



**Handwriting Without Tears®**

by Learning Without Tears

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# Research Review

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## Why Is Handwriting Important?

### Handwriting in Today's Classroom

Today's elementary classroom has students producing more written work than ever before. To succeed with all of their written assignments, students need to master all the foundational skills of written production.

A survey of K–5 teachers found that elementary students spend up to 58 percent of their classroom instruction time writing on paper. Handwriting plays a significant role in students' work, including journal work, note-taking, math worksheets, science labs, and spelling tests. Students spend up to 20 percent of the instruction day using technology, including computers, interactive whiteboards, and tablets.<sup>1</sup>

Several research studies have found that handwriting is essential in higher grades as well. Students who took notes by hand versus on a computer were shown to have better comprehension of what was being said and had more sustained attention during discussion of text and concepts (Mueller 2014, Peverly 2012).

An engaged, balanced learning environment focuses on both handwriting and keyboarding as foundation skills—not one or the other. When taught both skills, students can successfully tackle any assignment or testing, in any setting. This is especially important during the digital age because as the classroom environment evolves with technology, digital natives need both handwriting and keyboarding to succeed in every subject and to become confident communicators. Learning Without Tears™ provides the developmentally appropriate, grade-level, and cross-curricular lessons for handwriting and keyboarding that lead to proven success.

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### Handwriting and the Brain

Various research studies show the positive impact of handwriting on the developing brain. MRI scans at Indiana University (done before and after letter instruction) found that when children practiced by hand, their neural activity was far more enhanced and adult-like than those who had simply looked at their letters (Harman James 2010). Furthermore, there was initial evidence supporting the

### Developmental Sequence of Handwriting and Keyboarding

Handwriting and keyboarding should be taught in a developmental sequence that follows the way children learn best.<sup>2</sup> Regarding writing performance, research review results indicated that performance on fluency of handwriting and keyboarding were significantly related, particularly on speed (Feng, Lidner, and Ji et al. 2017).

As a rule, research states that learning how to write by hand is a necessary early motor exercise for other cognitive and physical skills. Handwriting has been shown to boost brainpower, aid in memory, improve motor skills as well as become a gateway to reading (McFarland 2015). Handwriting is a foundation skill that needs to be developed early as it affects students' reading, writing, language use, and critical thinking.

Print handwriting is taught beginning in kindergarten. Most students will achieve printing fluency at some point in second grade, then fluency and speed with cursive handwriting by the end of fourth grade. In grade 5, children will develop their personal style that continues into middle and high school.

Pre-keyboarding, finger and hand motor skills, and computer readiness concepts are introduced first in K–2 classrooms. By third grade, keyboarding is emphasized because in third grade children have increased attention to tasks as well as improved motor control, which makes learning to touch type easier. Students should be able to complete typed assignments and assessments as they enter middle school.

idea that printing letters by hand actually formed neural specialization for letters and perhaps paved the way to creating brain systems that were used for subsequent reading (James 2017).

Teaching handwriting has also been shown to have significant impact in the areas of the brain related to literacy development (Berninger 2012; James 2012).

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<sup>1</sup> Based on a survey conducted by Handwriting Without Tears®. The survey interviewed 459 kindergarten through fifth grade teachers from June to August 2013.

<sup>2</sup> See Handwriting & Keyboarding: Standards for the Production & Presentation of Writing. [LWTears.com/resources/handwriting-keyboarding-standards-production-presentation-writing](http://LWTears.com/resources/handwriting-keyboarding-standards-production-presentation-writing)

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## Handwriting Mastery Builds Academic Success in All Subjects

Handwriting fluency is an important component of early learning and communication. To help acquire knowledge and share or demonstrate what they have learned, elementary-aged children need to be able to handwrite automatically, with speed and ease. With the adoption of more rigorous education standards, the emphasis and expectations placed on classroom note-taking and expository writing in grades K–5 are greater than ever.

Efficient transcription skills allow a writer to concentrate on message creation, while poor transcription skills can disrupt the composition process (Mackenzie and Spokes 2018). Studies have shown that handwriting contributes directly to compositional fluency and quality for beginning and developing writers and that automatic letter writing is the single best predictor of length and quality of written composition in younger students (Graham et al., 1997; Graham et al., 2000). Brain-based and applied research evidence lends support to the concept that reading and handwriting are closely linked (James, 2009; Levy et al., 2006; Richey, 2008; Vander Hart et al., 2010). (McEachern and Frijters 2014).

According to a study performed at Indiana University, the mere action of writing by hand unleashes creativity not easily accessed in any other way. And high-tech MRIs have indeed shown that low-tech writing by hand increases neural activity in certain areas of the brain (Olson 2016). Handwriting affects both fluency and the quality of the composition. Christensen (2005) demonstrated how children enrolled in an eight-week handwriting intervention program outperformed their peers in all measures of writing, achieving a 46 percent improvement in the quality of written text beyond the control group (as cited in Medwell and Wray 2007).

