

## What Learning Cursive Does for Your Brain

Cursive writing makes kids smarter

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**Learning cursive is an important tool for cognitive development, particularly in training the brain to learn “functional specialization.”**<sup>[2]</sup>

In the case of learning cursive writing, the brain develops functional specialization that integrates both sensation, movement control and thinking. Brain imaging studies reveal that multiple areas of brain become co-activated during learning of cursive writing of pseudo-letters, as opposed to typing or just visual practice.

To write legible cursive, fine motor control is needed over the fingers.

Cursive activates areas of the brain that do not participate in keyboarding.

<sup>[2]</sup> James, Karin H. and Atwood, Thea P. (2009). The role of sensorimotor learning in the perception of letter-like forms: Tracking the causes of neural specialization for letters. *Cognitive Neuropsychology* 26 (1), 91-100.

**Much of the benefit of hand writing in general comes simply from the self-generated mechanics of drawing letters** <sup>[3]</sup>

Researchers conducted brain scans on pre-literate 5-year olds before and after receiving different letter-learning instruction.

In children who had practiced self-generated printing by hand, the neural activity was far more enhanced and “adult-like” than in those who had simply looked at letters. The brain’s “reading circuit” of linked regions that are activated during reading was activated during hand writing, but not during typing. Writing letters in meaningful context, as opposed to just writing them as drawing objects, produced much more robust activation of many areas in both hemispheres.

In learning to write by hand, even if it is just printing, a child’s brain must:

- Locate each stroke relative to other strokes.
- Learn and remember appropriate size, slant of global form, and feature detail characteristic of each letter.
- Develop categorization skills.

Cursive writing, compared to printing, is even more beneficial because the movement tasks are more demanding. Cursive is also faster and more likely to engage students by providing a better sense of personal style and ownership.

<sup>[3]</sup> James, K.H. and Engelhardt, L. (2013). The effects of handwriting experience on functional brain development in pre-literate children. *Trends in Neuroscience and Education*.

**There is a hand’s unique relationship with the brain when it comes to composing thoughts and ideas.**

Virginia Berninger, a professor at the University of Washington, reported her study of children in grades two, four and six that revealed they wrote more words, faster, and expressed more ideas when writing essays by hand versus with a keyboard.<sup>[4]</sup>

<sup>[4]</sup> Berninger, V. “Evidence-Based, Developmentally Appropriate Writing Skills K–5: Teaching the Orthographic Loop of Working Memory to Write Letters So Developing Writers Can Spell Words and Express Ideas.” Presented at Handwriting in the 21st Century?: An Educational Summit, Washington, D.C., January 23, 2012.

**Cursive writing helps train the brain to integrate visual, and tactile information, and fine motor dexterity** <sup>[5]</sup>

Cursive writing relates to haptics (from the [Greek](#) ἅπτικός, it means *pertaining to the sense of touch* and comes from the Greek verb ἅπτεισθαι *haptesthai*, meaning *to contact or to touch*). Haptics is any form of nonverbal communication involving touch. It includes the interactions of touch, hand movements, and brain function.

The benefits of cursive writing to brain development are similar to what you get with learning to play a musical instrument.

<sup>[5]</sup> Mangan, A., and Velay, J.-L. (2010). Digitizing literacy: reflections on the haptics of writing. In *Advances in Haptics*, edited by M. H. Zadeh. <http://www.intechopen.com/books/advances-in-haptics/digitizing-literacy>.