Want to Improve Children's Writing?

Don't Neglect Their Handwriting

By Steve Graham

The famed playwright Harold Pinter, having just been introduced as a very good writer, was once asked by a six-year-old boy if he could do a *w*.[1] I suspect that *w* was a difficult letter for this young man, and he judged the writing capability of others accordingly.

This student's assumption—that being a "good writer" means having good handwriting—is not as off base as you might think. In dozens of studies, researchers (including, but certainly not limited to, myself and my colleagues) have found that, done right, early handwriting instruction improves students' writing. Not just its legibility, but its *quantity and quality*.

Of all the knowledge and skills that are required to write, handwriting is the one that places the earliest constraints on writing development. If children cannot form letters—or cannot form them with reasonable legibility and speed—they cannot translate the language in their minds into written text. Struggling with handwriting can lead to a self-fulfilling prophecy in which students avoid writing, come to think of themselves as not being able to write, and fall further and further behind their peers. Just as young readers must learn to decode fluently so they can focus on comprehension, young writers must develop fluent, legible handwriting (and must master other transcription skills like spelling*) so they can focus on generating and organizing ideas.

Handwriting and the Developing Writer

Imagine you have been asked to write something using a Chinese typewriter. This is a very complicated machine, containing about 6,000 characters. Top typing speeds are 11 characters per minute, so you'll have no hope of typing fast enough to keep up with your thoughts. As you write your masterpiece, some of your ideas are likely to slip from memory. Any time you have to hunt for the next character, your memory will be taxed further, resulting in even more of your ideas being forgotten. The act of typing is so demanding, cognitive resources that could be devoted to planning, evaluating, and sharpening text are diverted to simply transcribing it.

For young children, the act of writing is almost this demanding. The thought they must put into how to form letters interferes with other writing processes.[2] Eventually, most people's handwriting becomes fluent and automatic, minimizing that interference.[3] Researchers do not yet know when most youngsters reach this point, but it does not appear to be during the elementary years. In grades 4 to 6, handwriting fluency still accounts for 42 percent of the variability in the quality of children's writing,[4] and students' handwriting speed continues to increase at least until grade 9.[5]

Legibility is also a serious problem that, unfortunately, is inversely related to fluency.

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*For an in-depth article on spelling instruction, see "How Words Cast Their Spell" in the Winter 2008–2009 issue of *American Educator*: www.aft.org/pubs-reports/american_educator/issues/winter08_09/joshi.pdf.

ILLUSTRATIONS BY PAUL ZWOLAK

If students have to write more quickly, when taking notes or working on a timed test, for example, the legibility of their text declines.[6] Estimates of handwriting legibility difficulties in the elementary grades range from 12 percent of children to as high as 44 percent of children in urban schools.[7] And, as all teachers no doubt know, boys are at greater risk for such difficulties than girls.[8]

Legibility obviously causes problems for these students' teachers, but it causes problems for the students too. Studying for a test is quite difficult when students can't read their own notes. Furthermore, readers form judgments, positive or negative, about the quality of text based on its legibility. When teachers are asked to rate multiple versions of the same paper differing only in legibility, neatly written versions of the paper are assigned higher marks for overall quality of writing than are versions with poorer penmanship.[9]

All beginning writers struggle with fluency and legibility to some extent, and that inevitably affects their approach to composing. Young writers typically cope with the multiple demands of handwriting and composing by minimizing the composing process (planning, organizing, etc.). Because so much of their thinking must be devoted to forming legible letters, they turn composing into a knowledge-telling process in which writing is treated as a forward-moving idea-generation activity. A relevant idea is generated and written down, with each new phrase or idea serving as the stimulus for the next one. Mostly absent from this approach to writing are more reflective and demanding thinking activities such as considering the constraints imposed by the topic, the needs of the reader, or the most coherent way to organize the text.[10] As handwriting skills become more automatic and less cognitively demanding, attention and resources for carrying out other writing processes, including those involving more reflection and careful composing, become available. It is important that this occurs early, as the longer the knowledge-telling approach to writing is in place, the more difficult it is to get children to change their writing habits.

Early attention to handwriting is especially important for children who experience difficulty. They often avoid writing whenever possible, and develop a mindset that they cannot write.[11] This, of course, increases the likelihood that they will become poor writers.

