USE OF SOUNDING OUT TO IMPROVE SPELLING IN YOUNG CHILDREN

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We examined the effects of teaching 5 typically developing elementary students to sound out their spelling words while writing them using the cover-copy-compare (CCC) method to practice spelling. Each student's posttest performance following practice with sounding out was compared to that student's posttest performance following practice with no sounding out. For every student, posttest accuracy was higher following practice with sounding out, indicating that it is an effective and easily implemented strategy to improve spelling instruction.
   Key words: cover-copy-compare method, sounding out, spelling

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Most students are taught to spell using a traditional assign-and-test procedure. With this method, students are assigned words on Mondays, practice them throughout the week (e.g., writing rehearsals, writing words in sentences and stories), and are tested on Fridays. Even when perfectly implemented, these procedures are not effective for many students for several reasons (Cuvo, Ashley, Marso, Zhang, & Fry, 1995). First, they may not teach spelling at all, but instead force students to memorize a series of word lists, which does not prepare them to become competent spellers, readers, and writers (Alber & Walshe, 2004). Second, this approach often overlooks important components of effective instruction, including individualization, by assigning the same words to all students, and content relevance, by assigning arbitrary words instead of words that may appear in their lessons and daily life (Scott, 2000). Traditional spelling instruction also fails to provide sufficient time and practice on words to be mastered (Murphy, Hern, Williams, & McLaughlin, 1990), may not include an error-

correction procedure, and does not allow immediate or frequent reinforcement.

A method that combines effective spelling practice with error correction is the cover-copy-compare method (CCC; McGuigan, 1975). Using this method, students look at the word and copy it, cover the word and write it from memory, and then uncover the word to evaluate their accuracy. Several researchers have used this method to improve spelling in young children with and without disabilities and have found it to be more effective than the traditional procedure (Murphy et al., 1990; Nies & Belfiore, 2006).

The CCC method might be enhanced, however, if teachers took advantage of reading skills already in their students' repertoires. Students who are already good readers and who have strong phonetic skills might improve their spelling by saying the sound of each letter as they write it. For instance, students who can sound out *c-a-t*, but cannot spell *cat* on hearing it, may be able to improve their accuracy by saying each sound as they spell it. The purpose of this study was to evaluate the effects of teaching students to use sounding out (SO) in conjunction with CCC on spelling accuracy.

METHOD

Participants, Materials, and Setting

Five elementary school students who attended a small nonprofit private school participated

in the study. Patty, Sam, Kevin (all 6 years old), and Kris (7 years old) were typically developing, and Alice was a 9-year-old who had been diagnosed with moderate sensorineural hearing loss in both ears. All 5 children demonstrated spelling skills significantly below their reading level, as identified by the Woodcock Johnson Test of Achievement (revised; Woodcock & Johnson, 1989/1990). We used a word bank from the students' current spelling book, Programmed Reading, Series 1 (Buchannan & Sullivan Associates, 1978). Sessions occurred three to five times per week and were between 2 and 20 min long. They took place in either the student's regular classroom or in an empty classroom. Both settings contained items typically found in elementary school classrooms.

Procedure

There were three types of sessions: pretest, practice, and posttest. The first session for all students was a pretest. This was followed by a practice session on the same or the next day, a posttest session on the following day, and then the next pretest session. There were two practice conditions in the study: no SO and SO. Practice sessions were followed by no-SO and SO posttests, respectively. The experimenter administered all sessions individually.

Pretest sessions. On the first pretest, the experimenter dictated the first word in the word bank for the student to spell and continued until the student misspelled five words, which the experimenter used in the practice session that followed. Each subsequent pretest began with the word that immediately followed the last misspelled word from the pretest session and continued until the student misspelled another five words. The experimenter did not provide feedback on accuracy during these sessions.

Practice sessions. The student used the CCC method to practice spelling his or her words in both the no-SO (CCC alone) and the SO (CCC+SO) conditions. At the beginning of each practice session in both conditions, the experimenter asked the student to prepare a sheet of paper by folding it in half lengthwise, which produced four columns available for practice. The experimenter then placed the list of five misspelled words from the pretest in front of the student and instructed him or her to begin practice. The student read the first word out loud, copied it, turned the page over, wrote the word from memory, and then checked it with the model. The student repeated this procedure until he or she had completed two accurate written rehearsals of the five words.

