CHAPTER 9

Strategies for Handwriting and Spelling

Writing is a complex task that requires the ability to generate, organize, and express ideas. Generally, the process of writing can be divided into two primary areas: *mechanics* and *content* (Richards, 2008). *Mechanics* includes knowledge of grammar, punctuation, and spelling. It also includes the ability to use the muscles in the hands and fingers to physically form words, letter by letter, on paper (Tompkins, 2002). *Content* involves conveying meaning through writing (e.g., vocabulary use, elaboration of detail, organization of ideas) and higher-level cognitive processes such as planning and revision of writing (Spear-Swerling, 2006). Mechanics and content are both necessary to produce written products such as essays and narratives. For example, the more efficient and automatic students are with writing mechanics (e.g., spelling, letter formation), the easier it will be to focus on content: the generation, expression, and organization of ideas (Richards, 2008). This chapter focuses on the *mechanics* of writing. Specifically, this chapter discusses handwriting and spelling. Higher-level writing skills, such as content generation and organization, are discussed further in Chapter 10.

Handwriting and spelling are two major prerequisite skills in the writing process. These skills are typically taught in the early years of school. If students fail to develop these essential prerequisites, they are likely to experience several long-term negative consequences. First, illegibility of written text and misspelled words can negatively influence perceptions about a student's competence as a writer (Graham, 1999; Graham et al., 2008; Graham, Harris, & Hebert, 2011). For example, when teachers were asked to rate the quality of several papers that differed only on legibility of handwriting and number of misspelled words, the papers that were neatly written with fewer spelling errors were rated much higher than those containing multiple spelling errors and poor

legibility (see Chase, 1986). Second, difficulty with forming letters and with spelling may overtax a student's working memory, leaving him or her with fewer mental resources for higher-order skills such as content generation and planning (Graham, 1990, 1999). When students must frequently stop to think about letter formation or how to spell a word, they are interrupting planning and idea generation, which can lead to lost ideas, frustration, and disjointed writing. Several studies have found that explicit instruction in handwriting and spelling can result in increases in the completeness (e.g., number of genre elements) and length of written work (e.g., Graham, McKeown, Kiuhara, & Harris, 2012). Finally, difficulties with handwriting and spelling may cause avoidance of writing tasks, which can lead to a delay in writing development (Berninger, Mizokawa, & Bragg, 1991; Graham, 1999). For example, Berninger and colleagues (1991) noted that young students who experienced difficulties with handwriting were more likely to avoid writing tasks altogether and to develop a belief that they could not write. In summary, teachers must understand that if handwriting and spelling do not become automatic, these skills can substantially limit the writing process, causing students to have shorter, less complete writing that is perceived as qualitatively poor.

PROBLEMS FOR STUDENTS WITH LEARNING DISABILITIES AND ATTENTION-DEFICIT/HYPERACTIVITY DISORDER

Students with LD and ADHD often experience more difficulty with handwriting and spelling than their typically developing peers (Barkley, 2006; Graham & Weintraub, 1996). These difficulties are evident early on and often persist well into later grades. As we noted previously, these problems may influence students' ability to attend to higher-level skills such as planning and organizing text.

Handwriting

For some students with LD and ADHD, the physical act of producing text is extremely laborious. Students with LD often have difficulty with their rate of text production, producing letters and words slowly even when asked to write as quickly as possible (Isaacson & Gleason, 1997). In many cases, teachers may notice overt physical signs of a student struggling with writing, such as a tight and awkward pencil grip, awkward or unstable body position (e.g., crouched over the paper, not anchoring elbow and forearm on a table when writing), or tiring quickly during writing tasks (e.g., complaining of hand-cramping; National Center for Learning Disabilities [NCLD], 2010). One of the biggest handwriting issues for students with LD and ADHD is legibility of written text. Students with LD or ADHD commonly exhibit problems such as poor letter formation, inconsistent letter size, issues with letter and word spacing, and incorrect use of lower-case and capital letters. Difficulty with letter formation is the most frequent cause of illegibility. Research suggests that six letters (*q*, *j*, *z*, *u*, *n*, and, *k*) account for roughly 48% of the problems in letter formation (Graham, Weintraub, & Berninger, 1998). In some cases, the struggles students encounter with letter formation and text legibility

are related to neatness and spacing of letters. For other students, text and letter legibility may be related to motor control and fine motor skills (see Graham, 1999).

Spelling

Students with LD and ADHD typically experience persistent problems with spelling, which can be especially difficult for these students for several reasons. First, the deficits in reading that many students with LD and ADHD experience typically involve difficulty with decoding. Many of the same weaknesses that impact decoding (e.g., poor phonemic awareness, poor knowledge of letter–sound relationships) also influence spelling (Moats, 1995; Shankweiler & Lundquist, 1993). Poor spellers commonly have weaknesses in their ability to analyze and remember the individual sounds (i.e., phonemes) in the words, such as the sounds associated with *j* or *ch* (International Dyslexia Association [IDA], 2008). Second, poor spellers frequently have trouble remembering the letters in words because they may have trouble noticing or recalling features of those words, such as the syllables in words, and the meaningful parts (i.e., morphemes) of longer words, such as *un-*, *-pect*, or *-able* (International Dyslexia Association, 2008). Finally, many educators have noted that students who struggle with spelling experience difficulty with recalling previously learned words or parts of words (Moats, 1995). For example, a student may be able to sound out and read a word with little effort, but unable to spell that same word correctly.