Teaching Handwriting

There is considerable scientific evidence, collected over a span of almost 100 years, demonstrating that directly teaching handwriting enhances legibility and fluency.[12] This is not to say less formal teaching methods, such as capitalizing on teachable moments, should be avoided. But the available research does clearly indicate that children—especially those who struggle with handwriting—benefit from carefully planned, explicit handwriting instruction.

Effective handwriting instruction does not require a large investment of school time. During kindergarten and grades 1–3, it should be taught in short sessions several times a week or even daily, with 50 to 100 minutes a week devoted to its mastery.[13] There are considerable returns for such a small investment of time, as students' sentence-writing skills, the amount they write, and the quality of their writing all improve along with their handwriting.[14]

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Just last year, my colleagues and I conducted a national survey of first- through third-grade teachers' beliefs about and instructional strategies for handwriting.[15] We were heartened to find that 90 percent reported that they taught handwriting, devoting an average of 70 minutes a week to it. In addition, more than half agreed that handwriting has important consequences for students, indicating that it influences their grades, the quantity and quality of their writing, and time needed to complete writing assignments.

Only 39 percent of teachers said that their students' handwriting was adequate, however, and just 46 percent indicated their students' handwriting was fast enough to keep up with classroom demands. Even more disconcerting, a mere 12 percent reported that they received adequate preparation to teach handwriting in their college education courses. With these results in mind, the rest of this article is devoted to describing effective handwriting instruction—everything from which script to teach to tackling difficult letters to increasing speed. As you'll see, effective handwriting instruction involves many components. To make it more manageable, my colleagues and I have developed and tested a handwriting program for first-grade teachers. I describe it in the sidebar on page 24 and have posted it online at **www.peabody.vanderbilt.edu/casl.xml** for teachers to use free of charge.

Manuscript, Cursive, D'Nealian, or Italics?

One of the most fundamental issues in explicitly teaching handwriting to students involves the script(s) students are to be taught. In the United States, children are typically taught both manuscript and cursive, as the former is usually introduced in kindergarten or grade 1 and the latter in grade 2 or 3. One relatively common variation on this theme is to teach slanted manuscript letters (the D'Nealian alphabet) that more closely resemble their cursive counterparts than the more traditional manuscript alphabet, which is characterized by round upright letters that resemble type.[16] The supposed purpose of this modified, slanted manuscript alphabet is to make the transition between manuscript and cursive writing easier and more efficient. Despite the generally agreed-upon practice of teaching both manuscript and cursive writing, some educators have challenged the desirability of teaching both manuscript and cursive, recommending that only manuscript be taught[17] or that cursive be emphasized from the start.[18] Still others have advocated the exclusive use of italics.[19]

Unfortunately, research does not provide a definitive answer on the relative effectiveness of different scripts.[20] Even so, I would like to proffer the following recommendation: instruction should start with traditional manuscript letters for the following four reasons. One, most children

come to kindergarten and first grade already knowing how to write some letters. These are typically traditional manuscript letters taught by parents or preschool teachers.[21] Learning a special alphabet, such as D'Nealian, means that children will have to relearn many of the letters they can already write. Two, there is some evidence (although it is dated) that traditional manuscript is easier to learn than cursive writing.[22] Three, once traditional manuscript is mastered, it can be written as fast as cursive, and possibly even more legibly.[23] Four, the use of traditional manuscript in the early grades may actually facilitate reading development.[24] This is likely due to the fact that the material students read is written in manuscript, not cursive.

Regardless of which script(s) a child is taught, it is important to realize that children will inevitably develop their own style. This may involve using slightly more curved lines, eliminating clockwise movements, combining letters from different scripts, and eliminating or modifying some connecting strokes.[25] Such modifications appear to be aimed at increasing handwriting efficiency, as they are commonly associated with faster handwriting. Thus, teachers who insist on a strict adherence to a particular model are likely to frustrate not only themselves, but their students as well.

Students need to be able to quickly and easily name the letters, match each name to its appropriate letter, and write letters when named.

