

# Creating Better Readers and Writers

*The Importance of Direct, Systematic Spelling and  
Handwriting Instruction  
in Improving Academic Performance*

*By J. Richard Gentry, Ph.D., and Steve Graham, Ed.D.*

*Executive Summary*

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## Executive Summary

### ***Literacy: The Foundation of Education***

*“No subject of study is more important than reading . . . all other intellectual powers depend on it.”*

—Jacques Barzun, cultural historian and former Columbia University dean

Reading is at the heart of education, the basic skill upon which all others are built. Learning to write letters and spell words reinforces the letter-naming, phonemic, and word-deciphering skills required in developing literacy.<sup>1</sup> An extensive and evolving body of research shows that direct and explicit spelling and handwriting instruction is required if all students are to master the mechanics of reading and writing—which is not only a requirement of federal and state legislation, but also a critical goal for a nation whose economy has transitioned from a manufacturing to a knowledge base.

### ***The Science of Spelling***

Research in education, psychology, and neurology—including brain-scanning studies<sup>2</sup>—supports the central role that spelling plays in learning to read and write. As children learn to spell, vocabulary increases and word knowledge improves.<sup>3</sup>

Even though spelling is powerfully connected to reading and writing, it is best taught as a standalone subject. As reported by researcher Linda Allal, a sizable number of spelling studies support direct instruction, while “approaches integrating spelling acquisition in text production (integrated approaches) do not yet constitute a well-recognized instructional option validated by long-term empirical research in the classroom.”<sup>4</sup> Although students acquire some spelling knowledge while reading and writing, this process should be augmented by direct instruction that teaches students to examine words in and of themselves.<sup>5</sup> A self-contained basal spelling program that teaches students to spell words from a research-based, grade-by-grade spiraling curriculum based on spelling patterns and words used in student writing is more efficient than learning from context.<sup>6</sup>

Research provides clear evidence that spelling should be taught systematically. The right words and patterns must be presented at the right time in the student’s development. Just as a teacher matches just-right” books to each student for independent reading, he or she must match the right spelling words with each class.<sup>7</sup>

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<sup>1</sup> Steve Graham and others, “The Role of Mechanics in Composing of Elementary School Students: A New Methodological Approach.” *Journal of Education Psychology* 89 (1997): 170-182.

<sup>2</sup> J. Richard Gentry, Ph.D., *Breaking the Code: The New Science of Beginning Reading and Spelling* (Portsmouth, NH: Heinemann, 2006), 7-9; R. Malatesha Joshi and others, “How Words Cast Their Spell: Spelling is an Integral Part of Learning the Language, Not a Matter of Memorization.” *American Educator* 32, no. 4 (Winter 2008-Spring 2009): 6-16, 42-43.

<sup>3</sup> Linnea C. Ehri, “Learning to Read and Learning to Spell Are One and the Same, Almost” in *Learning to Spell: Research, Theory, and Practice Across Languages*, ed. Charles A. Perfetti, Laurence Rieben, and Michael F. Maywah (NJ: Lawrence Erlbaum Associates, 1997): 237-269; R. Malatesha Joshi and P. G. Aaron, “Specific Spelling Disability: Factual or Artifactual?” *Reading and Writing: An Interdisciplinary Journal* 2 (1990): 107-125; R. Malatesha Joshi and P. G. Aaron, “A New Way of Assessing Spelling and its Classroom Applications.” in *Literacy Acquisition, Assessment, and Instruction: The Role of Phonology, Orthography, and Morphology*, ed. R. Malatesha Joshi, Bozydar Kacqmarek, and Che Kan Leong (Amsterdam: IOS Press, 2003): 153-61; Louisa C. Moats, “How Spelling Supports Reading: And Why It Is More Regular and Predictable Than You May Think.” *American Educator* 29, no. 4 (Winter 2005-Spring 2006): 12-22, 42-43.

<sup>4</sup> Linda Allal, *Learning to Spell: Research, Theory, and Practice Across Languages*, ed. Charles A. Perfetti, Laurence Rieben, and Michel Fayol (Mahwah, N.J.: Routledge, 1997), 145.

