

# **Spelling as an Indicator of English Literacy Development**

## **Subproject 3 of Acquiring Literacy in English: Crosslinguistic, Intralinguistic, and Developmental Factors**

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Subproject 3 was a longitudinal study of spelling as an indicator of English literacy development. The study investigated the development of spelling and reading skills in native-Spanish-speaking (NSS) and native-English-speaking (NES) students in Spanish-English bilingual educational settings. Study subjects were drawn from seven schools and were followed from second through fifth grade.

### **Purpose**

The three main goals of the study were to describe the development of English spelling skills in Spanish-English bilingual children, to identify factors that might explain high levels of transfer from Spanish spelling to English spelling, and to determine what relationships might exist between English spelling and English reading ability, in particular for Spanish-speaking English language learners (ELLs). The investigators formulated these goals as three main research questions:

1. What is the nature of English spelling development for Spanish-English bilingual students in grades 2 through 5?
2. What is the relationship between English spelling development and Spanish spelling development for Spanish-English bilingual students in grades 2 through 5?
3. What is the relationship between English spelling development and English reading development for Spanish-English bilingual students in grades 2 through 5?

### **Study Subjects**

The subjects of the study were approximately 275 elementary school students. Half of the students were native Spanish speakers and the other half were native English speakers (the exact numbers changed over time due to attrition). Each student was enrolled in one of three types of educational programs:

- Spanish dominant (90/10) two-way immersion
- Balanced (50/50) Spanish-English two-way immersion
- Monolingual English

Each type of program had both native-Spanish-speaking and native-English-speaking students in it. Approximately 40 native English speakers in the monolingual English program served as a comparison group.

### **Measures and Timeline**

The study began in fall 2000 and continued through spring 2006. In Year 1, three group-administered measures were developed, piloted, and finalized:

- The English Developmental Contrastive Spelling Test
- The Spanish Developmental Contrastive Spelling Test
- The English Developmental Contrastive Decoding Test

Descriptions of these instruments are available at [www.cal.org/acquiringliteracy](http://www.cal.org/acquiringliteracy).

In addition to the three measures developed specifically for the study, a battery of assessments from the Woodcock Language Proficiency Battery-Revised (WLPB-R) (Woodcock, 1991) and its Spanish parallel (Woodcock & Muñoz-Sandoval, 1991) was administered to participating students. The assessment battery included Picture Vocabulary, Word Attack, Letter-Word Identification, Passage Comprehension, Dictation, and Proofing.

Both the WLPB-R and the three study-specific measures were administered to all participating students once a year during the winter. At the schools with 90/10 and 50/50 program models, both Spanish and English versions of the assessments were administered. A measure of non-verbal intelligence (Raven's Coloured Progressive Matrices) was also administered to all participating students during the first year of data collection. Demographic data from each individual student was collected through a parent home language and literacy questionnaire developed by researchers involved in the larger Development of Literacy in Spanish Speakers (DeLSS) project. A description of this instrument is available at [www.cal.org/acquiringliteracy](http://www.cal.org/acquiringliteracy).

In Years 2 through 4, the researchers conducted data collection, data entry, and coding. Preliminary analysis took place in Years 2 and 3. In Years 4 and 5, the researchers focused on data analysis and dissemination of results.

### **Analysis and Findings**

The study findings highlight the correlation between spelling ability and reading comprehension. In addition, while vocabulary development was not intended as an area

of focus of the study, the performance of NSSs on both the English and Spanish WLPB-R Picture Vocabulary measure demonstrated significant correlations with spelling and reading comprehension. The analysis related to research question 3 therefore included vocabulary development.

### ***Research Question 1***

What is the nature of English spelling development for Spanish-English bilingual students in grades 2 through 5?

Findings from both the English Developmental Contrastive Spelling Test and the spelling cluster score of the WLPB-R demonstrated that, on average, both NSSs and NESs experienced substantial growth in English spelling ability from second through fifth grade. Moreover, they exhibited similar amounts of growth. In some regards, this is an encouraging finding, indicating that both groups benefited equally from instruction, regardless of the type of program in which they were enrolled. However, the NSSs started with significantly lower mean scores in second grade, and thus needed to make larger gains in their English skills in order to close the achievement gap. Study findings indicate that they did not do this.

On the English Developmental Contrastive Spelling Test, there was sizeable mean growth for both NSSs and NESs. However, at each grade level, the mean performance of the NESs was significantly higher than that of the NSSs. On the WLPB-R English spelling composite, while the mean scores of NESs were again consistently higher than those of NSSs, both groups performed well relative to the WLPB-R norm. Specifically, mean standard scores of NESs were consistently within one standard deviation of the mean, while mean standard scores of NSSs were within one standard deviation of the mean in grades three through five, with a slightly lower mean score in grade two. Standard deviations for both NESs and NSSs were typically within the WLPB-R standard score norming range of 15 points.

