountered in everyday life (e.g., a newspaper ad for employment). The questions assess basic understanding and higher-level thinking skills such as critical analysis, strategies, and interpretation.

Vocabulary measures (L1 and L2). The vocabulary assessment was taken from the ALLD and includes items from third through 11th grade. This assessment is multiple-choice and is composed of three sections: synonyms, multiple-meaning words, and context clues.

Measure of syntactic processing (L1 and L2). The assessment of syntactic processing was developed by the Research Institute for the Study of Language in Urban Society (RISLUS). It tests the comprehension of complex syntactic structures through listening comprehension. The assessment has an English version and a Spanish version. This assessment of syntactic processing is designed to evaluate acquisition of sentence structure independently from vocabulary, and thus uses simple vocabulary. The student sees three pictures for each item. The test administrator says a sentence for each item and repeats the sentence once. The student is

then asked to choose the picture that corresponds to the sentence. The structures tested are coordination, relative (or adjective) clauses, temporal adverbial clauses, and subjectless subordinate clauses.

Assessments of morphological awareness (L1 and L2).

Word study. This morpho-semantic assessment is a subsection of the ALLD which contains items that measure awareness of compound words and the ability to assign meaning to word parts, i.e., root, prefix, and suffix morphemes. All word-study items are on the third-grade level. An example measures ability to generalize the meaning of the agentive *–er* suffix in *teacher* to (a) helper, (b) faster, (c) bigger.

Morphological relatedness task. In this task, originally developed by Derwing (1976) and later adapted by Mahony (1994) and Mahony, Singson, and Mann (2000), participants were given two words and asked if the second word "comes from" the first word, or if the two are related in meaning. Participants circled "yes" for morphologically related items (e.g., *happy* and *happiness*) and "no" for nonrelated words (*cat* and *category*).

Test of morphological structure. In this morpho-syntactic assessment, participants were given a word and then asked to change the word to best fit the given sentence. Some sentences required the participant to produce a morphologically complex word from a base word (e.g., *success*: The woman's career was very [*successful*]), and others required the participant to break down a morphologically complex word into its base form (e.g., *originality*: That painting is the [*original*]). This English task was adapted from Carlisle (2000) and, in Spanish, from Ramírez (2009).

Syntactic categories. In this task, participants were given a sentence with a word missing and were given four word choices to fill in the blank in the sentence. The test was made up of morphologically complex real-word items in addition to nonsense word items constructed by adding

a real morphological affix to a nonsense stem (e.g., Every living thing has its own _____. [a] *torbature* [b] *torbativize* [c] *torbatable* [d] *torbatify*). The items in the present study were adapted from two previous ones that used similar measures in English and Spanish (Mahony, 1994; and Ramírez, 2009; respectively).

Study 1

Study 1 asks whether a stronger role is played by existing reading skills in the L1 (Spanish) or L2 linguistic knowledge in the development of L2 (English) reading comprehension. As we mentioned before, previous research has found that L2 linguistic knowledge is a stronger predictor of L2 reading than of L1 reading. Study 1 revisits this question within a group of learners who have a wide range of L1 literacy—a population not included in previous studies. The dependent variable in the study is L2 reading comprehension. The independent, or predictor, variables are L1 reading comprehension, L2 vocabulary, and L2 syntactic processing.

A secondary purpose of Study 1 is to compare the predictors of L2 reading in good L1 readers and poor L1 readers, as no study has directly compared these two groups. We look separately at students with low versus high levels of L1 reading comprehension in order to see if the L2 linguistic skills of vocabulary and syntactic processing play the same role in L2 reading among these students. This information will have important implications for the education of emergent bilinguals.

Results

Table 1 shows the results from all assessments administered for the study. Of the 72 students tested as part of the larger study, 62 completed all relevant assessments for Study 1.