<sup>5</sup> J. Richard Gentry, Ph.D., *The Science of Spelling* (Portsmouth, NY: Heinemann, 2004), 7.

<sup>6</sup> *Ibid.*, 55.

<sup>7</sup> *Ibid.*, 59.

Components of an effective spelling curriculum include<sup>8</sup>:

- Research-based, developmentally appropriate word lists designed specifically for students at each grade level.
- A bound print or cohesive electronic student text with an included spelling dictionary and thesaurus, with assignments that can be teacher-directed or assigned for independent completion.
- Direct instruction in short, 10- to 15-minute sessions daily or several times a week, using a pretest/study/posttest format.
- Strategies and materials to teach children self-correction techniques and how to study unknown words.
- Word sorting exercises, spelling games, and board games for practice and automaticity.
- Differentiation and modification to support and challenge students at all proficiency levels.
- Technology to enhance instruction, practice, and data management.

### ***Handwriting: Wiring the Brain to Store and Transfer Knowledge***

*"Writing and learning and thinking are the same process."*

—William Zinsser, American writer, editor and teacher

Solid familiarity with the visual shapes of individual letters is an absolute prerequisite for learning to read. Writing aids in letter recognition, the most reliable predictor of future reading success.<sup>9</sup>

Learning to write by hand plays a key role in developing literacy, and handwriting skills remain crucial for success throughout school. The mental processes involved in handwriting are connected to other important learning functions, such as storing and retrieving information from memory, manipulating letters, and linking them to sounds when reading, spelling, and writing.

Effective handwriting instruction begins with teaching the manuscript alphabet, which helps students master the seemingly abstract forms of 26 uppercase and lowercase letters, punctuation symbols, and numerals—114 symbols in all—that they must decode while learning to read. These printed uppercase and lowercase letters closely resemble the type used in children's books, which reinforces letter recognition.<sup>10</sup>

An effective handwriting curriculum gives teachers and students the resources to master both manuscript and cursive handwriting through:

- Lesson plans that provide a logical sequence for studying letter formation in developmentally appropriate ways. For example:
  - Letters that are easier for young children to produce are introduced before more difficult ones.
  - Letters that are formed in similar ways or share common characteristics are grouped together.
  - Easily confusable or reversible letters, such as *u* and *n* or *d* and *b*, are not included in the same unit.
- Textbooks that provide instructions for writing each individual letter, with numbered arrows indicating the nature, order, and direction of component strokes<sup>11</sup> that students can use for tracing and as models for practice.

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<sup>8</sup> Ibid., 56.

<sup>9</sup> Marilyn Jager Adams, *Beginning to Read: Thinking and Learning About Print – A Summary* (Champaign, IL: University of Illinois at Urbana-Champaign, 1990), 55.

<sup>10</sup> Linda Dobbie and Eunice Askov, "Progress of Handwriting Research in the 1980s and Future Prospects." *Journal of Educational Research* 88 (2008): 339-351.

<sup>11</sup> Steve Graham, "Want to Improve Children's Writing? Don't Neglect their Handwriting." *American Educator* 33, no. 4 (Winter 2009-Spring 2010), 23.

- Explicit, hands-on instruction by the teacher in how to form the strokes of each letter, and how to connect letters into words and words into sentences. This instruction should occur in short, 10-to-15-minute sessions daily or several times a week.

Through this carefully planned, explicit handwriting instruction, students increase reading comprehension and develop legible and fluent handwriting. As students learn to recognize and reproduce letters in words quickly and effortlessly, their minds are free to concentrate on meaning. This allows them to generate, organize, and express ideas more effectively.

### ***Providing Critical Support for ELLs***

For English Language Learners (ELLs), it is much more difficult to learn English spelling than spelling in other languages, such as Spanish. Despite the challenges, learning the English spelling system helps ELLs and bilingual students learn letter/sound correspondences, increase vocabulary, and develop greater fluency in reading and writing. Through the study of related words, students begin to see that English spelling, which is complex, is systematic and governed by rules.