Letter Names

Several years ago, a teacher told me that a young child asked how to write "elemeno," thinking that *l*, *m*, *n*, and *o* were all one letter (the child probably inferred this from the alphabet song where the

To read "Scribble, Scribble, Eh, Mr. Toad?" by Lance Morrow, which appeared in the print edition of the Winter 2009-10 issue of *American Educator*, visit www.time.com/time/magazine/article/0,9171,960730,00.html.

cadence speeds up for these four letters). Because the name of a letter is likely to serve as a cue for retrieving from memory the motor program for writing it,[26] students need to be able to quickly and easily name the letters of the alphabet, match each name to its appropriate letter, and write letters when named. Two examples of procedures designed to strengthen these links include (1) naming each letter as it is initially practiced and, (2) the alphabet practice game in which the student writes the letter that comes after a series of five designated letters (e.g., *c*, *d*, *e*, *f*, *g*) and then writes the letter that comes before them.[27] (For more on these instructional strategies, see the handwriting program described on page 24.)

Letter Forms

The basic goal of handwriting instruction is to help students develop legible writing that can be produced quickly with little conscious attention. A critical ingredient in achieving this goal is teaching students an efficient pattern for forming individual letters. Research has found that examining a model of the letter marked with numbered arrows (indicating the nature, order, and direction of component strokes), combined with reproducing the letter from memory, produced the best handwriting performance in a study with first-grade students at risk for handwriting problems.[28] In contrast, one strategy that is not effective is asking students to overtly verbalize the steps for forming a letter while learning it.[29] Most likely, this strategy does not work well because it uses up children's limited working-memory resources.[30]

Some teachers are not sure how much time students should spend practicing individual letters. It is not a good idea to apply "massed practice" procedures, where

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Pencil on Paper, Let's Go

Effective—and Efficient—Handwriting Instruction

The negative consequences (for both the writer and the reader) of poorly developed handwriting led my colleague, Karen Harris, and me to develop a supplemental instructional program designed to accelerate the handwriting development of the slowest handwriters, including children with disabilities, in first grade. The program's 27 lessons take just 15 minutes each and could be used with the whole class—especially if the teacher is careful to give extra attention to the students with the slowest and least legible handwriting. While we created the program for first-graders, it could also be used with a whole class of kindergartners or as an intervention for second-graders whose handwriting is too slow or illegible. (See the main article for handwriting speed norms by grade and gender.)

In developing the program, we conducted a study with 39 children and found, on average, that children made greater gains in their handwriting and writing than their control-group counterparts, both immediately after completing the program and six months later.[1] These gains included faster and more correctly formed handwriting, greater facility in constructing sentences, and greater output when writing stories. We calculated effect sizes to gauge the statistical and practical significance of our results. The effect size for handwriting was 1.46, for constructing sentences it was .76, and for length of stories it was 1.21. These are large effects, as an effect size of .25 is considered practically significant, whereas an effect size above 1.00 is rare.

Having developed this program under the auspices of the Center to Accelerate Student Learning (CASL), we call it the CASL handwriting program and are pleased to share it with teachers for free. Just go to **www.peabody.vanderbilt.edu/casl.xml**. The program's goals—to teach first-graders how to write letters accurately and fluently—are accomplished by teaching children to name and identify the letters of the alphabet; correctly write lowercase manuscript letters in isolation, in words, and in sentences; and copy connected text more quickly.

The program contains 27 lessons that are divided into nine units (three lessons per unit). In each unit, three lowercase manuscript letters are introduced and practiced. The only exception involves the ninth unit, in which just two letters are taught.

Letters were grouped for instruction based on four criteria. First, the letters in each unit are formed in similar ways or share common formational characteristics (e.g., slanting line letters *v*, *w*, and *y* are grouped together in unit 7). Second, letters that occur more frequently in children's writing are introduced before less frequently occurring ones. Third, letters that are easier for young children to produce are introduced before more difficult ones. Fourth, easily confusable or reversible letters, such as *u* and *n* or *d* and *b*, are not included in the same unit. It was sometimes necessary to emphasize one criterion over another when assigning letters to a unit. For instance, when assigning letters to unit 1, we included the letters that were easiest to produce, but ranked second in terms of frequency of occurrence. The letters for each unit are:

- unit 1 – l, i, t
- unit 2 – o, e, a
- unit 3 – n, s, r
- unit 4 – p, h, f
- unit 5 – c, d, g
- unit 6 – b, u, m
- unit 7 – v, w, y
- unit 8 – x, k, z, and
- unit 9 – j and q.