	Spanish Reading Comprehension (*ALLD)*	Spanish Syntactic Processing	English Reading Comprehension (*ALLD*)	English Vocabulary (*ALLD*)	English Syntactic Processing
Mean (SD)	52% (15%)	90% (6%)	35% (12%)	38% (16%)	77% (15%)
Grade Level (SD)	5.8 (2.5)	--	3.1 (1.9)	4 (2.2)	--

Table 1: Mean percent (SD) and grade level (SD) for all assessments (*n*=62)

Recall that the ALLD in both Spanish and English is a cumulative assessment that includes test items from the second-grade level (in the case of reading comprehension) or the third-grade level (in the case of vocabulary) up to the 11th-grade level. Thus, the results from the ALLD are reported not only as mean percent correct, but also as average grade level. Note that the standard deviations for all variables except Spanish syntactic processing range from 12% to 16%, indicating that the population tested here does have a range of skills in both their L1 and L2. However, the individual scores are clustered near the low end of L1 reading ability; on average, the students are scoring between the fifth and sixth grade—three to five grade levels below the expected grade level of ninth or 10th. The results from the test of Spanish syntactic processing indicate that these students have typical L1 development and suggest that these students are not poor readers because of a language deficit.

Table 2 shows the correlations between the variables, all of which are significant. We expect to see a relationship between all of the variables, as the same skills are being assessed in two languages, all related to reading.

	1.	2.	3.	4.
1. English Reading Comprehension (*ALLD*)	--			
2. Spanish Reading Comprehension (*ALLD*)	.571***	--		
3. English Vocabulary (*ALLD*)	.435***	.370**	--	
4. English Syntax	.397**	.414**	.386**	--

*** p < .001; ** p < .01; * p < .05

Table 2: Correlation matrix for model variables (*n*=62)

The main research question in Study 1 is whether reading skills in the L1 or language skills in the L2 are the more important predictors of L2 reading comprehension. In order to address this question, we did a hierarchical multiple regression analysis in which L2 academic reading comprehension was the dependent variable and the predictor variables included L1 reading comprehension, L2 vocabulary, and L2 syntax.[13] See Table 3 for the results from the regression analysis.

	B	SE B	β
Step 1			
L1 Academic Reading Comprehension	.47	.09	.57***
Step 2			
L1 Academic Reading Comprehension	.39	.09	.48***
L2 Reading Vocabulary	.20	.08	.26*
Step 3			
L1 Academic Reading Comprehension	.35	.09	.43***
L2 Reading Vocabulary	.17	.09	.24*
L2 Syntax	.11	.09	.13

Note: R^2 = .33 for Step 1, ΔR^2 = .06 (p < .05) for Step 2, ΔR^2 = .01 (ns; p = .26) for Step 3
*** p < .001; * p < .05

Table 3: Regression Analysis with L2 Reading Comprehension as Dependent Variable, Including Predictor Variables of L1 Reading Comprehension, L1 Vocabulary, L2 Syntax (*n*=62)

[13] In reporting the results from the regression analyses, we include only significant results in the tables.

From these results, it appears that L1 reading comprehension is the stronger contributor to L2 reading comprehension, above that of L2 vocabulary, although L2 vocabulary is also a significant contributor to L2 reading comprehension. L2 syntax did not play a significant role, likely due to the small sample size. L1 reading and L2 vocabulary together accounted for 39% of the variance in L2 reading. The unique contribution of these two variables to L2 reading was also calculated; L1 reading comprehension accounted for 20% of the variance in L2 academic reading comprehension, and L2 vocabulary accounted for 6% of the variance.

The students were split based on their level of L1 reading comprehension into a low-performing group (N = 18) and a high-performing group (N = 22).[14] Because this was the variable used to split the group, only L2 vocabulary and syntactic processing were included as predictor variables in this subanalysis. The low-performing group scored at or below the fourth-grade level in Spanish reading comprehension, and the high-performing group scored at or above the seventh-grade level. Two stepwise regression analyses were done in order to determine if the L2 linguistic skills of vocabulary and syntactic processing played similar roles in L2 reading comprehension among both strong and weak L1 readers.

Based on the regressions, among the good L1 readers, L2 vocabulary was the only significant predictor of L2 reading comprehension (β = .50, $t(20)$ = 2.60, p < .05), accounting for about 25% of the variance (R^2 = .25, $F(1, 20)$ = 6.75, p < .05). This matches the previous research that has found L2 vocabulary to be the strongest predictor of L2 reading comprehension among good L1 readers.