Vocabulary acquisition has a greater impact on reading than other factors, including oral language, for ELLs.<sup>12</sup> Words learned by spelling patterns and relationships can assist ELLs in developing a rich vocabulary that supports reading and enhances writing.

Because handwriting is an important communication skill that reinforces reading, spelling, and writing, it also is critical for ELLs. These students need time and explicit instruction to master proper letter formation.

### ***Building Blocks for Succeeding in a Technology-Driven World***

Citing the availability of personal computers, smart phones, and spell-check programs, some discount the importance of spelling and handwriting in the modern world. Yet educators and researchers agree that spelling and handwriting is a critical component of a student's education. Here's why:

- Knowledge of spelling is connected to reading, writing, and vocabulary development, which all depend on the same language abilities.<sup>13</sup>
- In 80 percent of elementary schools, students rarely if ever use word-processing software for writing.<sup>14</sup> Very few classes have enough computers to make regular use of word processors possible.
- While older students use computers to complete lessons, perform research, and write papers, handwriting continues to play a crucial role in note-taking and in the creative process.
- Spell-check programs actually increase the need to teach spelling and precise word usage *more* thoroughly.<sup>15</sup> These programs can identify only words that are misspelled. They ignore words that are correctly spelled but misused.
- In a society in which texting and word processing are commonplace, handwritten communication is perceived as distinctive and special.
- Many historical documents as well as modern letters, thank-you notes, and signatures on business letters, checks, and legal documents are written in cursive. This puts students who cannot read cursive handwriting at a disadvantage.

### **Increasing Instructional Effectiveness Through Technology**

Today's educators employ a variety of technology platforms to increase the effectiveness of spelling and handwriting instruction:

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<sup>12</sup> C. Patrick Proctor and others, "The Intriguing Role of Spanish Language Vocabulary Knowledge in Predicting English Reading Comprehension." *Journal of Educational Psychology* 98 (2006): 159-169.

<sup>13</sup> Catherine E. Snow, Peg Griffin, and Susan M. Burns, eds. *Knowledge to Support the Teaching of Reading: Preparing Teachers for a Changing World* (San Francisco: Jossey-Bass, 2005), 85.

<sup>14</sup> Laura Cutler and Steve Graham, "Primary Grade Writing Instruction: A National Survey." *Journal of Educational Research* 100 (2008): 907-919.

<sup>15</sup> Donna J. Montgomery, George R. Karlan, and Martha Coutinho, "The Effectiveness of Word Processor Spell Checker Programs to Produce Target Words for Misspellings Generated by Students with Learning Disabilities." *Journal of Special Education Technology* 8 (1996): 27-41.

- Interactive whiteboard (IWB) applications are ideal for presenting word sorts, a research-based technique for helping students recognize and understand common spelling patterns as well as the relationships between and among words demonstrated by spelling patterns.
- In handwriting instruction, IWB applications help teachers demonstrate proper letter formation and encourage students to emulate the correct strokes.

### ***A Small Investment Yields Significant and Lasting Results for Students, Schools, and Society***

As governments struggle to balance budgets, they must make difficult decisions about allocating limited funds. Yet, research shows that investments in school quality improvements can, over time, cover the entire costs of primary and secondary schooling.<sup>16</sup>

A small investment in textbooks that provide students with the most current, research-based, and effective spelling and handwriting instruction pays big rewards in increasing student performance across the entire school curriculum:

- In handwriting, students must be able to trace over and write directly beneath the appropriate letter and word models.
- In spelling, a bound textbook contains a dictionary and thesaurus for listed words and keeps the word lists together for the periodic review and assessment that is essential for mastery.
- Authorship by expert handwriting and spelling researchers ensures that lesson plans, word lists, letter formation, and other materials are developmentally appropriate for students.
- Textbooks allow students to practice independently at school and home, while providing tangible guidance to parents that makes it easier for them to take an active role in homework.