### ***Research Question 2***

What is the relationship between English spelling development and Spanish spelling development for Spanish-English bilingual students in grades 2 through 5?

Analysis demonstrated strong, significant, positive correlations between English and Spanish spelling ability for both NESs and NSSs in 90/10 and 50/50 programs, the two program types in which data were collected in both languages at all grade levels. In other words, students who tended to be strong spellers in one language also tended to be strong spellers in the other, but children who struggled with spelling in one language likewise tended to struggle with it in the other language.

The incidence of crosslinguistic (i.e., Spanish-influenced) spelling errors in English was rather low for the students in the bilingual two-way immersion programs. This trend was

the same for both native language groups and both program types (90/10 and 50/50). However, in comparison with NESs, on average NSSs produced significantly more crosslinguistic spelling errors at all grade levels, and students in the 90/10 programs produced significantly more spelling errors than those in 50/50 programs in second and third grades. No significant program differences were found by fourth grade. More importantly, cross-linguistic spelling errors were not significantly associated with long-term reading outcomes. Thus, they appear to be part of a natural developmental progression for Spanish-English bilingual students, and do not seem to represent a long-term literacy concern.

### ***Research Question 3***

What is the relationship between English spelling development and English reading development for Spanish-English bilingual students in grades 2 through 5?

A two-level growth model was constructed to investigate the time-varying effects of English spelling development on the development of English reading comprehension from grade 2 to grade 5, controlling for the time-varying effects of English and Spanish reading skills (decoding) and English and Spanish vocabulary, as well as for school effects on both final status and rate of change. Findings from these analyses demonstrate a positive, significant effect of English spelling on English reading comprehension, thus providing additional empirical evidence that spelling ability is an important factor in English reading development for Spanish-English bilinguals.

While vocabulary development was not intended as an area of focus of the study, the performance of NSSs on both the English and Spanish WLPB-R Picture Vocabulary measure demonstrated that this is an important area of investigation for future research. The same growth model referenced in the previous paragraph also revealed an ongoing positive, significant effect of English vocabulary on English reading comprehension. In fact, the effect of English vocabulary was the strongest of any of the time-varying predictors with the exception of English reading skills (decoding), reinforcing the importance of promoting vocabulary development both as a domain of its own and for its impact on reading comprehension. Related analyses found a positive, significant effect of Spanish vocabulary on English reading comprehension, indicating the importance of developing native language vocabulary skills and promoting explicit vocabulary connections across languages. Similarly, Spanish passage comprehension was significantly and positively associated with the outcome of English passage comprehension. The effects of Spanish passage comprehension, while relatively large in second and third grade, became even larger by fourth grade. This provides evidence that the development of strong native language literacy skills in turn strengthens L2 literacy skills and justifies ongoing native language instruction for ELLs.

In both models, in addition to the fixed effects, there was also significant variation within students over time and across students with regard to final status and rate of change. This

indicates the need to consider other factors, such as home language and literacy exposure, socioeconomic status, and classroom practices, in future study.

### **Significance**

There are three important implications of the findings presented here. First, in at least a preliminary way, the findings indicate that typical instructional practices do not serve to close the achievement gap in English literacy skills, including spelling, vocabulary, and reading comprehension, for NSSs, and a modified instructional approach, such as a curriculum that fosters explicit connections across languages, is warranted. Second, there is evidence of strong and positive relationships within constructs across languages (e.g., spelling and reading comprehension), indicating an underlying ability in these skill areas that may be independent of language. Finally, spelling has been shown to be a strong and significant predictor of English reading ability, indicating a need to both continue research in this area and increase awareness among educators about the importance of spelling in overall literacy development.

### **Further Cross-Project Work**

The researchers continue to analyze and report on the data collected in the study. Ongoing work seeks to provide further insight into the influence of family and community context, first and second language phonological awareness and word-level reading skills, second language oral proficiency, and language of instruction on the development of later reading skills in English.

In addition, the researchers are participating in cross-project analyses that look at developmental progressions through the several age groups studied in the three ALE subprojects. These analyses look at relationships across a variety of family and school domains, including socioeconomic status, home language use, home literacy practices, school language use, oral language proficiency, word-level reading skills, and text-level reading skills.

Finally, drawing upon data collected from populations not represented in the primary study samples, including monolingual English-speaking and monolingual Spanish-speaking children, the researchers are establishing contextualized performance levels that provide information about how the bilingual children in the ALE subproject samples compare with monolingual populations with regard to language and literacy performance. This analytical process will enable the researchers to better understand the language and literacy development of the bilingual children in the subproject samples.

## References

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## Publications Resulting from Subproject 3

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