

# OUTCOMES REPORT

## SPELL-Links to Reading & Writing

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The research presented in this report has been independently published in:  
Integration of language components in spelling: Instruction that maximizes students' learning. (2004)  
Apel, K., Masterson, J.J., & Hart, P. *Language and Literacy Learning in Schools*, New York: Guilford Press.

### Abstract

A classroom study was conducted to assess the effectiveness of the instructional methods featured in *SPELL-Links to Reading & Writing*, a research-based word study curriculum. *SPELL-Links to Reading & Writing* provides decoding and spelling instruction across multiple linguistic skill areas – phonological awareness, orthographic knowledge, vocabulary, morphological knowledge, and mental images of words.

For the study, *SPELL-Links to Reading & Writing* instructional methods were implemented in two elementary classrooms. Before initiating the project, measures were made to document comparable spelling skills across students in both classrooms. Between October and December of the school year, Class 1 received the traditional school spelling curriculum. Class 2 received instructional methods featured in *SPELL-Links to Reading & Writing*. The results revealed that the students who received the instructional methods featured in *SPELL-Links to Reading & Writing*, targeting multiple linguistic skill areas, demonstrated statistically and clinically significant growth in their spelling abilities, while the class that received the standard school curriculum did not demonstrate measurable gains.

### Method

Two elementary school classrooms, in a school situated in a semi-rural town in the Pacific Northwest, were recruited for participation in the study. Class 1 was a

third grade class and Class 2 was a third/fourth grade split. Both classes had similar numbers of participating students, with the number of students from culturally or linguistically diverse backgrounds or students receiving special services balanced across both classes.

Before participating in the research project, each student completed a spelling test consisting of 40 words. The words represented a range of spelling complexity, from simple, consonant-vowel-consonant words (e.g., hat) to multi-syllabic words containing prefixes or suffixes (e.g., magician). There was no statistical difference, based on a paired t-test, between the number of correctly spelled words produced by students in each class. Thus, the investigators documented that the students in the two classrooms had comparable spelling skills prior to their participation in the research study.

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***“When the linguistic challenges of spelling were uncovered by research, we could understand more easily why spelling is so difficult for so many students.”***

***Louisa Moats EdD***

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Between October and December of the school year, Class 1 received the traditional school spelling curriculum. This instruction consisted of a spelling pre-test on Monday, practice with multiple writings of the target word both in isolation and in sentences

during class time throughout the week, encouragement to practice at home, and a final spelling test on Friday. This approach was consistent with traditional classroom spelling instruction that is prevalent throughout the U.S. (Johnston, 2001).

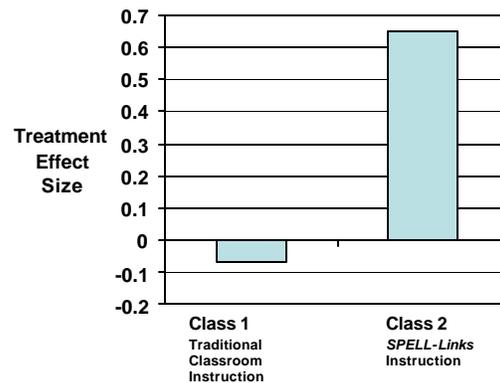
Class 2 received a spelling instruction program aligned with current spelling theory and empirical research. The instruction was provided by a speech-language pathology graduate student, working in collaboration with the classroom teacher. This particular project spanned a nine-week period, consisting of 17 days of instruction with 50 minutes per session.

The instruction Class 2 received was divided into three “units”: phonological awareness (6 sessions), orthographic principles (6 sessions), and morphological awareness (5 sessions). Like Class 1, the words targeted in the lessons were selected from a collection of words from which all students were required to be exposed during the academic year, according to the school district guidelines. Unlike Class 1, Class 2 received the instructional methods featured in the *SPELL-Links to Reading & Writing* word study curriculum.

## Results

Students in Class 2 significantly improved their word accuracy spelling skills after only nine weeks of instruction. In comparison, the students in Class 1 did not show significant improvement. “Specifically, an effect-size measure (Kromrey & Foster-Johnson, 1996) was calculated to determine the extent to which treatment had a clinically significant effect on the participants’ spelling abilities, as measured by the number of correctly produced words and bi-grams on the pre- and post-test samples. A bi-gram represents two letters in correct sequence within a word (e.g., in the word boat, the following bi-grams occur: bo, oa, and at) (White & Haring, 1980). For Class

2, effect size for word accuracy was  $d = .65$ , suggesting a moderate gain in spelling accuracy. For Class 1, effect size for word accuracy was  $d = -.07$ , indicating no improvement in spelling performance between pre- and post- test administrations.