All lessons were designed to be 15 minutes long and follow a common format, consisting of four activities: Alphabet Warm-Up (two minutes), Alphabet Practice (six minutes), Alphabet Rockets (five minutes), and Alphabet Fun (two minutes). The style of manuscript letters used in the program is Zaner-Bloser continuous script. This script uses traditional upright manuscript letters (as opposed to slanted ones), and most letters are formed using a continuous stroke (in contrast to lifting the pencil from the paper one or more times to form a letter).

Alphabet Warm-Up

Each lesson begins with Alphabet Warm-Up, a series of tasks designed to teach students to name each letter of the alphabet, match letter names with their corresponding symbol, and identify where each letter is placed in the alphabet. Because the name of a letter is likely to serve as a cue for retrieving the motor memory for writing it, children need to be fluent in naming, identifying, and accessing alphabet knowledge.

During the first lesson, when Alphabet Warm-Up is introduced, children are told that "just as an athlete needs to warm up before a game, we are going to warm up by saying letters before writing." The first Alphabet Warm-Up task involves students singing the alphabet song, while pointing to the corresponding letters on an alphabet chart. Once this task is mastered, it is replaced with a second task, where the

teacher says the name of a letter and children point to it on the alphabet chart. When children can do this task accurately and fluently for all alphabet letters, it is modified so that the teacher points to a letter and students name it. With the final task, the teacher says a letter and then asks what letter comes before or after it in the alphabet. Initially, children are encouraged to consult the alphabet chart, but its use is faded as it is no longer needed. For each of these tasks, the teacher provides feedback and assistance as needed.

Alphabet Practice

The second activity in each lesson is Alphabet Practice, in which children are taught how to form lowercase manuscript letters and receive practice writing them in isolation and in words. The format for Alphabet Practice is identical across all nine units of the program.

During the first lesson of all units, the teacher models how to form each letter in that unit (e.g., *l*, *i*, and *t*). Using cards with numbered arrows that show the order and direction of strokes for each letter, the teacher traces and describes aloud how the target letters are formed. Next, children imitate the teacher, tracing each letter, while describing how to write it. The teacher and students then discuss how these letters are similar and different. This is followed by practice tracing, copying, and writing each letter. With a pencil, children trace a copy of the letter that has numbered arrows showing how to form it, trace three copies of the letter without numbered arrows, write the letter three times within the confines of an outline of the letter, and write the letter three times on regular lined paper. While completing these tasks, children say the name of the letter as it is traced, copied, or written (but they do not describe how to write the letter, as that may take up their limited working-memory resources). For each letter, children are also asked to circle their best-formed letter.

The Alphabet Practice tasks for the second and third lessons of each unit are similar to the ones used in the first lesson with the following differences. One, the teacher and students do not discuss similarities and differences in how the target letters are formed. Two, practice tracing, copying, and writing letters is modified so that children trace each target letter and then write it on regular lined paper, circling their best-formed letter. Additional practice is provided during the second lesson by having students copy words containing the target letters (e.g., *till*, *it*, *lit*, *ill*, and *little* for unit 1). During the third lesson, the children copy three hinky-pinkys (e.g., *tutti-frutti*, *willy-nilly*, and *palsy-walsy*). For both of these lessons, students are asked to circle their best-formed word or hinky-pinky, respectively. Last, during the second and third lessons, the teacher uses a highlighter to correct one or more miscues children make while copying a word or hinky-pinky. This might include highlighting difficulties involving letter formation (e.g., breaks, extra lines, and so forth), slant, alignment, spacing, and size. For instance, if a student fails to cross a *t*, the teacher adds the cross using the highlighter, and the child then corrects the miscue by tracing the highlighter mark with a pencil.

Alphabet Rockets

The primary purpose of the third activity, Alphabet Rockets, is to increase students' handwriting fluency or speed of copying text. During the first lesson of each unit, children copy a sentence (26 to 34 letters long) that contains multiple instances of the target letters (e.g., *Little kids like to get letters* for unit 1 on *l*, *i*, and *t*). Students are directed to spend three minutes copying the sentence quickly and without making mistakes. The number of letters copied is then graphed on a performance chart containing three rockets (one for each lesson in the unit).

