

Improving Migrant Students' Spelling of English and Spanish Words with Error Correction

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We examined the effects of error correction on spelling accuracy of culturally and linguistically diverse students enrolled in summer Migrant Education. In an error correction strategy, students spelled a word, viewed a correct model, and corrected specific errors. In a traditional strategy, students wrote words three times each while viewing a correct model. Words were presented in Spanish or English. Results showed that students with and without learning disabilities, whose primary language was English, correctly spelled more English words in the error correction condition than the traditional. Students whose primary language was Spanish correctly spelled Spanish words equally well in both conditions, possibly because of the phonetic nature of the Spanish language.

KEY WORDS error correction strategy; spelling accuracy; culturally diverse students; linguistically diverse students; migrant education.

Due to political and economic situations in Mexico and the United States (Belous & Lemco, 1995) and because of the proximity of these countries, more and more Spanish-speaking families will enter the United States seeking employment. The Bureau of the Census estimated that in 1994 there would be a total of 3,500,000-to-4,000,000 undocumented immigrants in the United States. Approximately 2,000,000 of these people will be from

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countries where Spanish is the primary language. The number of Spanish-speaking families within the United States will continue to grow into the next century.

These migrant families will be accompanied by their culturally and linguistically diverse school-aged children who have unique educational needs. During the 1960s, congress created a series of special bilingual programs to assist migrant farm workers and their children in taking advantage of educational and social services (National Commission on Migrant Education, 1992). However, many bilingual educational programs are viewed by school officials as ineffective (American Institute for Research, 1977; Baker & de Kanter, 1981). Johnson, Levy, Morales, Morse, and Prokop (1986) reported that migrant students have the lowest graduation rate of all United States high school students. General and special educators need to better understand the learning needs of migrant bilingual students and find ways to make their education more effective.

Due to mobile lifestyles which afford shorter time periods to build comfortable relationships with teachers and peers, migrant students are often passive in the classroom. Swedo (1987) examined the levels of active engagement of students with limited English and found that they exhibited the most intensive and prolonged levels of engagement on tasks that encouraged expression, offered choice and control, and gave students the opportunity to work with peers. In addition, Rueda, Ruiz, and Figueroa (1995) suggested that bilingual students are more likely to actively engage in activities they view as relevant and that make use of their prior knowledge and cultural experiences. They suggested that teachers (a) provide activities that are meaningful to students, (b) require active rather than passive participation, especially in joint productive activity, (c) value and incorporate the language of the students in high-level academic activity, and (d) permit “nonstandard” interactional patterns, where appropriate, to support learning.

In addition to the need for relevance and active participation, culturally and linguistically diverse students have additional unique learning needs. Salerno (1991) stated that one of the effective features of a retrieval program for migrant dropouts was a focus on activities that met their academic needs. Of all **the** academic areas taught in schools, language arts, especially decoding skills that incorporate components of spelling, appears to be most troubling for migrant students (Milagros, 1991; Terrebone, 1973). The major assumption of bilingual education is that **skills** acquired in one language will transfer to another (Rodriguez-Brown, 1987). Cummins (1989) found that children who come to the **U.S.** with good literacy skills in their native language learn a new language faster than those children who have not developed native language literacy skills. Ferroli and

Shanahan (1992) investigated spelling error patterns of native Spanish-speaking second and third grade students of English as a Second Language (ESL) to determine whether their errors could be attributed to phonological patterns. They found that students applied whatever conceptual background knowledge they had of spelling in their native language to the spelling task in English. Other research has found an articulatory basis for these students' misspellings (Gill, 1979; Temple, 1978). In addition, Zutell and Allen (1988) and Terrebone (1973) found that Spanish-speakers perceived English sounds as if they were Spanish and spelled those sounds in Spanish-like ways. The difficulties that some students experience with learning to spell may be related to their bilingual abilities (Cummins, 1984) and instructional strategies may work differently for students depending on their level of first language proficiency.