These results revealed that the students who received spelling instruction that targeted multiple linguistic factors demonstrated statistically and clinically significant growth in their spelling abilities, while the class that received the standard school curriculum did not demonstrate measurable gains.” (Apel, Masterson & Hart, 2004).

## Conclusion

The empirical findings of this study indicate that the instructional methods featured in *SPELL-Links to Reading & Writing* are more effective than traditional classroom spelling instruction.

A collective body of current research and the empirical findings of this study demonstrate the importance of integrating the multiple linguistic factors that contribute to spelling and reading development within spelling instruction. Many professionals have already discovered that phonemic awareness activities, such as phonemic segmentation, lead to improvements in spelling and reading. However, spelling and reading instruction, with a focus solely on phonemic awareness, will yield only limited

improvement in spelling and reading performance. Professionals must go beyond phonological awareness instruction and address all linguistic aspects of spelling and reading within their curriculum, with an emphasis on the integration of all linguistic skills that underlie word-level reading and spelling – phonological awareness, orthographic knowledge, vocabulary, morphological knowledge, and mental images of words.

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***“Spelling knowledge is now understood as being central to learning to read and write and to the processes of reading and writing.”***

***Shane Templeton PhD***

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Students should be encouraged to use a repertoire of linguistic knowledge to read and spell. This requires professionals to become knowledgeable about the phonological, orthographic, semantic, morphological, and visual/orthographic underpinnings of English spelling, and be able to use that knowledge in an integrated manner as they instruct students. With *SPELL-Links to Reading & Writing*, professionals can be certain that they are providing integrated, research-based decoding and spelling instruction across these multiple linguistic skill areas.

Phonological Awareness: *SPELL-Links to Reading & Writing* provides multi-sensory instruction that establishes and reinforces critical phonological awareness concepts. Students develop the ability to segment words into phonemes and syllables, to sequence and manipulate phonemes, to identify and discriminate between phonemes, and to distinguish between stressed and unstressed syllables.

Orthographic Knowledge: *SPELL-Links to Reading & Writing* engages students in systematic and explicit phonics and word analysis exercises to develop their understanding of the alphabetic principle, to teach the specific relationships between the sounds of spoken language and the letters of written language, and to develop knowledge of conventional letter patterns and spelling rules. Through explicit instruction in mapping sounds to letters, students grasp a solid understanding of the link between spoken and written language and begin to establish the critical letter-sound connections that link individual written words to their pronunciations and meanings in long-term memory. Through integrated spelling, reading, and writing activities, students learn to apply their knowledge of phonics and word-analysis strategies as they read and write.

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***“Professionals must go beyond phonological awareness instruction and address all linguistic aspects of spelling and reading within their curriculum, with an emphasis on the integration of the multiple linguistic skills that underlie word-level reading and spelling.”***

***Kenn Apel PhD***

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Vocabulary: With *SPELL-Links to Reading & Writing*, students receive direct vocabulary instruction to learn the meanings of specific words and to learn how to use word meaning to help spell words. Through these activities, students become aware of the importance of word meaning when reading and writing.

Morphological Knowledge: Students develop effective word learning strategies

that enable them to decode, understand, and spell unfamiliar words when they receive *SPELL-Links to Reading & Writing* instruction. Through active learning, students become proficient in using meaning to spell prefixes, suffixes, base words, and word roots and uncover useful rules for modifying words when adding prefixes and suffixes. Students learn to use dictionaries and other resources to broaden and deepen their knowledge of word meaning and to correctly spell words.

Mental Images of Words: *SPELL-Links to Reading & Writing* provides the precise instruction students need in order to develop clear and complete mental images of words and word parts, which are vital for automatic word recognition and reading fluency. Through careful examination of the letters that make up the spelling of words and word parts, thoughtful discussions of word meanings, and multiple opportunities to read and spell words, students secure mental images of words in long-term memory.

Each *SPELL-Links to Reading & Writing* lesson includes instruction and practice with individual words followed by timed-reading activities, so students quickly learn to apply newly acquired word-level knowledge and skills to reading connected text.

The games, hands-on activities and guided self-discovery learning opportunities of *SPELL-Links to Reading & Writing* make it easy and fun to teach spelling and reading using proven effective, research-based methods.

## References

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