PREREQUISITE SKILLS

Handwriting

The prerequisites for handwriting fall into four general categories: motor/muscle development, foundational knowledge, establishment of a dominant hand, and posture and pencil grip. First, to form letters fluently (i.e., correctly and quickly), students must have sufficient small muscle development and eye–hand coordination. Otherwise they will be unable to manipulate writing utensils. Second, students need to have foundational skills such as basic stroke formation (e.g., ability to make lines and circles with a pencil), letter recognition, and orientation to written language (e.g., writing from left to right, starting at the top left of a page) to developing fluent handwriting (Polloway, Miller, & Smith, 2003). Third, students must have established a dominant hand (Benbow, Hanft, & Marsh, 1992). If both hands get equal practice at developing fine motor skills (e.g., cutting with scissors, handwriting), students may end up with two mediocre hands rather than one strong, specialized hand. In order for students to do well at forming letters, there should be a dominant hand that becomes specialized at controlling a pencil (Marr, Windsor, & Cermak, 2001).

Another ability related to establishment of a dominant hand is crossing the midline (i.e., imaginary line that runs down the body, separating the right and left halves) with the dominant hand. This means that one hand should be able to move from one side of the body to the other side of the body. Crossing the midline of the body is an important

prerequisite skill required for the appropriate development of a number of motor skills, including handwriting. Midline crossing ability emerges as students develop bilateral coordination skills (e.g., ability to use both sides of the body). As students learn to coordinate a strong hand that is doing something skilled (e.g., cutting, coloring) and an assisting hand that is helping (e.g., holding the paper), the ability to spontaneously cross the midline develops. Young children who have difficultly crossing the body's midline are more likely to have difficulty with writing because it requires coordination of the two halves of the body (e.g., hands doing different tasks) and cross-lateral motion (e.g., dominant hand crossing to the nondominant half of the body).

Finally, proper posture and pencil grip are essential prerequisites to handwriting (see Benbow et al., 1992; Marr et al., 2001). For posture, both feet should be on the floor and the body should be slightly turned to one side. For right-handed writers the body should be angled slightly to the left, and for left-handed writers the body should be angled to the right. In addition, the elbow and forearm of the writing hand should be anchored on the desk. Ideally, the chair should be high enough that when the forearm is extended, the elbow will be at about a 90-degree angle (with the forearm parallel to the floor). For pencil grip, students should hold a pencil with three fingers. The index finger and thumb should hold the pencil while the middle finger provides support for the pencil.

Spelling

Prerequisite skills in spelling are similar to those for early reading skills (e.g., alphabetic principle, phonemic awareness). For example, students should understand that there are systematic and predictable relationships between written letters (graphemes) and spoken sounds (phonemes) and that those sounds can be represented by letters and letter combinations (Armbruster, Lehr, & Osborn, 2001). Phonemes are the smallest unit of sound (e.g., there are three phonemes in the word *cat*: /c/ /a/ /t/). Graphemes are the letters or letter combinations that make up a phoneme (e.g., /k/ sound of the *c* in *cat*). There are more than 40 distinctive phonemes in the English language, but more than 70 letters or letter combinations to symbolize those phonemes. For example, the /ee/ sound can be produced with the graphemes *ee* (e.g., *see*, *feel*), *ea* (e.g., *each*, *peach*), and *ie* (e.g., *piece*). Good spellers have a strong understanding of the relationship between phonemes and graphemes. Knowing the different combinations or patterns of graphemes to represent phonemes is a critical prerequisite for good spelling. Students who have an understanding of patterns and combinations of graphemes are able to spell more words correctly and approach spelling more strategically (e.g., they consider the combinations of graphemes that can make the long-*a* sound before attempting to spell a word). In addition, understanding patterns and frequent combinations of graphemes is helpful to students when spelling because the patterns within words are largely predictable (Moats, 2005). For example, half of all English words can be spelled accurately based on only sound–symbol correspondence (Hanna, Hanna, Hodges, & Rudorf, 1966). This means that the letters used to spell these words also predictably represent their sound patterns (Moats, 2005) and if students are taught these patterns (e.g., when the /k/

sound will be spelled with a *k*, as in *look*, or with *ck*, as in *lack*), they can successfully spell more words.

INSTRUCTION IN HANDWRITING AND SPELLING

In order to improve students' fluency in handwriting and spelling, teachers should directly address these problems. In the sections that follow, we present examples of instructional strategies for teaching and/or remediating handwriting and spelling problems.