The procedures were the same in the CCC+SO practice sessions, except that immediately after the student read the word out loud, the researcher prompted the student to say each sound in the word in each written rehearsal. If a student made an SO error, the experimenter asked him or her to ''try it again'' and then provided a model prompt following a second error. Kris was the only student to make SO errors.

Posttest sessions. Posttest sessions occurred the day after the practice sessions. For this, the experimenter dictated each of the five words to the student, asked the student to repeat it and write it down on the paper. Students did not sound out on posttests in the no-SO condition, but did sound out on posttests in the SO condition. The experimenter did not correct SO errors during this condition.

Sounding out of previously missed words. To demonstrate further experimental control over spelling by these procedures, the experimenter identified all words misspelled on no-SO posttests and regrouped them into lists of four to five words for the student to practice using the SO strategy. The practice and posttest procedures for this condition were identical to the SO practice and posttest procedures described above.

Measures, Experimental Design, and Interobserver Agreement

The dependent variable was the percentage of words spelled correctly on each posttest follow-

ing a practice session. A word was scored correct if it matched the spelling in the book. A multielement design was used to compare the effects of no SO and SO on posttest spelling performance. A second observer independently scored the students' written posttest responses across the no-SO, the SO, and the SO of previously missed words conditions. Interobserver agreement was calculated as the number of agreements divided by the number of agreements and disagreements. This ratio was converted to a percentage. The mean number of posttest responses observed across the three conditions was 36% for Patty, 45% for Alice, 38% for Kevin, 39% for Sam, and 43% for Kris. Interobserver agreement for posttest responses was 100% for all students across all conditions.

RESULTS AND DISCUSSION

The experimenter used these procedures to teach 5 students who could read phonetically how to improve their spelling by teaching them to "say each sound" and transcribe what they said. The SO strategy produced higher posttest spelling accuracy than no SO for all 5 students (Figure 1). Further, SO increased the accuracy of words previously misspelled on no-SO posttests. Kris' performance on SO posttests was lower than that of the other students. However, he was the only student who consistently made errors in sounding out words and in writing what he was sounding out (e.g., he would sound out *a* but write *e*), suggesting a deficiency in his basic letter–sound correspondence repertoire. For the SO strategy to be most effective, students likely must have a strong basic phonetic repertoire; if not, then this strategy is likely to be helpful (i.e., like it was for Kris), but not sufficient, to improve spelling.

The study has two general limitations, each of which serves as a basis for future research. First, the design did not rule out possible carryover effects from the SO conditions to the no-SO conditions. For instance, the students could have been using the SO strategy covertly in the no-SO conditions. Patty and Sam in particular performed relatively well on several no-SO posttests. For example, Patty scored 100% on her fourth no-SO posttest. By this point in the study, she had experienced four SO sessions, and it is possible that she had become proficient enough to sound out effectively but covertly. Future research should reduce the threat of these effects by enhancing the discrimination between the conditions (e.g., correlating conditions with different colors or therapists) or using a multiple baseline design (Levingston, Neef, & Cihon, 2009). In addition, future research should include integrity measures of the independent variable to determine whether the children actually were using the strategy. Anecdotally, no student was observed to engage in sounding out during no-SO conditions.

