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# Ditch the laptop and pick up a pen, class. Researchers say it's better for note taking.

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Using technology in the classroom can produce fabulous results, but for note-taking, it may pay to keep it old-school and stick with pen and paper.

Students who take longhand notes appear to process information more deeply than those who take notes on a laptop, according to a study published this year in Psychological Science. Using the newfangled method generally produces more raw notes, researchers say in the study, “The Pen Is Mightier Than the Keyboard,” which was published in April. (The study was resurfaced this week by Harvard’s Shorenstein Center on Media, Politics and Public Policy, as students return to school.)

But students using laptops tend to do worse than longhand note-takers when answering conceptual questions about the material.

Researchers from Princeton and UCLA conducted several experiments with college students watching TED Talks and other video lectures. In one, longhand note takers wrote down fewer words than those typing on laptops. But the two groups performed about the same when answering factual questions about the lecture material, and students who wrote longhand did much better than laptop note takers on conceptual questions.

What gives? Students using laptops tended to write what they heard verbatim rather than processing the information; that resulted in a sort of “shallower” learning, the researchers said.

In a second experiment, students taking notes on laptops were explicitly told not to write down what they heard word-for-word. It didn’t help; despite the instructions, they still took verbatim notes — and they still did worse on conceptual questions than those taking longhand notes.

In a third experiment, students were able to briefly study their notes before answering questions asked a week after the lecture. Those reviewing their longhand notes did far better than students reviewing their typed notes.

Hope you were taking notes on all of this, by hand. There will be a quiz in the morning.

*[This post has been updated.]*

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