During the second lesson, students are encouraged to beat, by three letters, their previous performance copying the sentence. A gradual increase in fluency is emphasized, as rapid increases can be accompanied by declines in legibility.[2] After rewriting the sentence for three minutes, the number of letters copied is recorded on the second rocket. If a child's performance increases by three or more letters, the teacher or child draws a big star above the rocket to reinforce the child for achieving the goal. Identical procedures are followed during the third lesson, except the goal increases by three more letters if it was met during the second lesson.

> Children in the program made greater gains in handwriting and writing than their control-group counterparts, both immediately after the program and six months later.

Alphabet Fun

During the final activity of each lesson, students are shown how to write one letter from the unit in an unusual way (e.g., tall and skinny) or use it as part of a picture. Alphabet Fun was included as part of the instructional package so that each lesson ended with an enjoyable activity. When describing this activity, however, teachers are asked not to use the label, Alphabet Fun, as this might imply that other activities are not enjoyable.

–S.G.

Endnotes

1. Steve Graham, Karen R. Harris, and Barbara Fink, "Is Handwriting Causally Related to Learning to Write? Treatment of Handwriting Problems in Beginning Writers," *Journal of Educational Psychology* 92, no. 4 (2000): 620–633.

2. Steve Graham and Naomi Weintraub, "A Review of Handwriting Research: Progress and Prospects from 1980 to 1994," *Educational Psychology Review* 8, no. 1 (1996): 7–87.

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students practice the same letter over and over again in a single session. Instead, once a letter is introduced, students should spend a short time carefully practicing it under the teacher's direction and then evaluate the quality of their efforts (e.g., by circling their two best-formed letters). The letter should then be reviewed and practiced in subsequent sessions as needed.*

The most effective method for facilitating handwriting fluency is to have children write frequently.

Difficult Letters

Although *w* was apparently the most difficult letter for the youngster who quizzed Harold Pinter, it is not among the most difficult letters for most students. In a study involving 300 children,[31] my colleagues and I identified letters that were particularly difficult for children in grades 1 through 3: *q*, *j*, *z*, *u*, *n*, and *k*. These six letters accounted for 48 percent of the omissions, miscues, and illegible attempts students made when writing the lowercase letters of the alphabet. When only illegible responses were considered, the following five letters accounted for 54 percent of miscues: *q*, *z*, *u*, *a*, and *j*. Teachers should pay special attention to these letters during instruction, as they may pose special problems for young writers.

Pencil Grip and Paper Position

When asked about the hardest part of being a writer, one child responded, "That's easy; your hands always hurt from writing so much."[32] While pencil grip need not be perfect, it is important. A child who has a two-fingered death-grip on the tip of the pencil is likely to complain of fatigue or discomfort when asked to write for a sustained period of time. To help ensure that children do not develop such a grip (which can be very hard to change), it is essential that students be encouraged and prompted to use a reasonably comfortable grip, such as the tripod method (in which the pencil is held between the thumb and index finger, resting on the distal phalanx of the middle finger, about an inch from the point), as soon as they start school. And yet, regardless of the type of grip initially taught and reinforced, 50 to 75 percent of children will make some modifications in how they hold the writing instrument as they mature,[33] and such modifications do not appear related to how legibly or quickly most children write.[34]

In addition to pencil grip, teachers need to attend to how children position their paper when writing. Paper position influences the degree and direction of slant in letters. When children are taught traditional manuscript letters, right-handed students should be encouraged to place the page squarely in front of them with the left side at about the center of the body.[35] When the transition to cursive is made, the paper should be rotated about 45 degrees counterclockwise.

Left-handed writers, in contrast, should be encouraged to rotate their paper somewhat clockwise and hold their pencil slightly farther back (about one and a half inches from the tip) than right-handers do.[36] Left-handers who position their papers like right-handers are likely to develop an inverted grip, and this may decrease both the speed and legibility of their writing.

Handwriting Speed

To collect normative data on handwriting speeds, my colleagues and I conducted a study[37] with children in grades 1 through 9. We established the norms by asking children to copy the paragraph from the copying subtest of the Group Diagnostic Reading Aptitude and Achievements Tests[38] as quickly as possible without any mistakes. Students copied the paragraph for one and a half minutes. The results are shown in the table below. Because handwriting speed was influenced by gender, the data are reported separately for girls and boys.

