

USING RESEARCH TO MAKE INFORMED DECISIONS ABOUT THE SPELLING CURRICULUM

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ABSTRACT

Learning how to spell is important. Most people would agree that the ability to spell correctly is an essential trait of literate people, and that students must be taught how to spell correctly; however, there is still debate among parents, educators, and the public as to how spelling should be taught in the schools. This paper reexamines and compares the research on the traditional spelling curriculum with the research on word study in order to help educators make an informed decision about spelling instruction.

Learning how to spell is important. Most people will agree that the ability to spell correctly is an essential trait of literate people, and that students must be taught how to spell effectively (Robinson, McKenna, & Wedman, 2000). In fact, our society, in general, values correct spelling above all other writing conventions (Turbill, 2000). Furthermore, making anything beyond a few minor spelling errors is equated with ignorance and incompetence (Moats, 2005). As a result of these beliefs, most parents view spelling as a fundamental part of their child's literacy education, and they attach great importance to weekly spelling tests (Robinson, 2005; Turbill, 2000). Most schools and teachers continue to regard spelling as an integral part of any educational curriculum. Because of these expectations, almost every elementary school in America teaches and assesses their students' spelling abilities (Fresch, 2003; Graham et al, 2008; McNeill & Kirk, 2013). The purpose of this paper is to reexamine and compare the research on the traditional spelling curriculum with the research on word study in order to help educators make an informed decision about spelling instruction.

TRADITIONAL SPELLING INSTRUCTION

Spelling research and instruction has historically been based on assumptions about the way the English spelling system is organized and how children learn (Templeton & Morris, 2000). For most of the 20th century, the spelling curriculum was determined by the beliefs that English spelling is highly irregular and students do not use prior knowledge of previously-learned words to help spell new words (Simonsen & Gunter, 2001; Templeton & Morris, 2000). The main conceptualization of spelling was as a tool for effective writing. As a result of these beliefs, spelling instruction in most classrooms was based on rote memorization of an assigned list of words selected by the teacher or a spelling textbook that emphasized visual memorization of the most common irregular sound/symbol correspondences (Robinson, 2005; Robinson et al., 2000; Schlagal, 2007; Templeton & Morris, 2000). Based on this view of an irregular spelling system and isolated learning, most teachers and researchers emphasized visual memorization of spelling words.

Around the 1960s, spelling research showed that English spelling was a predictable, logical, and rule-based language system (Hanna, Hanna, Hodges, & Rudorf, 1966). Hanna et. al. (1966) found

that the spelling of 84% of English words is mostly predictable. Because of this research, teachers began to choose lists of spelling words based on common spelling rules, but they continued to emphasize the memorization of the rules and the words because of the assumption that spelling was solely a visual memorization task. Teachers who followed this paradigm believed that until a group of words was mastered, it was ineffective to study any additional words (Robinson et al., 2000) This spelling paradigm also considered spelling a completely separate subject, and very few attempts were made at integrating spelling with any other subject areas (Robinson et al., 2000). Mastery of the words was typically measured through an isolated weekly paper-and-pencil test in a contrived context with few or no opportunities to apply this understanding to authentic and meaningful writing and language activities (Hilden & Jones, 2012; Robinson, 2005). The success of this approach was mixed because children usually learned to spell the words correctly for the tests but failed to retain or generalize this knowledge to writing or other language activities (Abbott, 2001; Beckham-Hungler & Williams, 2003; Gill & Schrarer, 1996; Kernaghan & Woloshyn, 1995; Loeffler, 2005; Robinson, 2005; Templeton & Morris, 2000). This phenomenon is often referred to as *Friday test, Monday miss*.

Despite the *Friday test, Monday miss* phenomenon, the traditional spelling curriculum has some value, which may explain why many teachers and schools still teach spelling through assigned lists and weekly tests. Several studies have shown that a traditional spelling curriculum is effective for teaching irregularly spelled words, and having a teacher-generated list of words that students memorize and then are tested on makes sense based on a traditional view of the spelling system (Brown, 1990; Dreyer, Luke, & Melican, 1995; Graham, 2000). This approach is based on the behaviorist view of spelling, in which the learner memorizes spelling words in isolation. Because the traditional spelling curriculum has been used for so many years, most teachers, parents, and students are very familiar and comfortable with the format. Also, the traditional spelling curriculum does not require the teachers to be familiar with developmental spelling stages or understand how the English language system is organized. Most importantly, the traditional whole-word approach to spelling is helpful when learning highly-irregular words, such as *does*, and *were* (Simonsen & Gunter, 2001). Words that cannot be spelled by applying general spelling patterns and conventions have to be memorized, and rote memorization works well for these words.