Handwriting also builds a solid foundation for success in all subjects. Research shows that handwriting is a foundational skill that can influence students' reading, writing, language use, and critical thinking (Saperstein Associates 2012). It has an important role in brain development, is necessary alongside technology in the classroom, and promotes success in other academic subjects.

Research at Florida International University indicates that handwriting ability in preschool is a strong predictor of reading and math achievement in second grade. Handwriting provides children with the opportunity to create internal models for the symbol system necessary to succeed in academic disciplines (Dinehart 2013).

Struggles with handwriting can affect students' testable skills in other subjects. It also has an adverse effect on self-esteem, which affects academic performance. Good handwriting in all school subjects, including mathematics, is a skill that is highly valued in our society, even in this time of computer technology (Oche 2014). According to a study done by Laura Dinehart, it was found that kids that had those [handwriting] skills early on demonstrated better academic performance once they entered second grade.

**Handwriting is a foundational skill that can influence students' reading, writing, language use, and critical thinking.**

Studies have estimated that between 10 to 30 percent of elementary school children struggle with handwriting (Brown 2018). Research literature extensively documents the consequences of poor handwriting on academic performance. Results indicated a significant positive correlation exists between academic success in writing and reading and quality of handwriting (McCarroll and Fletcher 2017).

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# What Are the Best Practices in Teaching Handwriting?

Handwriting instruction is available through various methods and commercially available programs. Which method provides the best outcome for classroom performance? The answer lies in teacher implementation, an effective curriculum, and student engagement.

## Developmental Progression

Individual district mandates as well as the International Reading Association (IRA) and National Association for the Education of Young Children's (NAEYC) belief that "goals and expectations for young children's achievement in reading and writing should be developmentally appropriate, that is, challenging but achievable, with sufficient adult support" (NAEYC & IRA 2009) communicate a clear need for developmentally appropriate handwriting practices that will provide all students with equal access to foundational skills (Wittrock 2017).

The use of developmentally appropriate practices has become increasingly important as young children face higher academic standards each year. NAEYC recommends that newborn to eight-year-old children learn best from methods that are consistent with developmentally appropriate practices, and all teaching practices should be appropriate to children's age and developmental status, attuned to them as unique individuals, and responsive to the social and cultural contexts in which they live (2009). Their guidelines include using methods that incorporate established, tested practices of child development and learning.

## Multisensory

Handwriting lessons are enhanced by the use of multisensory activities that appeal to different senses and make learning fun, which is critical in the classroom. Children learn best by doing, so there should be many opportunities for active learning. Manipulatives should bring letters to life and provide a variety of different tools and techniques to reinforce lessons and concepts.

Forming letters by hand engages more networks (Berninger 2012) within the brain than keyboarding. Children who learn letter formation learn to recognize letters more quickly (Berninger 2013). Children generate ideas more

easily when writing by hand (Berninger 2012). Finally, it makes for better recall (Hanbury King 2015). However, when introducing multisensory elements into your classroom, they should be consistent with the curriculum being used.

## Consistency

Students need consistent handwriting instruction to develop fluent handwriting skills. This includes both review and mastery of letter formation and writing practice. A consistent handwriting curriculum, beginning in kindergarten, reinforces instruction, letter formation, etc.

## Motor Development

Frequent, explicit demonstrations for groups and individuals assist learners in writing effectively. Demonstrations can include letter formation; linking techniques; pencil grip; paper placement; and hand, arm, and sitting positions (A Handwriting Program 2016).

## Cursive Instruction

As our world becomes increasingly digital, there are questions about the role of cursive in today's elementary classrooms. Cursive plays an important role in the elementary classroom and is faster than printing. Students who learn cursive in upper elementary school have the skills to develop their own personalized style, generally a hybrid of printing and cursive. This hybrid is the most efficient and serves the student throughout their lifetime, enabling them to communicate fluently and quickly.

The ability to write in cursive enables students to complete assignments quickly and take tests in a timely manner.

More states are opting to include cursive handwriting standards in their current education standards, including their adoption of the Common Core State Standards.<sup>3</sup>

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<sup>3</sup> To see how Handwriting Without Tears correlates to the Common Core State Standards and other state standards, visit [LWTears.com/standards](http://LWTears.com/standards).

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Cursive—which is essentially connected printing—builds upon an already established motor and cognitive skill, thus enabling students to quickly master a skill that helps them write more quickly and fluently. Fast, fluent writing is critical in meeting the demands of today’s classrooms. Research has shown that in regard to the speed and quality of writing, spelling, and text construction, students who learned cursive benefited most particularly in spelling and syntax (Bartlett 2018). Therefore, the ability to write in cursive enables students to complete assignments quickly and take tests in a timely manner.