Handwriting

Effective handwriting instruction should include four basic components (Troia & Graham, 2003). First, letter and word formation, pencil grip, and paper positioning should be explicitly taught, modeled, practiced, and reviewed. For example, before beginning a writing activity, the teacher should tell students which letters or words are to be learned in the lesson and explicitly show how each letter or word should look, while also highlighting proper pencil grip and paper positioning using "think-aloud" procedures (e.g., "I know I should hold my pencil between my thumb, index finger, and middle finger and make sure my paper is angled toward the left so that my letters and words will look as neat as possible"). However, please note that the use of self-instructions and self-statements should be used only during the acquisition phases of handwriting (e.g., to model how to form a particular letter) and should not be used when students are working toward increasing handwriting fluency. Second, students should be given supports for attaining legible handwriting. For example, teachers might provide pencil tripod grip molds, paper with raised lines, or hand-over-hand assistance in forming letters.

Third, students should be taught to evaluate and improve their own handwriting. For example, if a teacher notices that a student consistently struggles with forming a particular letter or series of letters, the teacher should explain how the letter(s) should look and prompt the student to be aware when writing the letter. The teacher should remind the student that he or she should always go back and reread written work for legibility and correct letters and words that are difficult to read or incorrectly formed. Teachers also play an important role in evaluating handwriting by helping students keep track of their handwriting performance, setting goals for improvement, and correcting poor handwriting when it is noticed. Finally, teachers must stress that students need to be able to produce handwriting fluently, and they must explain why fluent text production is important (e.g., lets the student focus on the content of writing). Teachers can help students increase fluency by providing many opportunities to practice handwriting and by administering speed trials for which students set a goal of copying text 5–10% faster with each trial. There are several commercially available programs for teaching handwriting. Some of these programs are briefly described in Figure 9.1.

Handwriting without Tears
Handwriting without Tears, conceived by Jan Olsen, is a comprehensive program for kindergarten through fifth-grade students that encourages active involvement in the writing process. Incorporates instruction on posture, grip, and paper positioning in addition to instruction on different scripts (e.g., cursive).
www.hwtears.com/hwt
Zaner–Bloser Handwriting (Hackney & Lucas, 1993)
The Zaner–Bloser Handwriting program teaches vertical manuscript/print (as opposed to slanted) using step-by-step instructions and self-evaluation, meaningful practice, and application through engaging activities.
www.zaner-bloser.com
D'Nealian Handwriting Program (Thurber, 1993)
The D'Nealian Handwriting Program teaches a specific type of script that has shared characteristics with print and cursive letters.
www.dnealian.com/index.html
Write-on Handwriting
The Write-on Handwriting program teaches children motor movements needed for text production through multiple instructional tools (e.g., paper- and computer-based exercises). The program includes print and cursive handwriting.
www.writeonhandwriting.com/home.htm

FIGURE 9.1. Commercially available handwriting programs.

Scripts: Manuscript, Cursive, D'Nealian

One of the common issues in teaching handwriting involves the script(s) that are taught in school (e.g., the style or type of writing). In the United States students are typically taught two scripts (e.g., manuscript/printing and cursive). Generally, manuscript is introduced in kindergarten or first grade whereas cursive is introduced in later grades (e.g., second or third grade). The D'Nealian Handwriting Program (Thurber, 1993), a commercially available program, is meant to make the transition between manuscript and cursive easier (Graham, 1999) by having students produce manuscript letters using a continuous stroke without lifting the pencil. Despite the fact that most students learn both manuscript and cursive, some educators have recommended that only one script be taught to students who struggle with handwriting (Graham, 2010). The recommendation has been to teach traditional manuscript letters because most children come to school already knowing how to write some manuscript letters and there is evidence to suggest that the use of traditional manuscript in early grades may facilitate reading development (see Graham & Miller, 1980).

Although the specific script taught to students may seem like an important decision, the impact of specific programs and scripts on students' handwriting is still unknown. There is little evidence to support one program or script over another (see Polloway et

al., 2012; Wood, Webster, Gullickson, & Walker, 1987). What is clear is that handwriting can be difficult for some students regardless of the script used, and teachers should be prepared to address any deficiencies as they arise. Several suggestions for remediation have been suggested.

Guidelines for Teaching Handwriting

Vaughn and Bos (2012, p. 312) recommended several guidelines for teaching and remediating handwriting:

1. Teach handwriting explicitly, including how to form letters. Teachers should not assume that students will develop insights into letter formation on their own. Instead, teachers should voice the steps in writing letters (e.g., "Start with your pencil on the top line and draw a straight line down to the bottom line").

2. Provide modeling and frequent feedback.

3. Initially focus on the motor pattern and then increasingly focus on legibility. The first step in learning a new letter or word should be to practice forming the letter or word. Once the motor pattern is established, the student should repeatedly form the letter or word while focusing on neatness and accuracy.

4. Teach handwriting several times a week (e.g., 5 days a week for 15 minutes at a time).

5. In addition to short lessons on letter formation, provide handwriting instruction in the context of writing assignments. For example, if students are working on narrative writing, provide feedback on handwriting in the context of the student's narrative. In addition, if a teacher knows that a student or group of students is struggling with a particular aspect of handwriting (e.g., neatness and legibility), the teacher should imbed instruction and modeling about these aspects in lessons related to narrative writing.

