

## PRODUCTIVITY

## The benefits of note-taking by hand



*(Credit: Alamy)*



*By Hettv Roessinsh. University of Calgary* 11th September 2020

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**Computers and phones have become the go-to note-taking method for many. But your brain benefits from an old-fashioned pen and paper.**

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Do you pick up any old notebook and pen when you need them, or do you have a thing **for Moleskines** or **Montblancs**?

Whether or not you're picky, know that tools for the hands are tools for the brain. Handwritten notes are a powerful tool for **encrypting embodied cognition** and in turn supporting the brain's capacity for retrieval of information. And secondly, when you take notes by hand, your hands create a robust external memory storage: your notebook.

Taking notes by hand is a win-win, and **belongs in every student's cognitive tool kit**. Learning how to take notes by hand effectively, and how to ingrain note-taking as a key learning and study tool, can begin as early as grades 3 or 4, but it's never too late to begin.

We live in a digital age where daily functioning involves digital communication. Automaticity in keyboarding is an important skill too, and the tools and applications for digital communication will continue to evolve and have their place. But keyboarding does not provide the tactile feedback to the brain that contact between pencil or pen and paper does — the key to creating the **neurocircuitry in the hand-brain complex**.

### **The processing advantage**

While your laptop might seem faster and more efficient, there are good reasons for having a paper-bound notebook and pen — any kind you prefer — at the ready.

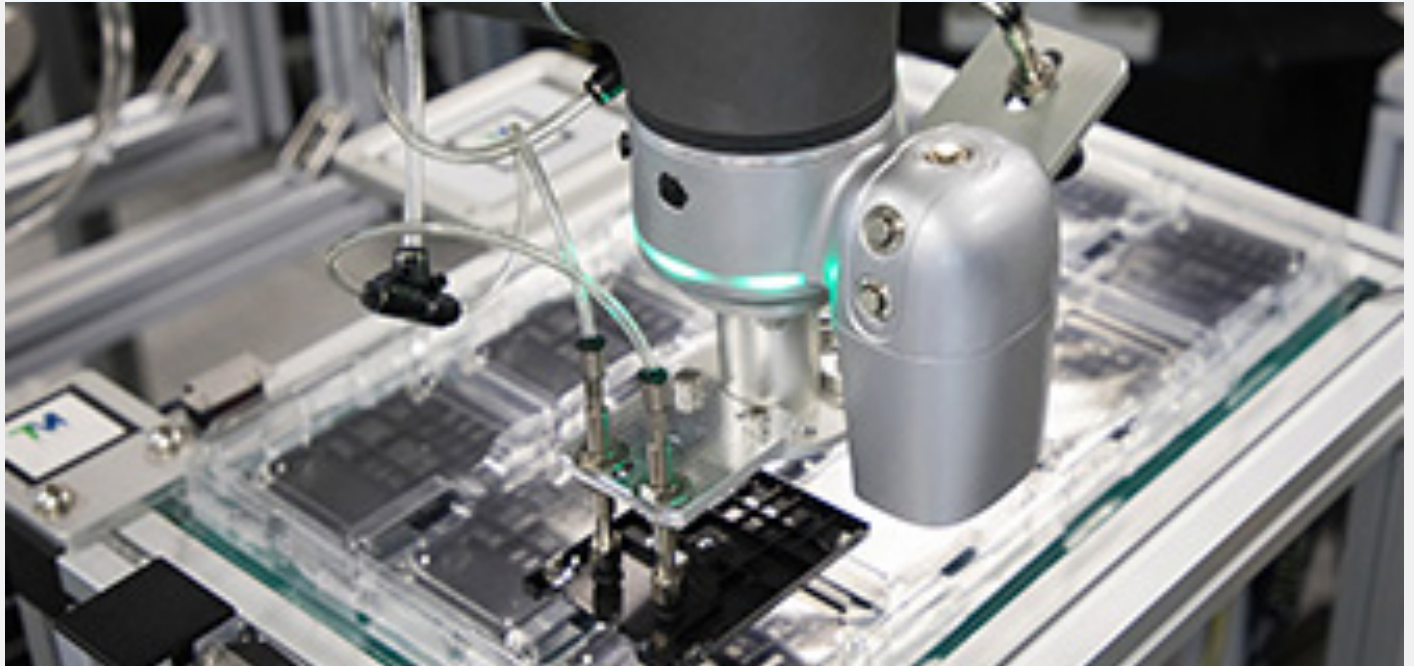
Researchers have found that note-taking associated with keyboarding involves taking notes verbatim in a way **that does not involve processing information**, and so have called this “non-generative” note-taking. By contrast, taking notes by hand involves cognitive engagement in summarising, paraphrasing, organising, concept and

vocabulary mapping — in short, manipulating and transforming information that leads to deeper understanding.

