

# OSEP Research Institutes: Bridging Research and Practice



In this column, *Bridging Research and Practice*, three of the federally funded special education research institutes report to you, the practitioner, on their progress in areas that will be particularly helpful to you in working with your students. The U.S. Office of Special Education Programs (OSEP) has funded these three research institutes to study specific curricular and instructional interventions that will accelerate the learning of students with disabilities in curricular areas:

**CASL (Center on Accelerating Student Learning)** focuses on accelerating reading, math, and writing development in grades K-3. The Directors of CASL are Lynn

and Doug Fuchs of Vanderbilt University. CASL research sites are also located at Columbia University (Joanna Williams) and the University of Maryland (Steve Graham and Karen Harris).

**REACH (Research Institute to Accelerate Content Learning through High Support for Students with Disabilities in Grades 4-8)** is examining interventions that reflect high expectations, content, and support for students. The Director of REACH is Catherine Cobb Morocco at Education Development Center in Newton, MA. Research partners include the University of Michigan (Annemarie Palincsar and Shirley Magnusson), the University of Delaware

(Ralph Ferretti, Charles MacArthur, and Cynthia Okolo), and the University of Puget Sound (John Woodward).

**The Institute for Academic Access (IAA)** is conducting research to develop instructional methods and materials to provide students with authentic access to the high school general curriculum. The Institute Directors are Don Deshler and Jean Schumaker of the University of Kansas, Lawrence. Research partners include the University of Oregon and school districts in Kansas, California, Washington, and Oregon.

This issue features CASL (Center on Accelerating Student Learning).

## Extra Spelling Instruction: Promoting Better Spelling, Writing, and Reading Performance Right from the Start

Steve Graham • Karen R. Harris • Barbara Fink-Chorzempa

The intervention described in this paper focuses on providing extra spelling instruction to young children who experience difficulty with literacy learning. There are five reasons why we think such instruction is important. First, difficulties with spelling can blur or even change the message that a writer is trying to convey. Consider how different psychology would be, for example, if the fourth word in the following sentence was not misspelled: "Pavlov studied the salvation of dogs."

Second, poor spelling can influence perceptions about a child's competence as a writer. When teachers or other adults are asked to evaluate two or more versions of a paper differing only in number of spelling miscues, papers with more spelling miscues are assigned lower marks for writing quality than papers with fewer or no spelling errors (Marshall & Powers, 1969).

Third, difficulties with spelling can interfere with the execution of other composing processes (Graham, 1990; Scardamalia, Bereiter, & Goleman, 1982). For instance, having to switch attention during composing to mechanical demands, such as thinking about

how to spell a particular word, may lead the child to forget something he or she had already planned to say, but had not yet written down.

Fourth, early problems with spelling can constrain a child's development as a writer. Difficulties mastering spelling skills may lead young children to avoid writing and develop a mind set that they cannot write, resulting in arrested writing development (Graham, 1999).

Finally, learning about spelling can enhance children's reading development, especially their ability to pronounce words correctly and decode unknown words (Adams, 1990). The beneficial effects of spelling, however, may be constrained for children who experience difficulty mastering this skill.

The consequences of poorly developed spelling skills for both writing and reading led us to develop an instructional program designed to boost or accelerate the spelling development of the poorest spellers, including children with disabilities, in second grade classrooms in four schools. This multicomponent program is described next.

### The CASL Spelling Program

The CASL Spelling Program (Graham, Harris, & Fink Chorzempa, 2002) was designed to teach children basic sound/letter combinations, spelling patterns involving long and short vowels, and common spelling words that fit these patterns. The program includes 48, 20 minute lessons divided into 8 units (6 lessons per unit). Each unit focuses on two or more spelling patterns involving short vowel sounds, long vowel sounds, or both (see Table 1).

The six lessons in each unit follow a set pattern that includes seven different activities. During the first lessons of each unit, students participate in a word sorting activity (Graham, Harris, & Loynachan, 1996) designed to help them learn the rule for each of the spelling patterns emphasized in that unit (activity one). For example, in unit 3, words are sorted into two categories: one for CVC-type words containing the short vowel sound of /a/ (e.g., fat) and another for CVCe-type words containing the long vowel sound of /a/ (e.g., fate).

The teacher begins the lesson by placing a master word card for each cat-

egory next to each other (i.e., “mad” and “made” for unit 3). The teacher pronounces each master word and then says the word again emphasizing the target feature (e.g., short vowel sound for /a/ in mad and long vowel sound for /a/ in made). Students are asked to consider how the master words are similar and different. The teacher focuses students’ attention on critical features, such as the different way that the letter “a” is pronounced in the two master words, the silent /e/ in the master word “made,” and the combination of consonants and vowels in the two master words.

The teacher then tells students that they are going to look at other words and decide which category they should place each under, with the idea of figuring out the rule for why the letter “a” makes the short /a/ sound in “mad” and the long /a/ sound in “made.” Using a pack of 12 cards (containing an equal number of words that fit each pattern), the teacher draws a card, says the word on it (emphasizing the target feature), thinks out loud about where to place the word, and places it under the appropriate master word card. The teacher continues to do this until the students understand the process, and then encourages them to categorize and place the remaining word cards while thinking out loud. If an error is made in placing a word, the teacher corrects it and models out loud his or her thoughts on where to place the word. Once all of the words are placed, the teacher helps students state a rule for the patterns emphasized in that word sort (in unit 3, students generated the following rule for the long /a/ vowel sound in CVCe words: when you hear a long /a/ in a small word, the “a” is often followed by a consonant and silent “e.”). Students then generate words of their own, writing them on blank word cards, and placing them under the appropriate category. If an exception word is generated (e.g., “have” for the short vowel sound of /a/ or “may” for the long vowel sound of /a/), a new category is started, and a card with a question mark on it is used to designate this category. This helps students learn that there are