Three other issues also might be addressed in future research. First, the student's and teacher's preferences for the traditional approaches to spelling (i.e., the assign-and-test method) and to the SO strategy need to be socially validated. Preference may depend on efficacy; thus, a second direction for future research is to compare the efficacy of the SO strategy to the traditional approaches on measures of learning, generalization, and maintenance. Third, the SO strategy could be extended to younger children, for whom it might work in tandem with beginning reading instruction, which for most students begins at the age of 4 or 5 years. Teaching reading and spelling concurrently may have beneficial effects across each domain. Fourth, conducting a phonological awareness assessment and addressing any gaps in the student's basic letter–sound correspondence repertoire may improve the efficacy of the strategy. This assessment may serve as a tool to identify spelling deficits early on so teachers can address them. Finally, the SO strategy might be extended to students with disabilities, for whom CCC method is known to be effective in improving spelling.
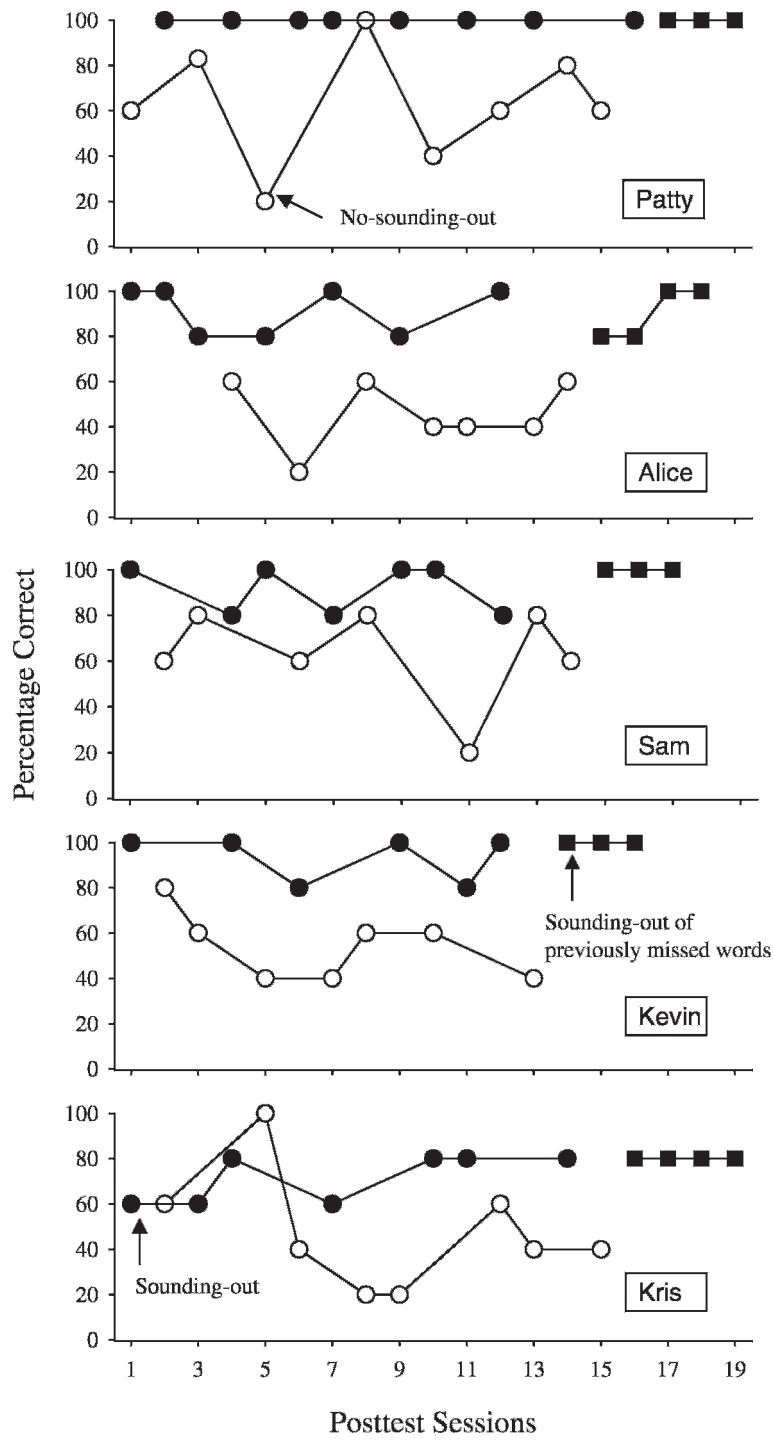
Figure 1.   Percentage correct on SO (filled circles), no-SO (open circles), and SO posttests of previously missed words (filled squares) for the 5 students.

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