Given the existing literature, it seems that the best spelling instructional strategy for bilingual migrant students would be one that encourages active participation in a small group setting, utilizes content that students view as relevant, and highlights the specific ways in which English spelling differs from their prior language learning. Therefore, the purpose of this study was to compare two strategies for teaching spelling to culturally and linguistically diverse migrant students. Grskovic and Belfiore (1996) employed a spelling strategy that asked special education students to spell a word, view a correct model, and then correct their written errors. They compared this strategy to a traditional strategy that asked students to write words three times each while viewing a correct model. Their results showed that students (a) learned more words by correcting specific errors, (b) required fewer practice trials to mastery, and (c) preferred the error correction strategy. In this study, we employed the method from the Grskovic and Belfiore study to word sets in both English and Spanish and analyzed spelling scores of migrant students with high and low levels of English proficiency. We hypothesized that all students would spell more words correctly with the error correction than the traditional strategy when presented with words from their primary language.

METHOD

Participants and Setting

Ten students, three girls and seven boys, were recruited to participate in this study through their summer migrant program by the home-school liaison in their district. Due to migratory lifestyles, two boys relocated before the study was completed and were dropped from the analysis. Of the

eight students who completed the study, five were seventh graders (mean age of 12.4 years), and two were sixth graders (mean age 11.6 years). All students had participated **full** time in general education, with the exception of one 11-year-old **fifth** grader, Jose, who received services for a learning disability.

The summer migrant program was held in a small rural town public school in the Northwest United States. Training and testing sessions were conducted outside of the regular classroom in a small testing room. There were two tables in the room for the students and one desk for the experimenters.

Spelling Words

To increase the independence of individual words, each week a 16-word set was constructed from 3 consecutive spelling lessons from published books of spelling words. Words were randomly assigned to either the error correction or traditional condition. To create word sets in Spanish that were equivalent in meaning to the English sets, we used a “reverse translation procedure.” This was done by translating the English words to Spanish and then asking another person to translate the Spanish words back to English.

Procedures

Students were verbally interviewed by their summer school teacher and, based on their English language proficiency and reported language preference for home use, were assigned to one of two instructional groups; either primary English language (EL) or primary Spanish language (SL). The EL group consisted of three students, Consuelo, **Sixto**, and Jose. Consuelo and Jose spoke only English while **Sixto** spoke Spanish and English but used English as his primary language. In addition, Jose was identified as having a learning disability. Students in the EL group received spelling words and instruction in English. Maria, Wanda, Juan, Ricardo, and Thomas were placed in the (SL) group because of their use of Spanish as their primary language. Students in the SL group received instruction and spelling words in Spanish.

Both groups received small group instruction at different times of the day. The instruction and testing sessions were conducted five days per week for three weeks. The first author, who is bilingual, served as the experimenter for both groups.

Assessment

A new word set was introduced weekly. Each session began with a test followed by instruction, with the exception of the last day of each week, when only the test was given. First-day tests and next-day tests began when the experimenter verbally presented each word, used the word in a sentence or phrase, and repeated the word while the students wrote the words on prenumbered test papers (e.g., *emend*, Ella *ensend* las matemàtias. *ensend*; *taught*, She *taught* mathematics. *taught*). No feedback was provided for correct or incorrect responses on the tests.

Intervention

Instruction began immediately after the first-day or next-day tests. In the *traditional condition*, the experimenter began each training session by placing a printed word list on the table in front of each student. Students wrote words three times each on numbered, lined spelling practice sheets. Feedback (e.g., "You've got them all right") was provided at the end of each row and upon completion of the page. In the *error correction condition*, words were verbally presented, one at a time, in random order. As each word was presented, students wrote the word with a colored dry-erase pen on a dry-erase, lap board. When finished writing, students compared their spellings to one written by the instructor. Students were instructed to erase and correct only their incorrect letters. Then, students were instructed to erase the word, and the instructor verbally presented the next word. The word list was repeated twice, until each word had been written three times. Accuracy feedback (e.g., "That's correct") was provided after every third response, on the average, to equate feedback distribution across conditions.