To assess your students' handwriting speed, simply select a short paragraph from a grade-level book and have students spend one and a half minutes legibly copying as much as they can. Extra handwriting instruction may be advisable for students

Mean Handwriting Speeds: Letters per Minute

	Girls	Boys
Grade 1	21	17
Grade 2	36	32
Grade 3	50	45
Grade 4	66	61
Grade 5	75	71
Grade 6	91	78
Grade 7	109	91
Grade 8	118	112
Grade 9	121	114

*To learn more about the benefits of spreading practice out over time, see "Allocating Student Study Time: 'Massed' versus 'Distributed' Practice" in the Summer 2002 issue of *American Educator*: www.aft.org/pubs-reports/american_educator/summer2002/askcognitivescientist.html.

in first, second, and third grades who score 7, 13, and 14 letters, respectively, below the mean. Older students who score 20 letters below the mean are also good candidates for extra assistance.

The most effective method for facilitating handwriting fluency is to have children write frequently. Handwriting speed develops gradually as a consequence of writing connected text. A method that has been used to improve the handwriting speed of especially slow handwriters is self-competition on timed copying exercises. For example, students count the number of letters they copied from a passage during a three-minute period, and in subsequent sessions set goals to gradually increase their fluency as they copy the text.[39] Attempts to increase handwriting speed, however, must be balanced against possible decreases in legibility.[40]

Neatness

Teachers need to be sure that students know when neat and legible handwriting is most important. For example, sloppy first drafts are just fine, but this does not work well for final drafts. Likewise, test and homework answers must be readable. It may be necessary to teach some students how to make handwritten papers neater (e.g., demonstrate how to make good erasures), and then have them systematically check their final drafts to be sure they applied taught skills.[41]

In order to maximize handwriting development, teachers need to explicitly teach it while simultaneously capitalizing on incidental and less formal methods of instruction, such as frequent writing, taking advantage of teachable moments, teacher modeling of correct handwriting, and so forth. With all the competing demands that teachers must juggle each day, it can be difficult to consistently deliver high-quality handwriting instruction. To help, my colleagues and I have developed the checklist of best practices shown here and a handwriting program for first-graders (which we offer at no cost and have posted online at **www.peabody.vanderbilt.edu/casl.xml**). For a thorough description of the program, see "Pencil on Paper, Let's Go" on page 24.

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With the advent of affordable and more

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Checklist of Best Practices

I Teach Children How to Write Each Letter by...

___ Showing them how it is formed.
___ Describing how it is similar to and different from other letters.
___ Using visual cues, such as numbered arrows, as a guide to letter formation.
___ Providing practice tracing, copying, and writing the letter from memory.
___ Keeping instructional sessions short, with frequent reviews and practice.
___ Asking them to identify or circle their best-formed letter or letters.
___ Encouraging them to correct or rewrite poorly formed letters.
___ Monitoring their practice to ensure that letters are formed correctly.
___ Reinforcing their successful efforts and providing corrective feedback as needed.

I Help Children Become More Fluent in Handwriting by...

___ Providing them with plenty of opportunities to write.
___ Eliminating interfering habits that may reduce handwriting fluency.
___ Having them copy a short passage several times, trying to write it a little faster each time.

I Promote Handwriting Development by...

___ Making sure that each child develops a comfortable and efficient pencil grip.
___ Encouraging children to sit in an upright position, leaning slightly forward, as they write.
___ Showing them how to place or position their paper when writing.
___ Teaching children to identify and name the letters of the alphabet.
___ Teaching them how to write both uppercase and lowercase letters.
___ Allotting 75 to 100 minutes per week to handwriting instruction (in grades 1 through 4).
___ Providing children with plenty of opportunities to use different types of writing instruments and paper.
___ Asking children to set goals for improving specific aspects of their handwriting.
___ Implementing appropriate procedures for left-handed writers, such as how to properly place or position their paper when writing.
___ Monitoring students' handwriting, paying special attention to their instructional needs in letter formation, spacing, slant, alignment, size, and line quality.
___ Dramatizing children's progress in handwriting through the use of charts or graphs, praise, or posting neatly written papers.