6. Handwriting skills should be overlearned in isolation and then applied in context. This means that students should practice letters or words in isolation (e.g., write the letter *m* 10 times) until they become more fluent. Once the motor pattern associated with the letter or word is learned, students can begin to practice the letter in the context of words and sentences.

7. Ask students to evaluate their own handwriting and the handwriting of others, when appropriate. If students are able to critique the handwriting of peers, it can be a useful exercise in critical evaluation of handwriting skills. However, peer evaluation is not always possible or appropriate. In this case, teachers should encourage students to critically evaluate their own handwriting for clarity and neatness. In some cases, teachers may want to provide students with a checklist or guide for evaluating their own handwriting (e.g., "Are there spaces between each word?," "Can I identify individual letters within each word?," "Can I read all the words in the passage?").

8. Teachers should ensure that their own handwriting is a model for the neatness and legibility that are expected of the students. In addition, teachers can use frequent,

short "think-alouds" to highlight their own thought processes related to handwriting (e.g., "Oh, wow! I can't even read my own writing here. I guess I should erase and write it again so that my letters are neatly written and easy for anyone to read and understand").

9. In the beginning stages of letter formation, letter writing and letter naming should be integrated into instruction. Specifically, teachers should encourage students to voice the names of the letters that are being written. For example, if students were practicing the letter *m*, they would be expected to say *m* each time they wrote the letter.

10. Once students are proficient in letter formation, fluency should be increased. Students need to work toward writing neatly and quickly. Teachers can encourage this by asking students to write as quickly and legibly as possible.

Self-Instructional Strategy

The following six-step self-instructional strategy (Graham, 1983b) has resulted in improved handwriting when taught to students.

1. The teacher models the writing of a target letter and describes how to form the letter. Students then describe the formation of the letter. *This step is repeated three times.*
2. The teacher writes the letter *while* describing the process. This continues until students can describe the process for writing the letter.
3. Students trace the letter while the teacher and students describe the process of letter formation together.
4. The teacher writes the letter, traces it, and then discusses the process while including any corrections (e.g., "My letter is too slanted") and self-reinforcement (e.g., "That looks a lot better!"). This step continues, with and without errors, until students can model the process.
5. The teacher writes the letter, and the students copy the letter while describing the process and self-correcting as necessary. Students should complete this step successfully three times before moving to Step 6.
6. Students write the letter from memory.

Spelling

Spelling is typically taught in most classrooms through the use of word lists and weekly spelling tests or through an integrated reading and writing approach. The first approach includes a prescribed list of weekly words that should be learned by all students in a classroom or group (Polloway et al., 2012). A typical classroom procedure might entail the following:

1. New spelling words for the week are introduced on Monday, by providing students with a list of new words to be practiced and learned. In some cases, the weekly words might follow a theme (e.g., homophones, *ou* words). For example,

a weekly spelling list might include homophones such as *to, too, two, be, bee, dew, due,* and *do.*

2. A spelling pretest of new words is administered the same day.
3. On Tuesday, Wednesday, and Thursday students practice the spelling words through independent activities such as using spelling words in sentences, finding words in the dictionary, or writing the words several times.
4. On Friday a posttest is given to determine which spelling words were learned.

Although not every classroom uses these exact procedures, most classrooms follow a procedure similar to this to teach the spelling of words.

The second approach involves immersing students in literacy-rich environments and providing giving them multiple opportunities to read and write for authentic purposes (Graham, 1999, 2000). According to this view, students "catch" most of their spelling skills through engaging in reading and writing activities. For example, students may be exposed to spelling through the teacher's modeling of correct spelling while writing in class, by sharing their own writing with peers, or through reading different texts. In addition, teachers use mini-lessons and teachable moments to explicitly instruct students on a particular skill, as the need arises (e.g., if a student is struggling to notice a spelling pattern in a particular word). For students with LD, however, there is little evidence to support the efficacy of this approach for teaching spelling (Graham, 1999). Research suggests that students with LD and those who find reading and spelling challenging will learn to spell only a small proportion of the words they encounter and are less likely than their typically developing peers to learn the correct spelling of a word by encountering it in reading material (Graham, 1999; Ormrod, 1985). As a result, it is important for teachers to explicitly teach spelling skills to students with LD.

Guidelines for Teaching Spelling

Generally, spelling instruction should include four components (Graham, 1999). First, students should be explicitly taught how to spell words they frequently use in their writing. Second, students should learn how to generate plausible spellings for unknown words. This can be done through strategies such as *spelling by analogy* (further explained below). Third, students need to know how to detect and correct spelling miscues when they occur. This can include learning how to appropriately use resources such as spell checkers, help from peers, and using dictionaries. Finally, students need to recognize the importance of good spelling and develop a desire to spell correctly (Graham, 1999). Teachers can foster this desire by consistently modeling correct spelling and providing opportunities for students to engage in activities where correct spelling is an expectation (e.g., homework assignments, school/classroom newspaper/blog).