RESEARCH ON SPELLING

Newer research, however, has shown that spelling is not an exclusive process of rote memorization (Reed, 2012; Schlagal, 2007; Templeton & Morris, 2000). As Heald-Taylor (1998) points out, “Learning to spell is a complex, intricate cognitive and linguistic process rather than one of rote memorization” (p. 405), a belief that challenges the traditional spelling curriculum’s emphasis on visual memorization. Students do not learn spelling words in isolation; instead, they use prior knowledge and understandings to help make decisions and form concepts about how to spell new words (Bear, Invernizzi, Templeton, & Johnston, 2012; Frith, 1980; Invernizzi, Bloodgood, & Abouzeid, 1997). Consequently, the traditional view of a semi-irregular English spelling system with rules that must be memorized and learned in isolation does not fit with what researchers have found about the English language and how students learn. The newer research supports the view of spelling as a complex cognitive process that is intrinsically and undeniably related to language, reading, and writing (Ehri, 2006; Snow, Griffin, & Burns, 2005; Treiman, 2006). Snow, Griffin, and Burns (2005) note, “Spelling and reading build and rely on the same mental representation of a word. Knowing the spelling of a word makes the representation of it sturdy and accessible for fluent reading” (p. 86). The belief that spelling is a linguistic process means that “learning to spell and learning to read rely on much of the same underlying knowledge—such as the relationships between letters and sounds...” (Moats, 2006, p.12).

SPELLING DIFFICULTIES

Learning about the relationships between letters and sounds can be difficult, however. In English, there are only 26 letters to work with, but there are 40 phonemes, more than 250 graphemes, and a vast number of ways to combine these graphemes (Moats, 2006). Given this complexity, it is not surprising that many students struggle with spelling. A common but mistaken belief is that spelling problems are a result of poor visual memory—poor spellers just can't remember the sequences of letters in words. Several studies, however, have shown that a generalized kind of visual memory contributes very little to our ability to spell (IDA, 2011). This research has also shown that the kind of visual memory required for spelling is closely connected to the language processing networks in the brain (IDA, 2011). Ideally, a spelling program will not emphasize visual memory, but, instead, make the process of discovering these features of word more salient and allow students to become more efficient spellers. Unfortunately, the traditional spelling curriculum's emphasis on rote memorization does very little to help students abstract these features of language.

Combining what we know about the how children learn to spell with the current research allows educators to make informed decisions about the best way to teach children to spell. Because of the complexity of English, it is not reasonable to expect students to memorize all of the individual rules of spelling or to expect teachers to have the time to cover all of these rules. Instead, educators should help students memorize the most common irregularly spelled words and simultaneously focus on the ways in which English is regular and predictable (Moats, 2006).

SPELLING AND PATTERNS

Patterns are the most effective and efficient way to teach regular and predictable words in English. From the very beginning, our brain is hard-wired to recognize patterns. Starting at birth, the brain allows babies to pay attention to the invariant features of the faces and objects around them and begin to recognize them (Dehaene, 2009; Wolf, 2007). At the same time, the area of the brain that processes language is already perceiving linguistic contrasts and paying attention to the rhythm and sounds of the native language (Dehaene, 2009). During this first year of life, the infant brain is extracting, sorting, and classifying segments of speech (Dehaene, 2009). In other words, the brain is seeking out patterns in language. As the child grows and develops, the brain continues to search for invariant features and patterns when it tries to learn something new, including letters, words, and even spelling. (Wolf, 2007). The brain's predisposition for seeking patterns has an effect on the effectiveness of spelling instruction.

Spelling of whole words is made possible when the child understands that words are made up of speech sounds and that letters represent these sounds, an example of the way the brain seeks out invariant patterns. As knowledge of this principle becomes more sophisticated, children notice additional patterns in the way letters, syllables, word endings, prefixes, word roots, and suffixes are used during reading and spelling (IDA, 2011). Furthermore, spelling instruction that explores the patterns of English word structure, word origin, and word meaning is effective because it explicitly teaches some of the predictable patterns of English spelling, word use, and meaning. Children learn best through active involvement and practice with words, which allow them to discern and learn word and letter patterns for themselves. Research on the brain indicates that the brain is a *pattern detector*, rather than an *applier of rules* (Cunningham, 2004). Because our brains are predisposed to be pattern detectors, then effective spelling instruction should emphasize opportunities to explore, organize, and ultimately detect those patterns. How to best teach the predictable patterns in the English language is up for debate, but many people suggest that integrated word study is one of the

most effective ways (Beckham-Hungler & Williams, 2006; IDA, 2011; Invernizzi et al., 1997; Leipzig, 2000).