The poor L1 readers evidenced L2 syntax as being the only significant factor in the development of L2 reading comprehension (β = .48, $t(16)$ = 2.20, p < .05), accounting for about 22% of the variance (R^2 = .22, $F(1, 16)$ = 4.82, p < .05). This is an interesting finding that matches research

[14] An independent samples t-test confirmed that these two groups were significantly different from one another. The low group scored significantly lower on L1 reading comprehension than the high group ($t[38]$ = 9.5, p < .001). Students who scored at the fifth- and sixth-grade levels were omitted from this analysis, as they did not score on the very low end or very high end on L1 reading comprehension.

on the importance of syntactic processing in the development of reading comprehension, and coincides with the notion that until processing becomes automatic, a student will not be able to be a successful reader. The students likely did not have enough L2 vocabulary to aid in L2 reading without the help of syntactic processing. The low group scored, on average, at the third-grade level on English vocabulary, which was the lowest level tested. Furthermore, the students with poor L1 reading comprehension had significantly lower scores on L2 syntactic processing than did the students with good L1 reading comprehension ($t[27.32] = 2.14$, $p < .05$).

Discussion

Study 1 aimed to address the question of whether existing reading skills in the L1 or linguistic knowledge of the L2 played the most important role in L2 reading comprehension among a population of newcomer adolescent emergent bilinguals who speak Spanish as their native language and have a range of academic skills in their L1. It appears that when we have participants with a true range of L1 reading ability, we see that existing reading ability is a stronger contributor to L2 reading comprehension than is L2 vocabulary or syntax. Previous research may have found a stronger role for L2 vocabulary because the participants had age-appropriate levels of L1 reading comprehension. However, based on the results reported here, we have evidence that, in fact, L1 reading ability is a stronger contributor to L2 reading comprehension than is L2 proficiency. The results from Study 1 support the notion that a learner's L1 reading ability transfers to the L2 and that the reading skills developed in the L1 are available to the learner even when he or she is at the beginning stages of learning to read in a second language.

From Study 1, we also have evidence that the development of L2 reading comprehension may proceed differently for students with low versus high levels of L1 reading ability. In the group of students with higher levels of L1 reading, L2 vocabulary played a significant role in L2 reading, but in the group of students with lower levels of L1

reading, L2 syntactic processing played a significant role in L2 reading. Thus, we must exercise caution in applying principles of L2 reading development to all adolescent emergent bilinguals without considering the L1 academic skills these students bring with them.

Study 2

Studies in L1 and a growing number in L2 have shown that morphological awareness (i.e., the conscious ability to break down words into smaller parts so as to assign meaning to the whole) correlates independently with many different components of reading, especially vocabulary (Anglin, Miller, & Wakefield, 1993; Carlisle, 2000; Nagy, Berninger, & Abbott, 2006; Wysocki & Jenkins, 1987) and reading comprehension (Carlisle, 2000; Goodwin, Huggins, Carlo, August, & Calderon, 2012; Katz, 2004; Kieffer & Lesaux, 2008; Ku & Anderson, 2003; Nagy, Berninger, Abbott, Vaugh, & Vermeulen, 2003; Nagy et al., 2006; Tighe & Binder, 2013). Only one study has considered the cross-linguistic relationship of L1 Spanish morphological awareness to L2 English reading comprehension (Ramírez, Chen, & Pasquarella, 2013), and none have considered these variables with adolescent emergent bilinguals.

The research question of Study 2 was to find whether L1 morphology significantly predicts L2 reading comprehension through a path analysis considering the mediating variables of L1 reading comprehension and L1 and L2 reading vocabulary. A sub-question was to highlight any differences between low and higher L1 proficiency readers. A subset of 60 participants completed the necessary assessments to conduct this analysis.

Results

Descriptive results of the dependent (morphological awareness) and independent (reading) variables for L1 Spanish and L2 English are shown in Table 4.

Assessments	*L1 Spanish Mean % Correct (SD)*	*L1 Spanish Grade Level (SD)*	*L2 English Mean % Correct (SD)*	*L2 English Grade Level (SD)*
Morphological Awareness[1]	79.2 (10.6)	NA	53.1 (14.1)	NA
ALLD Reading Vocabulary	62.6 (15.1)	7.6 (2.7)	37.4 (16.6)	4.0 (2.2)
ALLD Reading Comprehension	51.9 (17.0)	5.8 (2.7)	35.2 (12.0)	3.0 (1.8)

Table 4: Descriptive Results for L1 Spanish and L2 English Morphological Awareness and Reading Variables (n = 60)

As expected, Table 4 indicates that the mean scores for L1 Spanish were higher than the mean scores for L2 English on all morphological awareness and reading measures. For example, the mean grade level for Spanish reading comprehension was 5.8 (SD = 2.7), and the mean grade level in English was almost three grades below that of those students' L1 Spanish at grade three (SD = 1.8). Their mean vocabulary grade level (M = 7.6, SD = 2.7) in Spanish was also more than three grades above their mean grade level in English (M = 4.0, SD = 2.2); and the morphological awareness mean percent correct in the L1 Spanish (M = 79.2, SD = 10.6) was also higher than that of L2 English (M = 53.1, SD = 14.1).