Spelling Strategies

There is no shortcut for becoming better at spelling. To spell better, a student must spend time practicing spelling and generating text using newly practiced words. As a result, in many of the strategies and techniques presented below, students are expected

to write and rewrite a spelling word several times. For example, most of the spelling strategies below require students to look at a correctly spelled word (e.g., list of spelling words), write the word from memory, check the word to ensure that it is spelled correctly, identify any errors, and rewrite the word correctly.

TEST–STUDY–TEST. This technique is commonly used in schools and has been successful with both good and poor spellers (Graham, 1983a; Graham & Miller, 1979). With this technique, students are given a test to determine which spelling words are already known and which words still need to be learned. A new list of words is constructed from the words that were spelled incorrectly on the pretest. These words are studied and the test is readministered to determine which words were mastered (Graham, 1999).

CORRECTED–TEST. With this technique, students correct specific spelling errors, under the teacher's direction, immediately after being tested or whenever errors are detected while studying (Graham, 1983a). When using this technique, the teacher would administer a test and immediately show students which words were spelled incorrectly. The teacher would then prompt students to correct any errors and carefully monitor them as they practice writing the words correctly. These procedures enable students to identify which words are difficult for them, identify parts of words that may be particularly difficulty, and correct errors as soon as they occur and under the supervision of a teacher.

MNEMONIC DEVICES. The use of mnemonic devices has been found useful in teaching students rules associated with spelling (e.g., "*i* before *e* except after *c*") or in memorizing the spelling of specific words. Examples of spelling mnemonics can be found in Figure 9.2. In addition, *acrostics* (further explained in Chapter 14) are mnemonic devices that can help students remember how to spell tricky words. For example, students can create their own "silly sentences" (i.e., acrostic) to help them remember how to spell a word (e.g., "Frieda *r*eally *i*sn't *e*ven *n*eeding *d*ucks" to remember how to spell the word *friend).*

COVER–COPY–COMPARE. This simple, three-step strategy promotes acquisition of spelling words by engaging students in a step-by-step practice routine. This method

"*i* before *e* except after *c*, unless it sounds like an *a* as in *neighbor* and *weigh*."

They went *together* to-get-her.

The *principal* is your pal.

An *island* is land surrounded by water.

That liar looks *familiar.*

I lost an *e* in an *argument.*

FIGURE 9.2. Examples of mnemonic devices for spelling.

has been used effectively with students with LD and ADHD (Moser, Fishley, Konrad, & Hessler, 2012; Murphy, Hern, McLaughlin, & Williams, 1990; Skinner, McLaughlin, & Logan, 1997). Students are given a spelling sheet with the target words correctly spelled (i.e., a spelling list). Students look at each correctly spelled word, cover the word, and then write the word from memory. Finally, students compare the copied word to the original word. If students determine that they spelled the word correctly, they progress to the next word. If students determine that the response was incorrect, they write the correct response a set number of times. Correction procedures may involve copying the incorrect word only once or copying the word multiple times (e.g., three times). The correction procedures to be used should be determined by the teacher prior to implementing the strategy with students.

FIVE-STEP WORD STUDY STRATEGY. The five-step word study strategy, developed by Harris, Graham, and Freeman (1988; see also Graham & Freeman, 1986) is a variation on the cover–copy–compare strategy and was previously discussed in Chapter 7. The strategy has five recursive steps: (1) Look at the word; (2) say the word aloud; (3) cover the word; (4) write the word three times; and (5) check to see if the word is spelled correctly. If mistakes were made in spelling the word, Steps 1–5 should be repeated. If the word was spelled correctly, the student(s) can move to the next word on the list. Several studies have shown that this strategy, when combined with self-monitoring, is effective for students with LD and ADHD (e.g., Harris et al., 1988; Reid & Harris, 1993).

GENERATE AND TEST. Wong (1986) developed a self-instruction strategy that has been used successfully with students with LD.

1. "Do I know the word?"
2. "How many syllables do I hear in the word (write the number down)?"
3. "Spell out the word."
4. "Do I have the correct number of syllables in my word?"
5. "If yes, is there any part of the word I'm not sure of? Underline that part and try spelling the word again."
6. "Now does the word look right? If so, leave it alone. If it still doesn't look right, underline the part I'm unsure of and try again. *If the word I spelled does not have the correct number of syllables, I should try to hear the word in my head again and find the missing syllable. Then go through Steps 5 and 6 again.*"
7. "When I finish spelling, I should tell myself, 'Good job, I worked hard.'"