Most children will use cursive to produce their written texts in third and fourth grade, as they are learning keyboarding skills. Timing this instruction enables developmentally appropriate introduction of keyboarding, with the goal of enabling students to start typing short passages by the end of fourth grade.

### **Classroom Time**

Handwriting instruction should be part of the regular instructional day. Short and effective, around 10–15 minutes per day, handwriting practice will lead to handwriting mastery and writing fluency. As stated by Louise Spear-Swerling in 2013, relatively modest investments of instructional time devoted to handwriting—perhaps the equivalent of 10 or 15 minutes daily—may pay off in preventing later writing problems, including difficulties with higher level composition skills. Also, professional development for teachers to effectively teach handwriting in a concise timeframe is beneficial for both students and teachers.

### **Professional Development for Educators**

Though experts agree that specific and direct handwriting instruction is important, the people who teach handwriting to our children are just as important. Many individuals—from parents to Pre-K teachers to elementary educators—direct handwriting instruction. How do they learn to teach handwriting?

Few teacher education programs in the United States today teach handwriting instruction. As a result, the vast majority of our elementary school teachers don’t consider themselves prepared to teach handwriting effectively (Education World 2012).

A survey conducted by Learning Without Tears found that 85 percent of teachers had not received any training to teach handwriting as part of their undergraduate or post-graduate degree coursework (Stepping Into Handwriting 2011). Yet, 85 percent shared it would have been helpful to have handwriting instruction in their coursework.

At Learning Without Tears, our goal is for students to write legibly with speed and consistency. The curriculum aims to make legible and fluent handwriting an easy and automatic skill for all students. By having educators use easy-to-use materials, students can achieve both.

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## What Makes Handwriting Without Tears® the Program of Choice?

Handwriting Without Tears by Learning Without Tears was developed by occupational therapist Jan Z. Olsen and was founded on research-based principles of early childhood development, including how children learn best. It teaches handwriting skills using developmentally appropriate practice and multisensory approaches from printing through cursive.

### Developmental Approach

Teaching handwriting skills based on how children learn best and their developmental abilities leads to success. Such instruction helps children develop good, consistent habits for letter size, formation, and placement. Thus, they will master handwriting more quickly. Handwriting Without Tears essentially delineates the task of handwriting into specific developmental units. It all starts with a no-paper, no-pencil approach to handwriting readiness in Pre-K.<sup>4</sup> Students learn to build letters using physical manipulatives and child friendly, easy-to-remember language.

Handwriting instruction begins in kindergarten. At this early stage, the developmental principles of Arnold Gesell, Ph.D., M.D., are the basis of Handwriting Without Tears' handwriting instruction. Gesell explains how children gradually develop their ability to copy forms in a very predictable order (Gesell 1940). Starting with the vertical line, children progress in their copying abilities to the horizontal line, circle, cross, square, and triangle.

Handwriting Without Tears has a unique teaching order that begins handwriting instruction with letters that start with the vertical stroke. DeWitt (2018) explains that the Handwriting Without Tears curriculum uses a developmental approach wherein letters are grouped by formation and complexity. Students learn the letters in a scaffolded sequence through multisensory lessons that make handwriting mastery engaging and fun.

The unique teaching order of letters helps children build upon previous knowledge. Letters are grouped by formation, with the easier letters taught first, then progressing to the more complicated strokes. Language is simple and consistent throughout each grade, and sets children up for success in their handwriting education.

### Multisensory, Physical Approach

Children learn best when actively engaged in playful learning activities. The use of manipulatives for young learners and diverse learning styles is a core component of the Handwriting Without Tears method. Children develop pre-writing skills as they move, touch, feel, and manipulate real objects.

Handwriting Without Tears incorporates activities for instruction on developing correct crayon and pencil grip, posture, paper positioning, and other physical approaches. As outlined by ABC Pediatric Therapy Network, children become successful hand writers by developing muscle strength, problem solving skills, and hand-eye coordination. A child who does not have the necessary skills that are developed before handwriting (i.e., arm strength, hand-eye coordination, letter and shape perception) will eventually struggle to complete such tasks at school and home. Handwriting Without Tears has a unique strategy for developing grip: using appropriate size writing tools, crayons, and pencils along with teacher demonstration, modeling, and guided practice. Handwriting Without Tears promotes the use of little crayons and pencils for children in Pre-K and kindergarten to match the little size of their hands. Handwriting Without Tears gradually introduces children to standard writing tools as they develop proficiency with writing and grip.

Handwriting Without Tears is suitable for children of all abilities and learning styles, and is easy to teach and incorporate in busy classrooms.

