

# Handy Handouts®

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## The Importance of Handwriting in Today's Digital World

by Dani Kinsley, OTR/L

There is no denying that methods of learning and classroom participation have changed drastically over the past 20 years as computers, laptops, tablets, and smart phones have blazed onto the educational scene. Whether it is at home or in the classroom setting, children are being exposed to technology-based teaching and learning modalities at an unprecedented rate. Though there can be advantages of learning to use digital mediums, it is still vitally important for children to learn and utilize handwriting strategies. Research has shown that writing by hand rather than typing or using other digital methods can improve understanding and retention for all learners, whether they are new emerging writers in kindergarten or graduate students in a PhD program. Here are the ways that writing by hand continues to trump typing or using a tablet:

### 1. Handwriting Helps to Wire the Brain

According to a 2017 study published by Karin James in the journal *Current Directions in Psychological Science*, writing by hand while learning letters helps to wire and connect five major parts of the brain that will continue to aid in letter recognition, speech and language concepts, visual perception (the brain's ability to recognize and make sense of visual information), memory recall, and motor control (the ability to direct movements of the small and large muscles of the body in a purposeful way). This helps the brain to become more efficient and coordinated. In addition, these specific connections in the brain cannot be achieved by simply watching others write letters, by learning letters through hearing and saying their names, or even by copying or tracing letters, such as when a child uses a letter-tracing digital app.



### 2. Practice Makes Perfect... and Builds Recognition

The same research article by James (2017) reports that writing by hand also helps children to develop significant *form constancy*, which is the ability to identify a form even if it appears different in size, orientation, color, or texture. These skills are developed by learning to write the letters correctly through the process of practicing them over time, therefore changing and improving the letter forms as they naturally become more fluid and consistent.



### 3. Writing by Hand Improves Memory and Recall

Have you ever said (or heard someone say), "Let me write that down so I won't forget it"? It turns out that there are many reasons why writing information down can later help us remember it, even if we never look at our jotted-down notes again. In their 2014 article *The Pen is Mightier Than the Keyboard: Advantages of Longhand Over Laptop Note Taking*, Pam Mueller and Daniel Oppenheimer described a series of research studies they designed which indicate that taking notes by hand actually helps individuals store and later recall presented information. The research findings show that writing by hand does not just benefit early learners but can improve information retention for individuals at all levels of education.



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(cont.)

## 4. Handwriting Improves Comprehension and Conceptual Understanding

The same 2014 study by Mueller and Oppenheimer helps to highlight some of the reasons why taking notes by hand is superior to using a laptop or other digital device. The researchers noted that individuals who note-take using a laptop tend to type what the speaker is saying word-for-word, which decreases both recall and the ability to think critically about the information. Since handwriting is generally slower than typing, it requires the listener to think about and synthesize/rephrase the information as he or she is writing. This helps the learner to both recall the information in greater detail later and to be able to more deeply understand what was taught in a more conceptual way.



## 5. Writing Helps Build Coordination, Strength, and Motor Skills

Writing by hand and practicing pre-writing skills helps children develop visual perceptual and memory skills, but it also greatly enhances fine motor (small muscle movement) and related gross motor (large muscle movement) skills. Handwriting physically requires postural control; core stability; stability of the shoulder complex, elbow, wrist, and finger joints; intrinsic (inner) hand strength and development of the palmar arches; fine motor dexterity and coordination; in-hand manipulation skills; effective grasp; and the ability to recall and coordinate both familiar and new motor patterns as the individual actually puts pen to paper and draws the letter forms. Did you ever know that so many skills go into the “simple” task of writing your own name?



## So... What’s the Best Way to Learn Emerging Letter Skills?

All methods are not created equal when it comes to learning how to recognize and write letters. However, all people learn differently, and many may need to “work up” to some of the more complex skills listed here:

Less effective way to learn → → → → → → → More effective way to learn

**Hear & Repeat:**  
learning letter names by listening and repeating; “naming” or “labeling” letters

**Trace:**  
tracing over a pre-written or pre-printed letter form

**Imitate:**  
watching another person demonstrate writing the letter, then imitating the letter form from the demonstrated model.

**Copy:**  
writing a letter form by looking at a pre-written model and copying it as it appears, no teacher demonstration

**Recall & Produce:**  
recalling what the letter looks like and writing the letter form by memory with no model or demonstration available

Resources:

James, Karin H. “The Importance of Handwriting Experience on the Development of the Literate Brain.” *Current Directions in Psychological Science* 26, no. 6 (December 2017): 502–8. <https://doi.org/10.1177/0963721417709821>.

Mueller, Pam A., and Daniel M. Oppenheimer. “The Pen Is Mightier Than the Keyboard: Advantages of Longhand Over Laptop Note Taking.” *Psychological Science* 25, no. 6 (June 2014): 1159–68. <https://doi.org/10.1177/0956797614524581>.

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