SPELLING BY ANALOGY. Spelling by analogy, sometimes referred to as a *word family approach*, teaches students to use common rimes (e.g., *are*) to help spell unfamiliar words. Englert, Hiebert, and Stewart (1985) taught students with LD an analogy strategy based on the spelling rule that parts of words that rhyme are often spelled the same. These students first learned to spell banks of words that contained a specific spelling pattern (e.g., *an*) and then used their knowledge of these words (e.g., *ran, can, fan*) to help them spell new words that rhymed (e.g., *ban, pan, tan*). For some examples of word families, see Figure 9.3.

at family	**op** family	**un** family	**an** family	**ay** family	**it** family	**ot** family
at	hop	run	an	day	it	tot
bat	mop	sun	can	may	fit	rot
cat	top	bun	tan	bay	sit	pot
fat	cop	fun	ran	pay	lit	lot
mat	lop	gun	pan	ray	hit	dot
sat	chop	stun	man	lay	pit	got
pat	plop	shun	fan	clay	wit	cot
rat	crop		ban	stray	quit	blot
chat			than	play	flit	not
that			plan			trot
brat			clan			plot
ill family	**all** family	**ate** family	**eat** family	**oil** family	**ink** family	**ook** family
ill	all	ate	eat	oil	ink	look
pill	call	date	meat	spoil	sink	took
mill	tall	fate	beat	toil	mink	book
will	mall	late	heat	coil	pink	nook
dill	fall	mate	seat	foil	link	cook
drill	hall	bate	treat	broil	wink	hook
trill	wall	plate	pleat		rink	shook
grill	ball	skate			think	crook
thrill	stall				drink	
	small					

FIGURE 9.3. Examples of common word families. Note: This list is not exhaustive.

Editing

In addition to instruction and strategies that explicitly teach students how to generate possible spellings for words or practice new spelling words, some editing and revision strategies include steps that prompt students to check for legibility of text and spelling errors in written work. Two such strategies are discussed in the following section.

COPS

The University of Kansas Institute for Research in Learning Disabilities developed a strategy called *COPS* to assist students in making mechanical revisions (Table 9.1). Through a series of questions students are prompted to monitor and revise any

TABLE 9.1. COPS Revision Strategy

C—Have I capitalized the first word and proper names?
O—How is the overall appearance?
P—Have I put in commas and end punctuation?
S—Have I spelled all the words right?

Note. Based on Schumaker, Deshler, Nolan, Clark, Alley, and Warner (1981).

mechanical errors in their papers. Students follow the mnemonic *COPS*. The *C* reminds them to ask themselves if they have capitalized the first words and proper names. The *O* stands for overall appearance: Students ask themselves, "How is the overall appearance?" This is when students check their handwriting and the general neatness of the paper. The *P* stands for punctuation. Students are prompted to ask themselves, "Have I put in commas and end punctuation?" This component addresses basic mechanics; it helps students attend to end punctuation, as well as punctuation within sentences. The final step in the strategy is the *S*, which stands for spell. Students ask themselves, "Have I spelled all words right?" Students should be encouraged to identify any words that they suspect are spelled incorrectly. Those words need to be checked for accuracy in the same manner that other material in the text is corrected.

Mechanical revisions, or transcription revisions, are essential to composition; too many mechanical errors are distracting to the reader and take away from the intent of the composition. It is also essential for young authors to understand the purpose of writing and to be aware that revisions should not only clean up their writing, but clarify their thoughts.

Detecting and Correcting Errors

Students with LD can be taught to detect and correct errors in their own written language. Graham and Miller (1980) suggested several activities for teaching proofreading and editing skills:

1. Provide a list of words that includes misspelled words to be found.
2. Provide a short passage with spelling errors, including easily recognized errors and misspelling with which the student may currently struggle (e.g., spelling demons).
3. List the number of purposefully misspelled words in a passage and have students locate them.
4. Have students identify the correctly spelled words from several alternative spellings.
5. Provide a passage with words that may be spelled incorrectly and have students identify misspelled words.

Technology and Word Processing

The use of technology, especially word processing, can be helpful for students who struggle with handwriting and spelling for several reasons (Graham, Harris, & MacArthur, 2004). First, using word processing produces neat, legible text. Second, it allows students to add, delete, and move text easily (e.g., without erasing and rewriting). Third, for struggling writers, typed text can be produced more quickly than handwritten text. As a result, more attention can be paid to other aspects of the writing process, such as planning and editing. Finally, a major advantage of using word processing is the support provided for mechanical demands such as spelling (e.g., spell-check), capitalization, and punctuation. In addition to these benefits, research suggests that the use of

word processing has positive effects on the writing quality of struggling writers (see Graham & Perin, 2007a, 2007b).

IMPLEMENTATION PLANS

In this section, we provide partial examples of implementation plans for each of the strategies previously discussed. Please note that when teaching spelling strategies, it may not be necessary to develop a complete implementation plan (i.e., one that includes all stages). In most cases, only some of the SRSD stages are used.

