

# **FIVE Brain-Based Reasons to Teach Handwriting in School Cognitive psychology and neuroscience support teaching handwriting in school**

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Teaching handwriting in elementary school is getting huge support from research in cognitive psychology and [neuroscience](#). Some state legislatures are paying [attention](#) and mandating that handwriting be put back in the elementary school curriculum. That's smart: Handwriting helps support children's literacy and academic development. Here's what the research now says regarding both "why" and "how" to teach it.

Why? #1. Handwriting helps kids develop reading circuitry in their brains.

If we want kids to learn to read, we should teach handwriting beginning in preschool. Brain scanning has demonstrated that handwriting in manuscript helps preschoolers learn their letters (James & Englehardt, 2012). In doing so the child who is learning to print letters is setting up the neural systems that underlie reading. How? By connecting several reading and handwriting distinct shared neural systems or networks in the human brain (James & Englehardt, 2012). Think of writing by hand as being indispensable for helping children develop a brain that reads with proficiency. That's why schools that have thrown out teaching handwriting should bring it back.

Why? #2. Handwriting makes better writers and spellers and predicts reading and academic success.

The handwriting is on the wall. Research shows that learning to write by hand is a key component in improving both spelling ability and written composition. With beginners, handwriting experience facilitates letter learning (James, 2010; Longcamp et al., 2005), and letter learning not only sets up the neural systems that underlie reading, writing, and spelling but it is a primary predictor of later reading success (James & Engelhardt, 2012; Piasta & Wagner, 2010). In addition, handwriting fluency frees the child's mind for more complex composing skills for making meaning (Dinehart, 2015). Much of the current handwriting research demonstrates immediate gains and lasting benefits for academic achievement. Even in upper elementary and middle school, research has shown that learning to write in cursive improved spelling and composing skills (Berninger, 2015). The takeaway? It's worth taking the time in the daily curriculum and it's worth the financial investment in teaching resources for handwriting.

Why? #3. Handwriting makes both children—and adults—smarter! Close those laptops!

Learning handwriting in preschool is better than learning letters on the computer because research shows that handwriting in print—not keyboarding—leads to adult-like neural processing in the visual system of the preschool child’s developing reading brain (Stevenson & Just, 2014). In one study, researchers found gray matter volume and density correlating with higher handwriting quality, which signals more efficient neural processing and higher skills and ability (Gimenez et al., 2014). Furthermore, when older students lack fluency in their writing, composition skills suffer along with [self-esteem](#), grades, and test scores (Stevenson & Just, 2014).

Even in adults handwriting is better than keyboarding for learning. Public Radio International’s Marc Sollinger reports Pam Mueller’s notetaking research at Princeton University that led Sollinger to champion handwriting and implore laptop writers to “Close Your Laptops!” and write notes in longhand. Mueller’s notetaking experiments found that typing on a laptop was much less effective for remembering and synthesizing information. Those lecturer-verbatim laptop notes weren’t as good as longhand for studying for the test or for retrieving information because ENCODING in writing—just as with preschoolers and kindergartners—is better for the learning brain than keyboarding.

How? #4. Start out with teacher modeling.

Exemplary veteran kindergarten teachers and researchers Eileen Fledgus, Isabell Cardonick, and I worked for over thirty years synthesizing the research and showing kindergarten and first grade teachers the benefits of teacher modeling for letter learning and writing. Even if children come to kindergarten classrooms unable to write their own names we have them drawing their story or drawing their information and writing meaningful pieces within a couple of months (Feldgus, Cardonick, & Gentry, in press). Now our techniques are supported by neuroscience and psychological research (see for example Puranik & Alobaita, 2012; Puranik, & Lonigan, 2011; Puranik, Lonigan, & Kim, 2011).

How? #5. Teach handwriting directly and explicitly.

Handwriting is a complex skill engaging cognitive, perceptual, and motor skills simultaneously. It is best learned through direct instruction (Beringner, 2015; Berninger et al. 2006; Hanstra-Bletz and Blote, 1993; Maeland, 1992).

Some schools in the United States have stopped teaching manuscript explicitly in kindergarten and first grade, and stopped teaching cursive beginning in grade 3 ostensibly due to not having time to teach handwriting in elementary school. That’s a mistake. Handwriting for school children is a boon for reading, writing, and spelling. It’s still required in Great Britain—they are getting it right. It’s supported by research. We should be teaching handwriting (and spelling) in the U.S.

Invest in handwriting instruction, and as I reported in previous posts, invest in explicit spelling instruction. If you are a parent, a principal, a school board member, or an [education](#) administrator insist on direct handwriting and spelling instruction throughout primary and elementary school. Both are important stepping stones on the 21st century pathway to academic success.

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