Dependent Measures and Reliability

The number of words written correctly on the first-day test and next-day tests served as dependent measures. In addition, the percentage of correct letters was calculated by counting correct letter sequences or N-grams (Shapiro, 1989) and dividing by the total letters per word. Data were also collected on the duration of training sessions by condition for both groups. To assess students' satisfaction with the error correction procedure, a questionnaire was administered on the last day of the study asking students how much they agreed with five statements (see Grskovic and Belfiore, 1996).

The accuracy of scoring daily spelling tests was assessed by an independent rater for 25% of the EL and SL tests. Interrater agreement was computed using a word by word analysis of accuracy and number of correct letter sequences. Treatment integrity was assessed for both conditions by independent observers using a procedural checklist. Reliability on both the dependent (spelling test scores) and independent (procedural integrity) measures was 100%.

Experimental Design

For both the EL and SL groups, an alternating treatments design was used to assess the effects of an error correction strategy and a traditional strategy on the spelling accuracy of migrant students. Each week, half of the students' spelling words were taught with error correction and half with the traditional method of writing them three times each while looking at a correct model. The presentation order of the conditions was counterbalanced across sessions.

RESULTS

Migrant students with and without learning disabilities in the EL group correctly spelled more English words using error correction (22 words) than the traditional method (16 words) (see Figure 1). Specifically, Consuelo and **Sixto** learned more words using error correction (22 words) than the traditional strategy (13 words), while Jose, the student with a learning disability, spelled few words correctly on Friday tests in either condition. Because he mastered *so* few words, we also looked at his percentage of correct letter sequences as a more sensitive measure of learning. We found that Jose improved more in correct letter sequences in the error correction condition than in the traditional condition for two out of the three weeks.

As a group, the students receiving Spanish words appeared to perform equally well in both conditions, learning, on the average, 8.5 new words overall with error correction and 8.6 words with **the** traditional method. However, upon further analysis of the word lists, we found the words in the two conditions were not equal in letter length. While the three English word lists varied by only 10 letters overall, students receiving Spanish words were required to learn 27 more letters in the experimental condition than in the traditional condition. Therefore, it is possible that students in the **SL** group may have actually performed better in the error correction condition because they had longer words to learn. An examination of the per-

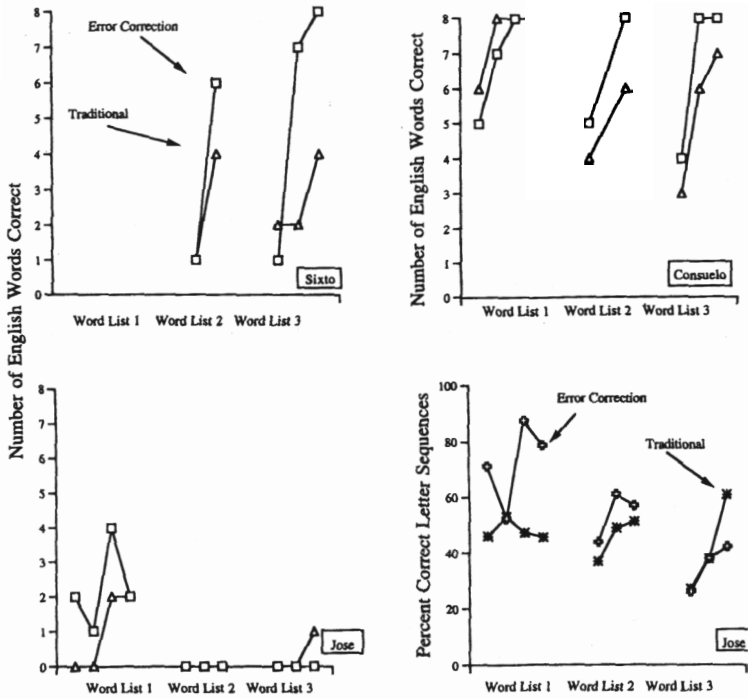


Fig. 1a. Number of English words spelled correctly in error correction and traditional conditions for Sixto, Consuelo, and Jose. Percent correct letter sequences for Jose.