Stage 1 for COPS: Developing and Activating Background Knowledge

Prior to teaching a spelling strategy, it is necessary to evaluate the students' background knowledge, attitudes, and beliefs about spelling. Formal and informal assessments can be used to determine which skills the students already possess and which skills they still need to develop. Doing a task analysis can provide valuable information about the skills that are required for a given strategy and help to determine whether the students

TABLE 9.2. Sample Task Breakdown for COPS Revision Strategy

Strategy	Skills	Assessment
Have I capitalized the first word and proper names?	Knowledge of capital and lowercase letters	Given an informal assessment, the student will correctly produce capital and lowercase letters.
	Knowledge of first word of sentence	Given a paragraph, the student will be able to identify all first letters of sentences and proper names.
	Knowledge of proper names	
How is the overall appearance?	Understanding of neatness of writing (e.g., letter spacing)	Given an informal assessment, the student will write a short paragraph as neatly as possible.
	Ability to write neatly (if a student is unable to write neatly, he or she can type)	Given a paragraph or short narrative written by the student, the student will determine whether the narrative should be rewritten for neatness or whether the narrative will need to be typed.
Have I put in commas and end punctuation?	Knowledge of punctuation	Given text with mechanical errors, the student will be able to satisfactorily correct those errors.
Have I spelled all the words right?	Knowledge of spelling	Provided with a spelling test on common words, the student will be able to write and spell words correctly.

already possess those skills. Table 9.2 shows an example of a task analysis for the COPS strategy.

Stage 2 for Cover–Copy–Compare: Discussing the Strategy

This is the first stage in initiating the strategy when it is important to stress its relevance. During an initial conference the teacher discusses the student's current performance. In order for students to be successful and able to self-regulate the strategy, they need to make a commitment to use the strategy; they need to "buy into" the value of the strategy. Thus, it is important for the teacher to stress this value. Brainstorm with the students on situations wherein using a strategy or completing a given task accurately is important. For example, the following might be appropriate brainstorming ideas in response to the question "When would it be important for you to spell correctly?":

- Writing papers or essays in class
- Completing homework assignments
- Writing e-mails or letters
- Filling out job applications

A sample script for "selling" the strategy is as follows:

"The reason I wanted to talk with you is that we have been working on some new spelling words over these past few weeks. When I was looking at your weekly spelling tests, I noticed that you were making some careless spelling errors that might be because you. . . . Let's look at your last three spelling tests. You really did a nice job with _____. [Point out a few positives; focus on any letter patterns within words or vowel combinations that might have been tricky.] However, I also see that there are several misspelled words and that some of these words were spelled correctly one week and not the following week. This tells me that maybe you didn't spend enough time practicing your spelling words. Remember when we were just talking about why it is important to spell words correctly and you said _____? [Refer back to reasons why spelling is important.] Well, knowing these spelling words will help you to complete your assignments more accurately and earn more points because when I grade your writing in class, I look at how well you spell in addition to the great ideas you think of. Well, I have a strategy that will help you be more efficient with how you study your spelling words. This means that you are going to waste less time and you will be more likely to learn the correct spelling so you can consistently spell the words correctly (on your test, on your assignment, in your papers). The strategy only has three steps, and it's pretty easy to remember because each step tells you exactly what to do when studying spelling words! Cover–copy–compare!"

In this stage we would also introduce the steps of the strategy and any prompts or materials that may be given (Table 9.1).

Stage 3 for COPS: Modeling the Strategy

Here is an example of a think-aloud for the COPS strategy.

"OK, what is it I have to do here? I know, I have to edit my paper. Editing is hard for me, but I know that using my COPS strategy will help me do a good job. I can remember *COPS* because police clean up the neighborhood, and I need to 'police up,' or clean up my paper by editing and making sure that I don't leave any errors (rule breakers). The COPS strategy can help me remember what to do when I am editing. OK, I can do this if I try my best and use my strategy. I should write down the steps of my strategy so I don't forget any of them. OK, *C* stands for *capitalize*—have I capitalized the first word and proper names? Next is *O*. What does *O* stand for? I can't remember. I know, I can just look at the wall chart . . . let's see . . . the chart says, 'Overall appearance—How is the overall appearance?' Oh yeah, I remember that now; I better write it down. Let's see, then *P* is for *punctuation*—have I put in commas and end punctuation? Good, I'm remembering most of this; I can do this! Finally comes *S*, which stands for *spelling*—have I spelled all the words right? Great, I got them all written down; I'm really doing well.

"OK, what do I do now? I need to start with the *C* and ask myself, 'Have I capitalized the first word and proper names?' Let's see . . . oops, here's a sentence that needs a capital letter at the beginning, and oooh, I forgot to capitalize the name of this town. Good thing I'm going over this! OK, that seems to be all of them. What's next? I have written down *O*. I need to ask myself, 'How is the overall appearance?' Well, I should clean up some of my handwriting; I can barely read it, and if I can't read it I'm sure no one else will either! Oh, there are quite a few extra marks, too. I need to erase those and clean up my paper; I want it to look good when I hand it in so maybe I will get a gold star. I would really like one of those gold stars on my paper! OK, all clean; it looks good.