Table 5 provides the results for the correlations between the L1 and L2 morphological awareness and reading measures. All of the variables are significantly correlated, which is to be expected because of the interrelatedness of the components of reading. Table 5 indicates that the strongest correlations are between L1 Spanish morphological awareness and L1 Spanish reading vocabulary (r = .700, p < .01) and between L2 English morphological awareness and L2 English reading vocabulary (r = .650, p < .01).

[1] In English, the composite morphological awareness score did not include the Test of Morphological Structure (TMS) because the majority of lower proficiency readers were not able to complete this assessment.

	1.	2.	3.	4.	5.	6.
1. L1 Morphology	--					
2. *ALLD* L1 Reading Vocabulary	.700**	--				
3. *ALLD* L1 Reading Comprehension	.627**	.475**	--			
4. L2 Morphology	.611**	.602**	.535**	--		
5. *ALLD* L2 Reading Vocabulary	.389**	.447**	.349**	.650**	--	
6. *ALLD* L2 Reading Comprehension	.421**	.302*	.457**	.531**	.423**	--

*** p < .001; ** p < .01; * p < .05

Table 5: Correlation Matrix for L1 Spanish and L2 English Morphological Awareness and Reading Variables (*n*= 60)

In order to consider each path, L2 reading comprehension was regressed on each variable so that the direct, indirect, and total effects could be calculated for each. The results are shown in Table 6, and standardized regression coefficients are diagrammed in Figure 1.

Variable	*Direct Effect*	*Indirect Effect*	*Total Effect*
L1 Morphological Awareness	.139	.282	.421***
L1 Reading Comprehension	.218	.100	.318*
L2 Morphological Awareness	.331~	.094	.425**

*** p < .001; ** p < .01; * p < .05; ~ p <.1

Table 6: Standardized Direct, Indirect, and Total Effects of Cross-Language Reading Variables on L2 English Reading Comprehension (*n* = 60)

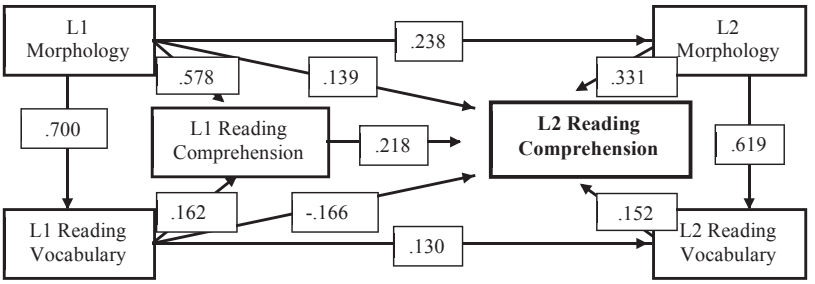

Figure 1: Cross-Linguistic Path Results for L1 Morphological Awareness to L2 Reading Comprehension

Table 6 indicates that while there were no significant direct or indirect effects in the cross-linguistic model, there were a number of variables that had a significant total effect on L2 English reading comprehension. The path model for the whole group suggests that there are some strong cross-linguistic predictors of L2 English reading comprehension, namely L1 Spanish morphology (β = .421, p < .001) and L1 Spanish reading comprehension (β = .318, p < .05). Although L1 morphology has only a small and insignificant direct effect on L2 reading comprehension, the total effect is strong, as other variables in the indirect path (i.e., L1 reading vocabulary and L1 reading comprehension) facilitate the relationship. As expected, L1 reading comprehension makes a significant contribution to the total effect on L2 reading comprehension, although it, too, shows no significant direct effect in this analysis. L2 morphology also has a strong total effect on L2 reading comprehension (β = .425, p < .01); this is not surprising, given the strong correlation between L1 and L2 morphology (r = .611, p < .01). Moreover, in Figure 1 above, the indirect paths are more visibly identified. That is, the two strongest indirect paths emerge from (1) L1 Spanish morphology to L2 English reading comprehension through facilitation of L1 Spanish reading comprehension (β = .126) and (2) L1 Spanish morphology to L2 English reading comprehension facilitated through L2 English morphology (β = .079).