formance of individuals within the SL group showed that Wanda and Maria learned more words overall with error correction (11 and 8 words, respectively) than with the traditional method (7 and 7 words, respectively), while Ricardo spelled better in the traditional condition (12 words) than with error correction (6 words). Juan and Thomas learned equally well in both conditions, with Juan learning 10 and Thomas learning 7 new words in each condition.

In an assessment of treatment time requirements, we found that for the EL group the traditional strategy took, on the average, 3 minutes to complete (range of 1 m 35 s to 6 m 17 s) while the error correction strategy averaged 16.7 minutes (range of 11 m 32 s to 22 m 12 s). For the students in the SL group the traditional strategy required 2.5 minutes (range of 1 m 45 s to 4 m 18 s) while error correction took an average of 12.04 minutes (range of 8 m 26 s to 16 m 42 s). The students in the SL group were quicker in both conditions than the students in the EL group, a finding we attribute to the additional time required by the student with learning disabilities.

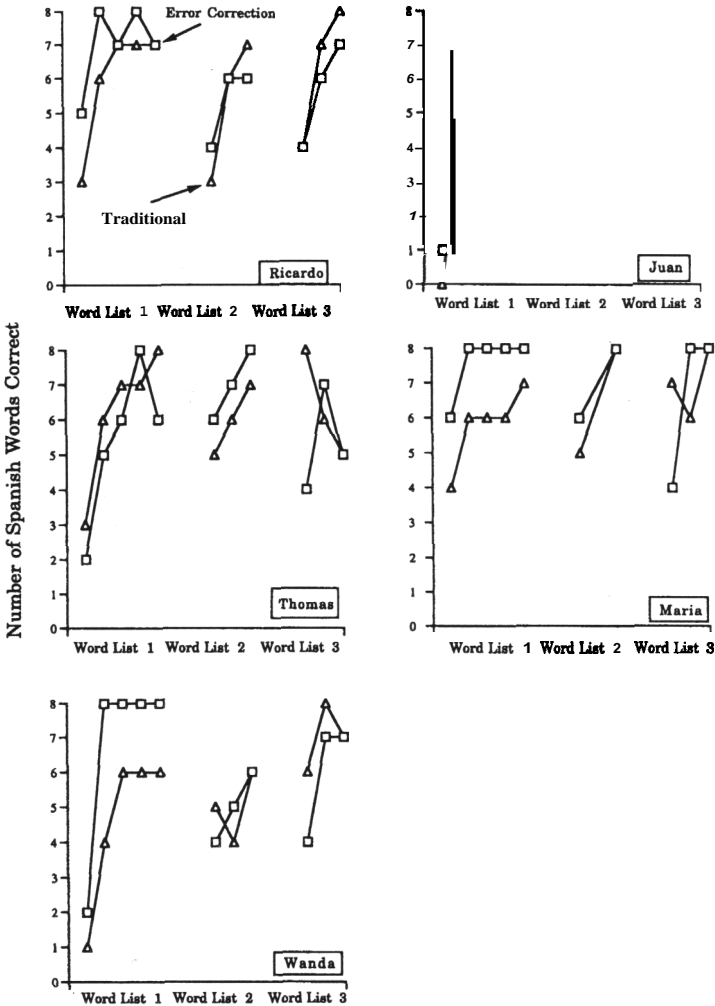


Fig. 1b. Number of Spanish words spelled correctly in error correction and traditional conditions for Ricardo, Juan, Thomas, Maria, and Wanda.