"Now, what do I need to do? What's after *O*? *O* . . . *P*; I need to ask myself, 'Have I put in commas and end punctuation?' I need to remember where to use commas. OK, I use commas when I am listing things; here's a list . . . I remembered to use commas. Way to go! When else do I use commas? I use commas to break up sentences, when I want a pause. Let's see, do I have any long sentences? Yep, here's one that could use a comma! Are there any others? No, I don't see any; looks good! How about that end punctuation? Oops, forgot a period at the end of a sentence, and I really should change that to a question mark. That's an asking sentence, not a telling sentence. The rest of it looks really good. Wow, this is going really well! I like using this strategy—it's kind of fun. I can't believe it, but I'm almost done!

"I'm up to the *S*, the last letter! I need ask myself, 'Have I spelled all the words right?' This is kind of tough for me, but I know I can do it; I've come this far. I can't quit now! OK, let me see . . . most of it looks OK, but there are a few words that I'm just not sure about. I better look those up in the dictionary. That's what we're supposed to do first if we're not sure how to spell a word. . . . OK, all done! I did a great job. Using that strategy and sticking with it really helped me remember what to look for when I'm editing my paper."

Stage 4 for COPS: Memorizing the Strategy

Memorizing the strategy is extremely important! We want students to be able to focus on the task at hand and not on trying to remember the steps of a strategy. The specific activities for encouraging memorization are not nearly as important. There are many appropriate activities. The important aspect of the activities is whether or not they facilitate memorization. You will need to plan and prepare the activities and monitor their effectiveness. Here are some examples of memorization activities for the COPS strategy.

Reciting the Strategy with a Partner

Students are matched up with peers and given a checklist/handout with the COPS strategy. Each student takes a turn "quizzing" his or her partner, using the handout. For example, Student A would have the COPS handout and ask Student B what the *O* in COPS stands for. Once all steps of the strategy have been discussed, the students will switch roles.

Creating a Poster

Students create their own posters (either on a blank piece of paper or on a small note card). The posters should include the steps of the COPS strategy and a picture or reminder of each step. Students can then share their individually made posters with the whole class or in small groups.

Stage 5 for Cover–Copy–Compare: Supporting the Strategy

In this stage, scaffolding the strategy is important. With scaffolding it is possible to gradually transfer strategy ownership from teacher to student. Students need to be given adequate time and support to master the strategy. Here are examples of how to use content, task, and material scaffolding with the cover–copy–compare strategy.

Content

Students are given a spelling list of fewer words with a mixture of unknown and known words. The teacher and students should go through the list together and the teacher should direct the process (e.g., "I think I already know this word, but I should still use my strategy to make sure I learn and practice it correctly"). Next, students receive a spelling list that they have already worked with (e.g., one from the previous week). Students should use the cover–copy–compare strategy to practice each of the words. The teacher can provide a chart, poster, or checklist to ensure that every step is completed.

Task

During collaborative practice the teacher prompts students (or class) by asking them to identify the first step to be completed (i.e., cover); then the teacher describes and models

the step. In subsequent lessons the teacher asks the students to name and describe the steps, and the teacher models the steps. Finally, the students are able to name, describe, and complete the steps on their own.

Materials

Provide students with a mnemonic prompt card to be placed on their desks (see Figure 9.4 for an example). Initially, this card should list the steps of the strategy and what to do at each step. Over time, the card will provide less direction, first fading the descriptions and eventually fading the mnemonic and steps altogether. At this point students should have reached mastery of the strategy and be able to work independently.

Stage 6 for Cover–Copy–Compare: Independent Performance

At this stage students are ready to use the strategy independently. The teacher's main task is to monitor student performance and check on consistent and correct strategy use. Remember that students can make some idiosyncratic changes to the strategy as long as their performance remains high. However, if a student begins making changes to a strategy (e.g., skipping steps, reordering steps) and his or her performance decreases, the teacher may need to reteach certain steps of the strategy or model strategy use again.

1. To get ready, get out your list of spelling words, a piece of paper, and a pencil.

2. Look at the first word you want to learn. Notice any letter patterns in the word.

Cover
- Cover the word after you study it.

Copy
- Write the word from memory on your piece of paper.

Compare
- Uncover the sample word and compare it to what you wrote.

Continue until all words on the spelling list have been spelled and checked.

FIGURE 9.4. Cover–copy–compare poster.

FINAL THOUGHTS

Writing is a complex task that involves the automatic use of basic skills such as handwriting, spelling, and proper grammar usage, in combination with more complex skills such as thought generation, word choice, idea organization, and audience awareness. Students who struggle with the basic skills of writing (e.g., spelling) are more likely to struggle with the complex skills (e.g., idea generation). For example, poor spellers may restrict what they write about to the words they can spell or may lose their thought process (and subsequently their ideas) when they frequently stop to consider the spelling of a word. However, there is good evidence that time spent improving a student's handwriting and spelling skills can result in increases in length of writing and in the number of story or essay elements (e.g., characters, problem, solution). As a result, it is important that students receive explicit instruction in handwriting and spelling early to reduce the likelihood of struggles later on. In addition, explicit instruction in these basic writing skills should be provided to older students who continue to struggle with these skills as they progress through school. Remember that handwriting and spelling are two *critical* prerequisites for acquiring later writing skills—a topic that is discussed further in the following chapter.