WORD STUDY

Word study is based on research by Henderson (1990) and Templeton and Bear (1992) shows that children acquire specific features of words in a hierarchical order. A developmental approach to spelling, word study is based on the premise that the English language is a logical and predictable system of sounds and spelling patterns. Its focus is not on memorization; instead, its focus is on the predictable patterns of letters and sounds.

As the children's knowledge of language, letters, sounds, and other phonological processes develop, so does their ability to notice patterns within words. From basic letter-to-sound correspondences, to patterns associated with long and short vowels sounds, to structures within words associated with syllables and affixes, and finally, to Greek and Latin roots and stems, the child's brain looks for invariant patterns to help it spell efficiently (Bear et al., 2012). When teachers know and encourage these developmental stages of spelling, it allows the brain to seek increasingly difficult and complex patterns in words.

Word study addresses the brain's need for patterns by grouping words into categories of similarity and difference and allowing students to explore words and seek patterns. During word study, the teacher guides students as they categorize words, typically during word sorts, according to similarities and differences in spelling, meaning, and patterns in order to "better understand how spelling represents a word's meaning and grammatical function" (Invernizzi et al., 1997). Such instruction also includes strategies for conceptualizing and exploring words from a variety of perspectives (Templeton & Morris, 2000). Combining the visual, auditory, and semantic components of spelling through word study complements the way that the human brain learns to read and takes advantage of the brain's innate tendency to look for patterns in the environment. As Invernizzi, et al. (1997) note, "Word study makes explicit how spelling patterns and word structures reflect meaning and use" (p.190) This tendency for the human brain to seek out increasingly complex patterns is one of the reasons why the traditional spelling curriculum is not the most effective way to teach students to spell. The traditional spelling curriculum that assigns words based on content vocabulary, somewhat random spelling rules, and themes does not take advantage of the brain's capacity to learn through predictable patterns.

Unlike the traditional spelling curriculum, word study is flexible enough to allow the different stages of students' spelling development. At each stage of development, students will understand and use different features in their spelling, as shown in Table 1 (Leipzig, 2000). Children's progression through the different stages varies, which means that rarely would all students in a class be studying the same words.

Table 1
Stages of Spelling Development

Stage	Age Range	Spelling Behavior
Stage 1: Emergent Spelling	3- to 5-year-olds	<ul style="list-style-type: none"> String scribbles, letters, and letter -like forms together. Do not associate the marks made with any specific phonemes.
Stage 2: Letter Name-Alphabetic Spelling	5- to 7-year-olds	<ul style="list-style-type: none"> Learn to represent phonemes in words with letters. In the beginning, spellings are abbreviated. Learn to use consonant blends, digraphs, and short-vowel patterns.
Stage 3: Within-Word Pattern Spelling	7- to 9-year olds	<ul style="list-style-type: none"> Learn long-vowel patterns and r-controlled vowels. May confuse spelling patterns (Ex: <i>mete</i> for <i>meet</i>) May reverse order of letters (Ex: <i>form</i> for <i>from</i>)
Stage 4: Syllables and Affixes Spelling	9- to 11-year-olds	<ul style="list-style-type: none"> Use what has been learned about one-syllable words to spell multi-syllable words. Learn to break words into syllables Learn to add inflectional endings (e.g. -s, -ed, -ing) Differentiate between homophones (Ex: <i>your</i> and <i>you're</i>)
Stage 5: Derivational Relations Spelling	11- to 14-year-olds	<ul style="list-style-type: none"> Explore relationships between spelling and meaning. Learn that words with related meanings are often related in spelling. (e.g. <i>wise-wisdom, nation-national</i>) Learn about Latin and Greek root words and derivational affixes (e.g. <i>amphi-, pre-, -able, -tion</i>)

Note: Descriptive note. Adapted from *Words Their Way: Word Study for Phonics, Vocabulary, and Spelling Instruction (5th ed.)*, 2012, Boston, MA: Pearson. Copyright 2014 by Pearson.