Handwriting and spelling textbooks are among the least expensive materials in the entire reading and language arts curriculum. The cost per pupil can be up to 75 percent less than the cost of implementing a reading program on an average per pupil cost basis. Such a small investment yields considerable returns, as students' reading, vocabulary, sentence-writing skills, the amount they write, and the quality of their writing all improve along with their spelling and handwriting.<sup>17</sup>

### Providing a Decisive Advantage in High-Stakes Testing

Fast, legible handwriting improves note taking and test performance. Students must be able to quickly record notes to capture contents of lectures, read their notes to study for tests, and write quickly and legibly to complete timed tests.<sup>18</sup>

From elementary school through postsecondary education, the majority of high-stakes tests include the timed impromptu essay, nearly always handwritten, as a measure of writing performance. Components of state proficiency tests, essays on the College Board SAT and ACT, and the majority of Advanced Placement tests require handwritten responses, emphasizing the importance of handwriting in high-stakes testing.

Teaching spelling is a brain-building boon for effective reading comprehension and writing, creating a "dictionary in the brain" for every reader and writer.<sup>19</sup> The more deeply and thoroughly a student knows a word, the more likely he or she is to recognize it, spell it, define it, and use it quickly and appropriately in both the verbal and written sections of high-stakes tests such as the ACT and SAT.

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<sup>16</sup> Eric Hanushek, "Why Quality Matters in Education." *Finance and Development* (June 2005), 17.

<sup>17</sup> Steve Graham, Karen Harris, and Barbara Fink-Chorzempa, "Is Handwriting Causally Related to Learning to Write? Treatment of Handwriting Problems in Beginning Writers." *Journal of Educational Psychology* 92 (2000): 44-49.

<sup>18</sup> Stephen Peverly and others, "What Predicts Skill in Lecture Note Taking?" *Journal of Educational Psychology* 99 (2007), 69.

<sup>19</sup> J. Richard Gentry, Ph.D., *Raising Confident Readers: How to Teach Your Child to Read and Write—From Baby to Age 7*, (Cambridge, MA: Da Capo Lifelong Books, 2010), 16; Gentry, *The Science of Spelling*, 53; Eraldo Paulesu and others, "Dyslexia: Cultural Diversity and Biological Unity." *Science* 291, no. 5511 (March 16, 2001): 2165-2167.

## Saving Time and Money

A small investment in direct, explicit spelling and handwriting instruction can prevent years of frustration for students, teachers, and parents, and return considerable cost savings by reducing the need for later intervention.

Students who enter college not fully prepared in English or mathematics must take non-credit preparatory courses before beginning coursework leading to a degree. Costs of this remedial education are borne by students, parents, institutions, and taxpayers. About one third of all college freshmen take at least one remedial course. A 1995 study using data from the National Center for Educational Statistics estimated that remedial courses consumed more than \$1 billion, or about one percent, of public education budgets nationally.<sup>20</sup>

Direct, explicit spelling and handwriting instruction is an investment in the future of young students that will create more confident, fluent readers and writers who are prepared to succeed in school, pass high-stakes achievement tests, and perform on the job.

### **About the Authors**

**J. Richard Gentry, Ph.D.**, is an internationally acclaimed author and researcher and is recognized for groundbreaking work in spelling and Pre-K through second grade emergent literacy. His breakthrough insights on the early connections of reading, writing, and spelling are unraveling the mysteries of how teachers should teach and how children learn to read and write. His new book for parents, *Raising Confident Readers*, is the culmination of more than 30 years of experience in childhood education. He is also the author of *Breakthrough in Beginning Reading and Writing*, *Step-by-Step Assessment Guide to Code Breaking*, *Breaking the Code*, and *The Science of Spelling*. His blog posts for *Psychology Today* offer advice to parents on raising readers, writers, and spellers.

**Steve Graham, Ed.D.**, is a Currey Ingram Professor of Special Education and Literacy at Vanderbilt University. Dr. Graham is the editor of *Exceptional Children* and the former editor of *Contemporary Educational Psychology*. He is the author of numerous scholarly articles and coauthor of several books, including *Handbook of Writing Research*, *Handbook of Learning Disabilities*, *Writing Better*, and *Making the Writing Process Work*.

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<sup>20</sup> Jamie P. Merisotis and Ronald A. Phipps, "Remedial Education in Colleges and Universities: What's Really Going On?" *The Review of Higher Education* 24 (2000): 67-85.