In this cross-linguistic solved path model, it is also clear that morphology in both L1 and L2 does have a strong effect on reading vocabulary (.700 and .619, respectively). Therefore, it is apparent that the total effect of L1 morphological awareness on L2 reading comprehension is complex, with interaction between numerous variables.

Out of the 60 participants who completed all of the tasks for cross-linguistic comparison, 18 were in the low group and 22 were in the high group. Participants in the low group were reading between a second- and fourth-grade level in L1, with a mean grade level of 2.8 (*SD* = .94). The high group participants were reading between seventh and 11th-grade level in L1, with a mean grade level of 8.7 (*SD* = 1.55).

Separate multiple regression models were analyzed for the low group and high group on the cross-linguistic predictors of L2 reading

comprehension. The regression model was not significant at any step for the low group. This reiterates the fact that, because of the low proficiency in English, there are no significant morphological or vocabulary predictors in either L1 Spanish or L2 English for English reading comprehension. Note that in this model, L1 reading comprehension was not considered because it was used as the determination variable for the proficiency group, low or high. Table 7 shows the direct, indirect, and total effects of L1 and L2 morphological awareness on L2 English reading comprehension for the high L1 reading proficiency group only.

Variable	*Direct Effect*	*Indirect Effect*	*Total Effect*
L1 Morphological Awareness	.591~	-.151	.440*
L2 Morphological Awareness	.216	.383	.599*

*** p < .001; ** p < .01; * p < .05; ~ p <.1

Table 7: Standardized Direct, Indirect, and Total Effects of Cross-Language Reading Variables on L2 English Reading Comprehension for the high group L1 Grade Level Proficiency 7th-11th (*n*=22)

For the high group, both L1 morphological awareness and L2 morphological awareness had significant total effects on L2 English reading comprehension. There was no significant contribution of L1 or L2 reading vocabulary to L2 reading comprehension for this high group.

Discussion

The goal of Study 2 was to investigate the effect of morphological awareness on reading comprehension across languages from Spanish to English. We chose to present the results in a path analysis so that we could note how the independent variables (i.e., morphological awareness and reading vocabulary) worked together to contribute to reading comprehension. Previous research has suggested that morphological awareness may contribute to reading comprehension indirectly through

reading vocabulary for lower proficiency readers, and then directly as reading proficiency is strengthened (see, for example, Kieffer & Lesaux, 2008, for L2 English, and Nagy et al., 2006, for native English speakers).

We had expected that multiple variables on the path would help strengthen the total contribution of Spanish morphology to English reading comprehension, and this expectation was confirmed in the results, which showed a significant total effect of L1 morphological awareness on L2 reading comprehension. An unexpected result was that L1 morphological awareness had a stronger total effect on L2 reading comprehension than did L1 vocabulary and L1 reading comprehension alone. Previous research has pointed to the fact that L1 reading comprehension predicts L2 reading comprehension ability. These results suggest that subskills of reading, such as morphological awareness, may be stronger contributors than L1 reading comprehension alone and provide incentive to further investigate how other subskills of L1 reading might interact to foster L2 reading development.

Finally, we looked at the difference in the cross-linguistic relationship between L1 morphology and L2 reading comprehension in the low- and high-proficiency groups. Only for the high group of readers did L1 morphological awareness make any significant contribution to reading comprehension in English. For the low group, there were no significant predictors, likely due to the fact that the English reading comprehension proficiency was too low (the mean was just over second-grade level) for either morphological awareness or vocabulary to have any significant effect. These data can be explained by the fact that the high group was reading at a mean grade level below fourth grade in English; therefore, they relied on basic morphological skills to comprehend what they were reading in English, and they did this mostly at the word level. There is a strong correlation between their performance on the L1 morphological awareness and L2 morphological awareness tasks ($r = .636$, $p < .001$), which seems to be what is making the total effect of both morphological awareness measures so strong on L2 reading comprehension.

Implications

The research reported here has important implications for successful educational practices for newcomer adolescents. Study 1 found that L1 reading comprehension was the stronger contributor to the development of L2 reading comprehension, meaning that students with the highest levels of Spanish reading ability were most successful in English reading comprehension. This suggests that providing students, especially those with low levels of L1 literacy, with L1 literacy instruction can aid in the development of their L2 academic skills and reading proficiency. Study 2 further supports the implication that providing specific instruction to increase awareness of morphological structures in the L1 can simultaneously boost L1 and L2 reading proficiency.