Word study does not ascribe a one-size-fits-all approach to spelling instruction. Instead, it allows the teacher flexibility to choose and sequence a group of words that demonstrate a particular pattern based on the students' needs. Whatever their developmental levels, word study encourages students to quickly and accurately perceive word patterns in order to read, write, understand, and spell written language (Bear et al., 2012; Hilden & Jones, 2012). Figure 1 outlines the basic steps of word study, regardless of the student's spelling stage. For teachers who want to learn more about word study, Bear and Invernizzi's book, *Words Their Way: Word Study for Phonics, Vocabulary, and Instruction (6th edition)* is a good resource.

Step 1: Assess Students Regularly

- Evaluate students' word knowledge and understanding regularly.
- Use informal spelling inventories and students' independent writing samples.

Step 2: Analyze Data and Group Students Homogeneously

- Using the assessment data, group students into small, homogeneous instructional groups.
- Conduct a teacher-directed lesson followed by word study activities by the student.

Step 3: Make Time to Prepare for Word Study

- Word study takes time to prepare. Make sure to invest a sufficient amount of time to study and prepare for the lessons.
- Use already created materials to increase efficiency.

Step 4: Teach Word Knowledge through Word Sorts

- Focus on *word knowledge* that students can generalize to a wide range of reading and writing activities.
- Use word sorts (open or closed) to encourage understandings about words.

Step 5: Authentic Reading and Writing Activities

- Allow students to apply their word knowledge in daily, authentic reading and writing activities.

Figure 1 Steps of Implementing Word Study in the Classroom. Adapted from “Word Study Instruction in the K-2 Classroom” by C. Williams, C. Phillips-Birdsong, K. Jufnagel, D. Hungler, and R.P. Lundstrom, 2009, *The Reading Teacher*, 62, pp. 572-577. Copyright 2009 by the International Reading Association.

WORD STUDY CHALLENGES

Although word study addresses the current view of developmental spelling and takes advantage of the brain's capacity to seek out patterns, there are drawbacks to the word study approach. Word study depends on the teacher's knowledge base to present words in a chosen pattern according to the child's developmental level; however, teachers are often unfamiliar with the nature of the English spelling system and how to use patterns to teach this system (Gill & Scharer, 1996; Morris, Blanton, Blanton, Nowacek & Perney, 1995). Hughes and Searles' (1997) longitudinal study on spelling and instruction showed that “Many teachers see spelling as more arbitrary than systematic...their own knowledge of the spelling system is largely implicit or relatively poorly understood” (p.133). In addition, word study requires that teachers be educated on developmental spelling levels and how to choose words and patterns based on these levels; unfortunately, many teachers are unaware of the developmental levels (Templeton & Morris, 2000). One more important issue to consider with word study is parents' resistance to giving up the weekly spelling test. When one Houston-area school district recently replaced the weekly spelling test with word

study, parents protested saying, “I always had spelling tests...Our whole generation had spelling tests” (Mellon, 2009). Most parents don’t understand that their children are still getting tested—word study just assesses their child’s knowledge of spelling through patterns rather than their ability to memorize isolated words (Leipzig, 2000).

CONCLUSION

The research and support for using word study as part of an integrated spelling curriculum is significant and compelling, yet many classrooms are still using traditional spelling methods, emphasizing rote memorization and rule-driven instruction (Fresch, 2003, 2007; Schlagal, 2002). The traditional spelling curriculum has been around for a long time. Most parents, teachers, and schools are familiar with the assigned lists and weekly tests, and the traditional curriculum is effective for learning highly-irregular words; however, the traditional curriculum does not help children retain or generalize spelling knowledge for their writing. In addition, the traditional spelling curriculum largely ignores developmental spelling levels and does not take advantage of the brain’s remarkable capacity to abstract patterns. An alternative to the traditional spelling curriculum, word study is compatible with the current research on effective instruction because it allows students to abstract patterns, make connections between old and new, and build connections through integrated study. Word study does require teachers to be knowledgeable about the spelling system and developmental spelling, and it makes some parents uncomfortable; nevertheless, based on what we know about the English spelling system, how children learn, and the brain, word study makes sense. While learning to spell will always be valued by a literate society, many schools (and parents) need to reevaluate the emphasis they place on traditional rote memorization spelling and weekly tests and explore other options. Based on the research on spelling, integrated word study is an effective and efficient way to teach children how to spell.

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