I Assist Students Who Are Experiencing Difficulty by...

___ Organizing my class so that I can provide additional handwriting instruction to children who need it.
___ Coordinating my handwriting instruction with the efforts of other professionals, such as an occupational therapist.
___ Placing special emphasis on teaching difficult letters, such as *a, j, k, n, q, u,* and *z,* as well as reversals.
___ Ensuring that they master one style of handwriting before a second style is introduced.
___ Considering if an alternative to handwriting, such as word processing or using a speech recognition program, is warranted.
___ Helping them develop positive attitudes about handwriting.
___ Talking with their parents about my handwriting program and soliciting advice.

I Make Sure That I...

___ Encourage students to make all final drafts of papers neat and legible.
___ Maintain a balanced perspective on the role of handwriting in learning to write.

SOURCE: STEVE GRAHAM AND KAREN R. HARRIS, "PREVENTION AND INTERVENTION FOR STRUGGLING WRITERS," IN *INTERVENTIONS FOR ACADEMIC AND BEHAVIOR PROBLEMS II: PREVENTIVE AND REMEDIAL APPROACHES*, ED. MARK R. SHINN, HILL M. WALKER, AND GARY STONER (BETHESDA, MD: NATIONAL ASSOCIATION OF SCHOOL PSYCHOLOGISTS, 2002), 599.

Handwriting

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sophisticated personal computers and newer writing tools, it seems that the death of handwriting draws closer every year. Lance Morrow did a great job of capturing this sentiment in his tongue-and-cheek article (see page 22), in which the pursuer of all things shiny and new, Toad, of Toad Hall, from *The Wind in the Willows*, enthusiastically gives up pencil and paper for, in rapid succession, a Smith-Corona portable typewriter, then an electric typewriter, and finally an even more spectacular marvel—a word processor. In the end, of course, he rediscovers the unique power of handwriting, its ability to reveal "changes of mood" and to result in sentences that "take on some of the sinuosities of script."

Sinuosities aside, it's unlikely that anything will ever be as inexpensive as pen and paper, and yet, a typed note could never be as valuable as a handwritten card from a friend. As Toad found, only handwriting puts "the physical shape and flow" of the author's thoughts on the page.

Nonetheless, it is important to use good common sense when thinking about handwriting. Legible and fluent handwriting is the desired norm, but a small percentage of youngsters will not achieve this goal for a variety of reasons, ranging from physical impairments to learning disabilities. (Fortunately, there are a number of viable alternatives for these students, including traditional word processing, word processing with word prediction capabilities, and speech-to-text synthesis word processing programs.)*

Handwriting has bedeviled more than one professional writer. The handwriting of some of the most successful writers of all time, including the likes of Victor Hugo, James Joyce, and Lord Byron, was almost an illegible scrawl.[42] Difficulty mastering handwriting does not mean the game is lost, it just means writing is more challenging. ☐

*See, for example, Renaissance Learning's keyboard for students with special needs (www.renlearn.com/neo/NEO2/specialneeds/default.aspx), Don Johnston's word prediction program (www.donjohnston.com/products/cowriter/index.html), and Dragon NaturallySpeaking, a speech recognition program (www.nuance.com/naturallyspeaking).

Endnotes

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2. Virginia W. Berninger, "Coordinating Transcription and Text Generation in Working Memory during Composing: Automatic and Constructive Processes," *Learning Disability Quarterly* 22, no. 2 (1999): 99–112; and Steve Graham and Karen R. Harris, "The Role of Self Regulation and Transcription Skills in Writing and Writing Development," *Educational Psychologist* 35, no. 1 (2000): 3–12.

3. Marlene Scardamalia, Carl Bereiter, and Hillel Goelman, "The Role of Production Factors in Writing Ability," in *What Writers Know: The Language, Process, and Structure of Written Discourse*, ed. Martin Nystrand (New York: Academic Press, 1982), 173–210.

4. Steve Graham et al., "The Role of Mechanics in Composing of Elementary School Students: A New Methodological Approach," *Journal of Educational Psychology* 89, no. 1 (1997): 170–182.

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Teachers need to explicitly teach handwriting and capitalize on incidental instruction, such as frequent writing and modeling correct handwriting.