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<sup>4</sup> Get Set for School® is a Pre-K curriculum and is consistent with Handwriting Without Tears best practices. Visit [LWTears.com/gss](http://LWTears.com/gss) for more information.

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## **The Cursive Connection**

The transition to cursive is also easy with the Handwriting Without Tears® cursive programs in second, third, and fourth grade. A simple, vertical style of cursive means the letters look similar to print. The focus on cursive connections helps children develop speed and fluency quickly with cursive. There is also an option to begin cursive instruction in second grade if students are developmentally ready for this new skill.

## **Teacher Support**

Handwriting Without Tears is suitable for children of all abilities and learning styles, and is easy to teach and incorporate in busy classrooms. Children enter the classroom with a wide variety of abilities and experiences. The Handwriting Without Tears manipulatives, instructional exercises, and workbook format ensure success for all children.

Classroom teachers benefit because all students succeed. Administrators benefit because little or no costly handwriting remediation is required.

Handwriting Without Tears sets teachers up for success. Through a variety of professional development opportunities, webinars, and implementation support at the school and district level, Handwriting Without Tears is easy to integrate in your classroom and provides ongoing support for educators.<sup>5</sup>

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<sup>5</sup> For information about professional development options, visit [LWTears.com/training](http://LWTears.com/training).

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## The Proof Is in the Classroom

Handwriting Without Tears® works and is a proven success preparing children for the demands of school.

A 2014 analysis of more than 14,000 students' handwriting screeners completed over three years showed high end-of-year test scores for students using the Handwriting Without Tears curriculum. The screeners measured printing skills and cursive skills. In printing, the skills measured included memory, orientation, placement, and sentence skills.

In cursive, the skills measured lowercase memory and word skills. Students who used Handwriting Without Tears showed significant improvement in test scores across all skills measured in the handwriting screener for both printing and cursive.<sup>6</sup>

A study conducted through the University of Indianapolis measured the effectiveness of Handwriting Without Tears among students in inner city first grade classrooms. Pre and posttest results showed that Handwriting Without Tears was effective at improving memory, orientation, placement, size, start, sequence, control, and spacing skills (Hape 2014).

### Students who use Handwriting Without Tears showed significant improvement in test scores across all skills measured by the Screener of Handwriting Proficiency for both printing and cursive.

In a study by Carol A. Lust and Denise K. Donica, the effectiveness of the Get Set for School® and Handwriting Without Tears® occupational therapy-based handwriting instruction was conducted in Head Start classrooms. Results indicated that Handwriting Without Tears is effective in improving handwriting readiness skills, even when administered in a modified schedule. The study also reinforced that occupational therapy intervention for preschool children to school-aged children improves handwriting skills.

A 2011 study at East Carolina University used the Handwriting Without Tears Pre-K curriculum, Get Set for School, to measure skill improvement in pre-writing skills, kindergarten readiness, name writing, and fine motor skills. This study also used a pre and posttest design, this time in a rural Head Start. Results found that the students using Handwriting Without Tears made significant improvements, and that adding the curriculum to a Head Start program would be beneficial for improving handwriting readiness skills (Lust).

A University of Kentucky study analyzed the effectiveness of the Handwriting Without Tears program by using the Minnesota Handwriting Assessment (MHA) for pre and posttesting in a first grade classroom. The MHA assessed five quality categories of legibility: form, alignment, size, and spacing, along with assessing the students' rate of handwriting. The findings demonstrated that Handwriting Without Tears resulted in overall improvements in handwriting during the first grade school year. Furthermore, it supported the use of a multisensory approach to handwriting, like Handwriting Without Tears, to see classroom improvements (Schneck 2012).

In 2004, Owens demonstrated the positive effects of Handwriting Without Tears with students in inclusion classrooms. Students from her study demonstrated statistically significant improvement in the areas of letter size and spacing compared to students receiving traditional handwriting instruction. Teachers involved in this study were overwhelmingly satisfied with the curriculum's effectiveness and usability and continued to use the curriculum after the study was completed. By incorporating a developmental approach and instructional best practices, Handwriting Without Tears has shown effectiveness in improving handwriting skills for children of all abilities, including those with special needs (Guy 2003; Owens 2004). Teachers were convinced that the time they had spent on handwriting instruction made a huge difference for their students.

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<sup>6</sup> Results were analyzed using the Screener of Handwriting Proficiency, a free, universal screener for whole class and 1:1 instruction. Find more details at [LWTears.com/screener](http://LWTears.com/screener).

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Each year, more than three million children achieve handwriting and academic success with the Handwriting Without Tears curriculum. Based on research, best practices, and more than 40 years of experience, our mission is to make handwriting easy to teach and easy to learn.

**We can help students in your school or district achieve the same great results! Visit [LWTears.com](http://LWTears.com) or call 888.983.8409 for more information.**



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