The social validity of the error correction procedure was assessed by administering a questionnaire on a five point scale (Grskovic & Belfiore, 1996). All students strongly agreed that learning to spell by correcting their mistakes on the dry-erase mylar boards was more fun ($M = 4.6$) and that they would like to learn other school subjects using the dry-erase boards to correct their errors ($M = 4.9$). Although the difference was small, students in the EL group felt they learned more using the mylar boards ($M = 4.6$) than students in the SL group ($M = 4.2$). All students felt the mylar boards did not take too much time ($M = 4.5$). While all students in the

EL group felt they were better spellers with the mylar boards ($M = 4.3$), three students in the SL group felt they were better spellers with the mylar board ($M = 5$) while one felt he wasn't (Response = 2) and one was not sure (Response = 3).

DISCUSSION

We examined the effects of an error correction spelling strategy on the spelling scores of culturally and linguistically diverse migrant students with and without disabilities who were enrolled in a summer bilingual migrant education program. English instruction and words were presented to students in the primary English language (EL) group while Spanish instruction and words, equated for meaning to the English ones, were presented to students in the primary Spanish language (SL) group.

We showed that migrant students learned to spell more words in English with error correction, increasing their proficiency in school language. The error correction procedure focused student's attention to the parts of words that still needed to be learned and enhanced those variables within the word that required correcting. Errors were more salient in the error correction procedure. **An** additional benefit of this spelling instruction method was that students were required to actively participate in instruction by writing and self-correcting spelling mistakes. **This** procedure is an excellent example of how teachers can ensure that migrant students will engage in academic activities despite their lack of language proficiency and their sparse attendance in the many different schools they attend while continuing their mobile lifestyles.

Because the error correction condition had an auditory component that the traditional condition did not, it is possible that students were able to make sound-letter connections easier in that condition. In the error correction condition the teacher said the word and then students wrote the word. In the traditional condition students looked at a correct model and then wrote the word. It is possible that students subvocalized the word while viewing the model in the traditional condition, but we can not **know** for certain. In future extensions of this methodology, researchers may want to add teacher verbalization of each word to the traditional condition as a control for this potential confound.

Students in the SL group performed equally well in both conditions on Friday tests. It could be that because of the phonetic nature of the Spanish language students do not require special strategies (i.e., error correction) to learn to spell the Spanish language. However, we did find opposite results from those predicted by Ferroli and Shanahan (1992) who

suggested that whatever conceptual background knowledge students had of spelling in their native language would be applied to spelling in English. The few errors made by students in the SL group were because they were applying English rules/strategies (i.e., letter/sound) to words that were presented in Spanish. This could be because they hadn't had prior instruction in Spanish. They repeated errors that consisted of substitution of "s" for "c" and the omission of the letter "h" in words like "hacienda." Due to the study's protocol we could not provide any spelling instruction for them in Spanish.

An alternative explanation may be that since bilingual students are more likely to actively engage in activities they view as relevant and that make use of their cultural experiences (Rueda et al., 1995), it is possible that the lack of separation in conditions for the SL group was the result of high motivation on the part of students to learn all words presented in Spanish. The educational implication of this would be that the use of home language activities and lessons may motivate bilingual students to participate in and perform better on academic lessons. *As* a third explanation, due to the unequal length of words in the two conditions, it is possible that students actually spelled better in error correction condition, but because the words were longer the difference was not apparent.

One limitation of this study was its short duration. It is possible that different results may have been achieved, especially for the student with learning disabilities, with additional weekly word sets. Another limitation was the use of teacher subjective opinion of primary language. Both of these limitations were the result of the nature of the migrant education program, which runs for only 3 weeks in the summer.

Another limitation of this study was that students received words in their primary language only. It is not known how students with primary Spanish language would have performed in the two conditions if asked to spell words in English. Lastly, because the word sets in the experimental condition tended to be longer than the traditional ones, future research may want to examine how students would perform in the two conditions if word sets are equated for mean number of letters per word.

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