**Table 1. Spelling Patterns Taught in Each Unit of the Spelling CASL Program**

Unit	Spelling Patterns
1.	Short vowel sound for /a/, /e/, and /i/ in CVC type words
2.	Short vowel sound for /o/ and /u/ in CVC type words
3.	Short vowel sound for /a/ in CVC type words. Long vowel sound for /a/ in CVCe type words
4.	Short vowel sound for /o/ in CVC type words. Long vowel sound for /o/ in CVCe type words
5.	Short vowel sound for /i/ in CVC type words. Long vowel sound for /i/ in CVCe type words
6.	Short vowel sound and /ck/ at the end of monosyllabic words. Long vowel sound and /ke/ at the end of monosyllabic words
7.	Adding the suffix “ed” to monosyllabic words with a short vowel or a long vowel sound
8.	Adding the suffix “ing” to monosyllabic words with a short vowel or a long vowel sound

exceptions (or inconsistencies) to the rules or patterns they are discovering.

If there is enough time remaining in the first lesson, students redo the word sort with a peer. Students are also encouraged to “hunt” for words that fit the patterns that they are working on when reading and writing in class (activity two). During each subsequent lesson, students share the words they find with the class.

Starting with the second lesson, each student begins studying 8 spelling words that fit the patterns emphasized in that unit (activity three). These should be words that are common in students’ writing (see Graham, Loynachan, & Harris, 1993 for a list of such words) and that the student does not already spell correctly. Students use two basic approaches to learn their spelling words. One procedure is called “graph busters” and involves the student recording the number of times she or he correctly studies the words using the following five-step study strategy:

- Say the word and study the letters
- Close your eyes and say the letters
- Study the letters again
- Write the word three times without looking at it; and

- Check the spellings and correct any misspellings.

Students always use graph busters in lessons 2 and 3, and they can be used in lesson 5 as well. The goal in lessons 3 and 5 is to beat the number of correct practices achieved in the previous lesson.

The second study procedure involves studying words while playing a game. Working in pairs, students play a game (such as tic-tac-toe) that requires the child to produce the correct written spelling of a word in order to complete a move. If the word is spelled incorrectly, the misspelled word is corrected by the student’s partner, but the student does not complete the move. An example of one of the games that we used is Spelling Road Race. This game includes a laminated board with a race track marked off into 30 segments. When a child correctly spells a word, he or she moved a space for each letter in the word. Spelling games are only used in lesson 4 and 5 after students have gained some facility in spelling their words during lessons 2 and 3. Some teachers, however, like to use graph busters in lesson 5, as they feel it provides a stronger review before the unit test.

Lessons 2 -5 begin with students completing a short (2 minute) phonics warm-up (activity four). The purpose of this activity is to improve students' skills in correctly identifying the letter(s) that correspond to sounds for consonants, blends, digraphs, and short vowels. Across the 48 lessons, students work on 46 different sound/letter combinations. Each sound/letter combination is represented on a card with a picture on one side (e.g., a picture of a dog) and a corresponding letter on the other side (e.g., "d"). The teacher holds up a card and says, "What letter(s) make the sound you hear at the (beginning, middle, or end) of this word?" If an incorrect letter is named, the teacher says the correct response and the process is repeated.

Also, during lessons 2-5, students work together (usually in pairs) to build words that correspond to the spelling patterns emphasized in that unit (activity five). With the exception of lesson 5, a single rime is introduced in each lesson. The teacher begins by placing a card containing the rime (e.g., "ate") on the table and says the sound that the rime makes. The teacher then models building a word by placing a card containing either a consonant (e.g., "l") or blend (e.g., "pl") in front of the rime. Next, students work together to develop as many real words as they can, using approximately 18 letter cards, each containing either a consonant, blend, or digraph. For each rime, at least 10 of these letter cards make a real word. If students make a non-sense word, the teacher tells them that it is not a real word. In lesson 5, students practice building words with the three rimes introduced in lessons 2 - 4.

During lesson 6, students take a spelling test to see if they mastered the 8 words they had been studying (activity six). After taking the test, they correct any misspelled words and recorded

their performance on a graph that includes data points for all 8 units. They then set a goal for how many words they will spell correctly on the next unit test and record this on the graph as well. When a student meets the goal for a unit test, the teacher places a big star on the graph.

Finally, starting with the second unit, students review material taught in the previous unit (activity seven). After they score and graph their performance on the unit spelling test, they go back over the rimes and the spelling rules they generated in the prior unit.

### What to Expect

The effectiveness of this spelling program was tested by Graham, Harris, and Fink Chorzempa (2002) with 54 second-grade children. The participating students were experiencing difficulties learning to spell, and many also had problems learning to read and write. Forty percent of these students had been identified as having a disability (i.e., learning disability, attention deficit hyperactivity disorder, developmental disability, behavioral disorders, or speech and language problems). Our spelling program served as a supplement to the spelling instruction already provided by children's regular classroom teachers.

In comparison to second-grade children in a control condition who received mathematics instruction from the same teachers, students with and without disabilities in the supplemental spelling program made greater gains in spelling, sentence writing, and reading word attack skills immediately following instruction. In addition, improvement in reading word recognition skills were obtained 6 months following treatment for spelling instructed students who scored lowest on this skill before instruction started. The impact of the program was succinctly summarized by

one of the teachers who indicated, "My students' spelling improved so much, and I could also see them gain more confidence with their reading and writing."

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