IF DEEP AND LASTING LEARNING IS YOUR GOAL, TAKE CLASS NOTES BY HAND

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March 2, 2019

Introduction

A high school or college student taking a course that meets three times per week will be in class about 45 hours during the semester. Assume at least half of that class time is used by the teacher or professor for mostly speaking and the student for mostly listening and taking notes.

How can the student make the best use of that 20 plus hours if he or she wants to learn concepts, ideas, processes, and facts well enough to be tested on and use them in the course and, more importantly, apply them in subsequent courses and in life and work?

Stated differently, how can the students take notes that both immediately engage them "in a deeper level of processing" and are readily available and useful later for review and application? (Jansen et al. 2017)

Given the ubiquitous laptop computers, the answer would seem to be: Use that technology to take detailed notes. Capture essentially everything the teacher/professor says so that you have everything. What could be better than that?

Not a wise choice -- studies reveal that hand-written notes are much more effective if a student wants to learn, retain, and use concepts, ideas, processes, and facts. See the next section for research results.

Research Findings -- Summarized

As summarized in the following table, research shows that hand-written notes are much more effective for understanding followed by short and long-term retention.

Value Gained	Note Taking Method	
	By Hand	By Computer
A) Capturing most of the teacher's/professor's words	🙁	🙂
B) Concentrating on the teacher/professor and the class	🙂	🙁
C) Understanding important concepts, ideas, processes, and facts	🙂	🙁
D) Performance on test/quiz shortly after the class	🙂	🙁
E) Performance on test/quiz week or more after the class	🙂	🙁

Research Findings -- Explained

Each of the above research findings (A, B, …) is explained as follows:

A) Students can type much faster than they can write and, therefore, if capturing most of the teacher's/professor's words is the goal, taking notes with a computer is clearly superior.

But is that the goal? Learning how to capture all the words would be a worthy goal for someone who aspires to be a stenographer or court reporter -- important jobs.

Back to most high school and college courses. A student's goal should be understanding and remembering -- and eventually using -- the concepts, ideas, processes, and facts offered by the instructor. Learning is much more than recording words. Learning is knowing what the words mean and how to apply that knowledge (Anadale 2017, May 2014).

B) Studies reveal that if students, while in a class, have laptops on and have internet access, half or more will engage in online activities that have nothing to do with the course. Therefore, not only are many students focusing on simply recording words, some students are not, at least for some of the class period, even "there." The laptops are a learning distraction for many of those that have them.

In contrast, students who take notes by hand are more likely to focus on the instructor throughout the class period -- and, therefore, learn more about the course topic (May 2014).

C) As noted near the end of the "A" discussion, learning is much more than recording words. Learning is discovering what the words mean and determining how to apply that knowledge. The student who takes notes by hand can't possibly keep up with the teacher or professor. Therefore, that student listens, sifts, digests, summarizes, and records the essence of the instructor's words. His or her brain is engaged in thinking -- not in simply recording words, like the computer note taker.

Besides challenging their minds, students who take notes by hand use more muscle groups, which engages more of the brain and, therefore, enhances recall.

Bottom line: Most studies of student note taking conducted in the U.S. and other countries conclude that students who take notes by hand learn more and retain more than students who take notes with a computer (Sources: Anadale 2017, Bothwell 2017, Doubek 2014, and May 2014).

For more information about studying learning and what is retained, see the follow discussions of "D" and "E."

D) The most common way to test what students understand and recall is to have one group take notes by hand and another by computer. Then test each group immediately after the class. That method consistently shows that "by hand" note takers do better than "by computer" note takers (Doubek 2014, May 2014). However, Jansen et al. (2017) cite a study in which computer note takers performed better than by-

hand note takers when given a memory test immediatley after a learning experience.

E) However, if testing was deferred by a week or more, and each group could study its notes before the test, would the "by computer" note takers do better because they had more source material to study? No, studies conclude that the "by hand" note takers performed better (Anadale 2017, Bothwell 2017, Doubek 2014, and May 2014).

Related Topics

1) Assume a student wants to do an even better job of taking notes by hand. Then he or she might want to
 read the 2017 article by Oxford Learning -- it describes five note-taking methods. Some of these methods could be done with assistance of a computer.

2) For many teaching and learning ideas, see the 2014 book by Brown et al.

3) One advantage of computer note taking is that the student produces a digital record that can be easily searched and otherwise managed. Anadale (2017) suggests a way to combine the learning-retaining benefit of hand note taking with the searchability benefit of computer note taking. Take notes by hand and then, very soon, type them. The typing will further engage the brain and the typing will provide a searchable and otherwise flexible document.

4) If instructors use all or mostly multiple choice formats to test students, then computer note taking may be more effective because the student has "everything" the instructor said, can try to place it in short-term memory, and regurgitate it on the examination. Is that education?

Is recording/reciting facts the same as thinking critically, where critical thinking is defined as follows?:
That mode of thinking -- about any subject, content, or problem -- in which the thinker improves the quality of his or her thinking by skillfully analyzing, assessing, and reconstructing it. Critical thinking is self-directed, self-disciplined, self-monitored, and self-corrective thinking. It presupposes assent to rigorous standards of excellence and mindful command of their use. It entails effective communication and problem-solving abilities, as well as a commitment to overcome our native egocentrism and sociocentrism?
Source: The Foundation for Critical Thinking 2019.

> I think that the answer to both questions is "no."
> What do you think?

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Image sources: Pixabay - classroom, hand, and computer; Google - stenographer.