



IS HANDWRITING BECOMING EXTINCT?

And if it is, should we care? Experts say yes. Here's what we may be losing in the transition from writing by hand to almost exclusively typing.

ILLUSTRATED BY JOEL HOLLAND

Sometimes being a writer is excruciating and slow going, and writing this article was one of those times. After two and a half hours with absolutely nothing to show for it (except a Facebook post), I decided to do something I haven't done since high school: write an article entirely by hand. No in-box. No screen between me

and my words. Just pen and paper and my own thoughts.

It was so . . . quiet. I felt as if I had been lifted out of a noisy shopping mall and deposited at the library. And it turns out this feeling of focused peacefulness wasn't just me. Preliminary evidence suggests that writing with a keyboard doesn't engage your

brain the way writing with pen and paper does; it's more detached and abstract.

"We're in a rush to digitize everything, as if fast and efficient are always positive things," says Anne Mangen, a postdoctoral fellow at Oslo and Akershus University, in Norway, who has written extensively on handwriting and

the brain. "It's worrisome that there's not enough awareness as to how movement can affect the mind"—whether it's wielding a pen or thumbing through papers. Electronic devices swallow up every last opportunity for us to write with pen and paper, from to-do-list apps to calendars. Today, small children often know how to swipe at a screen before they learn how to color. Which leads one to wonder how the demise of handwriting will affect the way they, we, and future generations think, communicate, and remember: Will our brains ever be the same?

As easy as it is to mindlessly doodle your name, a lot actually happens in our brains as we write. A 2012 study at Indiana University used functional magnetic resonance imaging (fMRI) to compare two groups of preschoolers—one having learned letters and symbols by typing, the other by handwriting. The scans showed that the brains of the kids in the typing group didn't distinguish between letters and shapes, but the brains of those in the handwriting group did. Handwriting seems to "prime the brain to respond to letters in a literate way," says psychology professor Karin Harman

James, the study's coauthor. "Typing doesn't." In short, children who learn letters by printing may have an easier time learning to read.

Both preschoolers and adults learning a foreign alphabet also retained more—and for a longer period of time—when they learned by writing rather than with a computer, according to 2005 and 2008 studies at Aix-Marseille University, in France. That's no shock to clinicians, who have long suggested that writing by hand—notes, diaries, lists—is helpful to those with memory loss. In fact, when elderly subjects experiencing mild cognitive impairment took up Chinese calligraphy for eight weeks, their brain function improved, while that of those who didn't got worse, according to a 2011 *Clinical Interventions in Aging* paper by Chinese researchers.

When we write, we're not only memorizing the letters on the paper but also the process and the experience of shaping them. As Thierry Olive, a research

scientist at the National Center for Scientific Research, in Paris, explains, handwriting involves more movement than typing. What's more, while word processing produces uniform letters on a screen that scrolls endlessly, handwriting entails finite space and allows for variation in letter and word size and position. As a result, you remember information not just because you've recorded the words, but also because once you have, you can envision where they've landed on the page and how big or small the text is. "Handwriting is a visual-spatial activity," says Olive, which might explain why you remember appointments better when you pen them on a calendar than when you type them into a smartphone.

Given the flourishes and filigrees of penmanship, it stands to reason that handwriting can foster creativity. Or it may simply be that handwriting, more than typing, requires us to engage in activities that promote creativity—like slowing down and reflecting—

MANUAL ELEVATOR

Writing by hand rather than typing helps us learn new things and remember old things—and might prompt us to be more creative, research suggests.

which are worthwhile whether you're mapping out a thank-you note, a novel, or a sales presentation. "Writing, in a creative sense, is a deep thought process that requires consideration and time," says Ronald Kellogg, a psychology professor at Saint Louis University and author of *The Psychology of Writing* (Oxford University Press). Additionally, handwriting permits expression beyond a straight line, much like doodling, which, according to Sunni Brown, author of the forthcoming book *The Doodle Revolution* (Penguin Portfolio), can "turn on" the neurological networks responsible for imagination and discovery.

And of course, handwriting is a great form of personalized

self-expression, considering how distinctive (or elaborate, or architectural, or sloppy) people's scrawls can be. In new studies at Aix-Marseille University, subjects' MRI scans showed that writing by hand activated the brain's emotional centers as well as its visual and motor systems. It's not surprising, then, that journaling is often used to help those who suffer from depression or have experienced trauma—or that calligraphy, according to the aforementioned 2011 study, can enhance the effects of medication for dementia.

While I don't know if I'll be able to completely forgo composing on the computer, I did feel a tremendous sense of accomplishment having written this article by hand. There's something satisfying about the sight of so many words, the feel of paper thinned a bit from all that ink—and the realization that something so old-school can still be fast and efficient. And I bet I remember more of what I wrote.

—Joanne Chen

WHAT YOUR HANDWRITING SAYS ABOUT YOU

Why do handwritten notes feel so intimate? Graphologists, who study and analyze handwriting, say it's because every stroke reveals a writer's personality, mood, dislikes, and intent. Here, handwriting analysts discuss the hidden meanings in written words.

Half-full
FEELING BLUE

Sentences that slope up signal optimism; those that tilt down, depression, says Michelle Dresbold, author of *Sex, Lies, and Handwriting* (Free Press).

SOCIABLE

Warm Hearted

Big characters suggest outgoingness, says Marc Seifer, author of *The Definitive Book of Handwriting Analysis* (Career Press). Curvaceous ones reveal a sensual personality, adds Dresbold.

EFFUSIVE

WITHDRAWN

When letters slant right, the writer is emotionally effusive; left, she's emotionally withdrawn, according to Dresbold.

impatient

procrastinate

Dots above i's and crosses for t's that run into the next letters signal impatience; if they run to the left, the writer is prone to procrastination, says Dresbold.