Both studies looked at the difference between low and high L1 readers. Based on the results, we believe that low L1 readers need more exposure to academic language in order to develop advanced syntactic structures and morphology, ideally in the L1. Academic language in the L1 can be transferred to the L2. Because the high L1 readers had more academic language proficiency, they were able to develop more vocabulary and use their morphological awareness. In order to learn vocabulary and develop morphological awareness, students need more complex language so that they can use clues in the language structure to learn new meanings. Furthermore, both studies point to the importance of assessing the L1 literacy skills of newcomer students in order to design appropriate instruction. The needs of students with high versus low levels of L1 literacy differ, and an understanding of the skills in the L1 that can transfer to the L2 would be indispensable for educators. There is no need to teach low-level reading skills to students who have developed these in the first language; however, if students do not have the skills in any language, they will need instruction in order to develop the skills.

Conclusion

The research presented here found that L1 academic skills play a critical role in the development of L2 reading comprehension, especially when considering a population of students with a range of L1 academic skills. It is important to look at the development of L2 academic skills among students with both low and high L1 academic skills. Emergent bilinguals are a diverse population, and previous research focusing on students with high L1 literacy is not applicable to all students. The characteristics of the population are important to consider when interpreting the results from the study. The students had been in the United States for a maximum of 14 months at the time of the study, so all were at the beginning stages of English acquisition. They were all native Spanish speakers and had a range of L1 reading ability, with many scoring well below expected grade level. These students have not been included in the research program on L2 reading, and they differ in important ways from other populations. Therefore, the findings reported here are relevant for better understanding the development of L2 reading among newcomer adolescents in U.S. high schools. However, more research is needed to understand the complexities of cross-linguistic predictors among L2 learners whose native languages have different phonological, morphological, and syntactic structures. It is also important to look at students with a range of L1 literacy who are more advanced L2 learners, rather than emergent bilinguals. Furthermore, longitudinal studies that look at the development of L2 reading over time are very important to having a clearer picture of L2 reading acquisition.

Both studies reported here have furthered our understanding of how L1 reading comprehension contributes to L2 reading comprehension. Study 1 indicted that the role of L1 reading comprehension is extremely important in the development of L2 reading comprehension. Study 2 further indicated that morphological awareness in the L1 contributes to both L1 reading comprehension and L2 morphological awareness, which both help to facilitate the effect of L1 morphological awareness on L2 reading comprehension. The fact that L1 morphological awareness

was only significant for the high group is likely due to the fact that the lower-level readers still need development in their L1 skills so that they can transfer them to L2 English.

Finally, these two studies have confirmed that adolescent emergent bilinguals bring many skills, including morphological awareness, with them from their L1 Spanish, which significantly impacts their development of English language and reading comprehension. These L1 skills are valuable tools for their progress and success in U.S. academic environments.

References

Anglin, J. M., Miller, G. A., & Wakefield, P. C. (1993). Vocabulary development: A morphological analysis. *Monographs of the Society for Research in Child Development, 58*(10).

Bernhardt, E., & Kamil, M. (1995). Interpreting relationships between L1 and L2 literacy: Some complicating factors. *TESOL Quarterly, 16*, 15–34.

Brisbois, J. E. (1995). Connections between first- and second-language reading. *Journal of Reading Behavior, 17,* 565–84.

Carlisle, J. (2000). Awareness of the structure and meaning of morphologically complex words: Impact on reading. *Reading and Writing: An Interdisciplinary Journal, 12,* 169–190.

Cummins, J. (2000). The threshold and interdependence hypotheses revisited. In J. Cummins, *Language, power, and pedagogy: Bilingual children in the crossfire* (pp. 173–200). Bristol: Multilingual Matters.

Derwing, B. L. (1976). Morpheme recognition and the learning of rules for derivational morphology. *Canadian Journal of Linguistics, 21,* 38–66.

Dressler, C., & Kamil, M. (2006). First- and second-language literacy. In D. August & T. Shanahan (Eds.), *Developing literacy in second-language learners: Report of the national literacy panel on language-minority children and youth* (pp. 197–238). Mahwah, NJ: Lawrence Erlbaum Associates.