Note-taking becomes note-making: an active involvement in making sense and meaning for later reflection, study or sharing of notes to compare understanding with lab partners or classmates. This becomes a potent study strategy, as one's own **processing can be further consolidated through talk.**

Story continues below

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*Experts say taking notes by hand engages your brain in different ways, makes you interact with the material in different ways, and overall, deepens understanding (Credit: Alamy)*

There are templates and formats that teach **more effective ways** of taking hand-written notes. A popular one is the **Cornell style** developed by **education professor Walter Pauk**. You can also explore other ways that can be adapted for different **study needs, such as compare/contrast charts or webs**.

### **Cognitive demands of note-taking**

Taking good notes depends on fluency of hand, which means legibility and speed combined. This is best achieved with a clean, uncluttered and connected script, meaning **cursive** writing, that young learners can begin to learn in Grade 2. Fluency of hand comes from **instruction and practice in the early years of school**, and sustained opportunities for authentic, purposeful literacy engagements in turn allocating working memory space to the cognitive demands of note-taking.

The move from grades 3 to 4 is a big leap for young learners. Content curriculum in science, social studies, English language arts and mathematics makes accelerated demands on children to shift into academic modes of literacy.

Each year of educational advancement makes increasing demands in reading and writing, understanding and making sense of vast amounts of information in multi-modal formats.



## Sketching and drawing belong, too

Leonardo da Vinci wrote: "...the more minutely you describe, the more you will confuse the mind of the reader and the more you will remove him from knowledge of the thing described. **Therefore it is necessary to make a drawing ... as well as to describe ...**"

The artist's **notebooks reveal a creative, inquiring, inventive mind and man of science and art unparalleled**, centuries ahead of his time. Fergus Craik and Robert Lockhart, pioneers in cognitive neuroscience research, noted three levels of information processing: their **theory lays bare the neuroscience** behind da Vinci's insights centuries ago. When people visually represent knowledge, they can deepen their comprehension **of concepts such as cycles and relationships: as a result, some cognitive researchers advocate teaching different ways of representing knowledge** from an early age.

Florence Nightingale is remembered for her contributions in reforming medicine through her **detailed, meticulous observations, documentation, note-taking and writing**. She is credited with **creating the pie chart to represent this information**.



*Note-taking by hand also allows you to be more detailed, original and observational in how you document information, experts say (Credit: Alamy)*

I assign my own students, preparing to become teachers, the task of sketching the layout of the class where they are working in a field placement. They also take observational hand-written notes recorded in a Cornell template. This assignment is

about interpreting what's going on in the classroom. This process of **documenting provides a good scaffold for later review or reflection** and theorizing the work of classroom teachers.

If writing is a requirement of your profession whether in journalism, teaching, architecture, engineering, fashion and more, you already know the benefits and importance of note-taking and sketching.

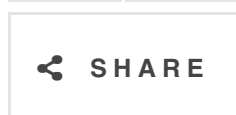
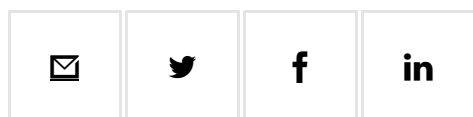
### **Analogue, digital and legacy formats**

When deep understanding and remembering, making personal connection and sparking creative thought are important, **hand-written notes matter and endure over time.**

Interestingly, the art of keeping a paper diary, journal or planner has generated **scores of online communities.** Many find pleasure in keeping calendars, daily organizers, cards and notes and lists of all kinds, and writing family stories for the next generation all by hand — and **then sharing them digitally.**

For serious students, note-taking is an indispensable cognitive tool and study technique. Creating neurocircuitry for memory and meaning through the hand-brain complex is the key to understanding the value of hand-written notes. Think twice before relying solely on your laptop this fall!

*Hetty Roessingh is a professor of education at the University of Calgary.*



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