Francis, D. J., Rivera, M., Lesaux, N., Kieffer, M., & Rivera, H. (2006). *Practical guidelines for the education of English language learners: Research-based recommendations for serving adolescent newcomers.* Portsmouth, NH: RMC Research Corporation, Center on Instruction. Retrieved from http://www.centeroninstruction.org/files/ELL2-Newcomers.pdf

Freeman, Y. S., & Freeman, D. E. (2002). *Closing the achievement gap: How to reach limited-formal-schooling and long-term English learners.* Portsmouth, NH: Heinemann.

Goodwin, A. P., Huggins, A. C., Carlo, M. S., August, D., & Calderon, M. (2013). Minding morphology: How morphological awareness relates to reading for English language learners. *Reading and Writing: An International Journal, 26,* 1,387–1,415. doi: 10.1007/s11145-012-9412-5

Graves, M. F., August, D., & Mancilla-Martinez, J. (2013). *Teaching vocabulary to English language learners*. New York: Teachers College Press.

Katz, L. (2004). *An investigation of the relationship of morphological awareness to reading comprehension in fourth and sixth grades* (Unpublished doctoral dissertation). University of Michigan, Ann Arbor, MI.

Kieffer, M. J., & Lesaux, N. K. (2008). The role of derivational morphology in the reading comprehension of Spanish-speaking English language learners. *Reading and Writing: An Interdisciplinary Journal, 21*(8), 783–804.

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* (pp. 68–96). New York: Routledge.

Ku, Y., & Anderson, R. (2003). Development of morphological awareness in Chinese and English. *Reading and Writing: An Interdisciplinary Journal, 16,* 399–422.

Lee, J. W., & Schallert, D. (1997). The relative contribution of L2 language proficiency and L1 reading ability to L2 reading performance: A test of the threshold hypothesis in an EFL context. *TESOL Quarterly, 31,* 713–739.

Lesaux, N. K., Koda, K., Siegel, L. S., & Shanahan, T. (2006). Development of literacy. In D. August & T. Shanahan (Eds.), *Developing literacy in second-language learners: Report of the national literacy panel on language-minority children and youth* (pp. 75–122). Mahwah, NJ: Lawrence Erlbaum Associates.

Mahony, D. (1994). Using sensitivity to word structure to explain variance in high school and college level reading ability. *Reading and Writing: An Interdisciplinary Journal, 6,* 19–44.

Mahony, D., Singson, M., & Mann, V. (2000). Reading ability and sensitivity to morphological relations. *Reading and Writing: An Interdisciplinary Journal, 12,* 191–218.

Morse, A. (2005). *A look at immigrant youth: Prospects and promising practices.* Washington, DC: National Conference of State Legislatures/Children's Policy Initiative.

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

Nagy, W., Berninger, V., Abbott, R., Vaughn, K., & Vermeulen, K. (2003). Relationship of morphology and other language skills to literacy in at-risk second-grade readers and at-risk fourth-grade writers. *Journal of Educational Psychology, 95*(4), 730–742.

Ramírez, G. (2009). *The role of morphological awareness in bilingual children's first and second language vocabulary and reading* (Unpublished doctoral dissertation). Ontario Institute for Studies in Education of the University of Toronto, Toronto, ON.

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.

Short, D. J., & Fitzsimmons, S. (2007). *Double the work: Challenges and solutions to acquiring language and academic literacy for adolescent English language learners—A report to Carnegie Corporation of New York.* Washington, DC: Alliance for Excellent Education.

Short, D. J., & Boyson, B. A. (2012). *Helping newcomer students succeed in secondary schools and beyond.* Washington, DC: Center for Applied Linguistics.

Snow, C. (2006). Cross-cutting themes and future directions. In D. August & T. Shanahan (Eds.), *Developing literacy in*

second-language learners: Report of the national literacy panel on language-minority children and youth (pp. 631–651). Mahwah, NJ: Lawrence Erlbaum Associates.

Tighe, E., & Binder, K. (2013). An investigation of morphological awareness and processing in adults with low literacy. *Applied Psycholinguistics,* available on CJO2013. doi: 10.1017/S0142716413000222

van Gelderen, A., Schoonen, R., Stoel, R. D., De Glopper, K., & Hulstijn, J. (2007). Development of adolescent reading comprehension in language 1 and language 2: A longitudinal analysis of constituent components. *Journal of Educational Psychology, 99,* 477–491.

Wysocki, K., & Jenkins, J. R. (1987). Deriving word meanings through morphological generalization. *Reading Research Quarterly, 22,* 66–81.