Research suggests shorter study periods lead to better recall

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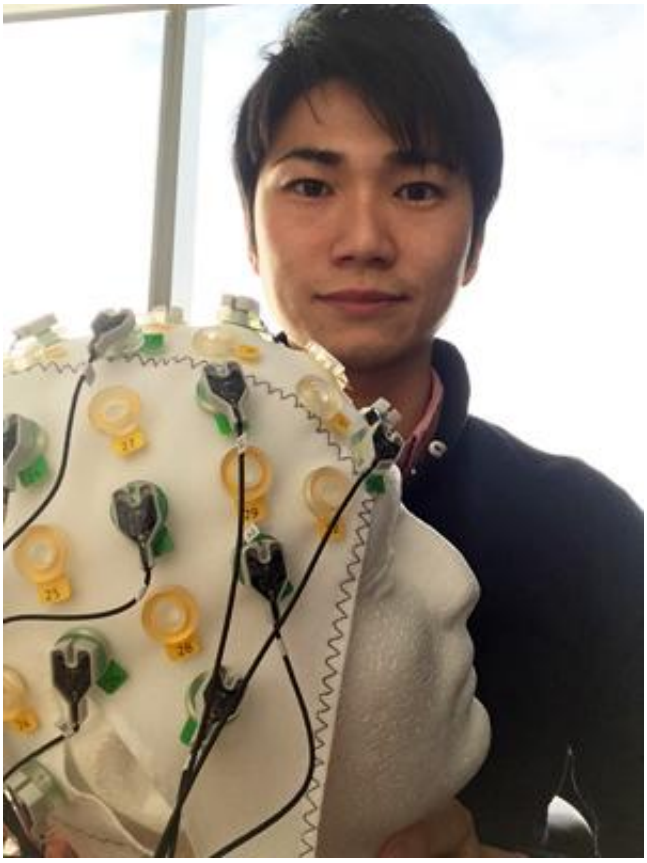

Keisuke Fukuda. Credit: University of Toronto

Here's a study tip for students cramming for upcoming exams: focusing on larger amounts of information for shorter bits of time – we are talking milliseconds – can be more effective than mulling over smaller amounts of material for longer durations.

This is one of the findings of Professor Keisuke Fukuda in UTM's Department of Psychology from an experimental study in his lab.

"I presented individual pictures to participants for 100 milliseconds and had them think about the picture for 500 milliseconds. [Then] I showed the picture for the same amount of time, but had them think about it for about 3 seconds," says Fukuda. "If you have people study each picture for a much shorter amount of time we get to show them more pictures overall."

"I compared which one leads to better learning, and it's the one that had a shorter amount of study time, each time."

Currently, Fukuda's overall research program has a two-part focus. One involves "reading" the mind to understand it better and explore why we have the capacity for a significant amount of memory storage, but also why it sometimes fails us and we forget things easily.

The second is "leading" the mind to make it function more efficiently and improve our ability to learn and retain information.

To do this Fukuda uses scalp electroencephalogram (EEG) technology, with a fabric "beanie" cap that has small, flat metal discs (electrodes) embedded in it. The electrodes monitor electrical activity in the brain while participants are asked to do various memory-related tasks in a controlled setting.

For example, in one study a participant is shown several pictures of different objects and is asked to remember all the details in the picture. Fukuda says this mimics a lot of the visual information we encounter and need to remember on a daily basis, such as where we parked our car or where we put our keys.

Once the stimuli are presented to participants, they will retain some details but forget others, and Fukuda will review the brainwave data collected during the study to see what was going on in the brain that led to successful encoding and remembering. Fukuda is also interested in finding out if there are side effects to trying to improve memory.

Though recollections from our younger years can sometimes be a bit murky, Fukuda remembers quite clearly when he first got interested in memory research as an adolescent.

"I was a struggling high school student, and I hated how horrible my memory is, especially for something that I am not really interested in," says Fukuda.

"I went to high school in Japan where you don't have many electives, so you have a fixed schedule with math for two hours, classical Japanese, etc. But to get into college to do what I wanted to do, I knew I would have to put in a lot of time studying hard, though I didn't want to, so what would be the logical way to do it? I thought I should focus on a more efficient way to study, and in order to figure that out, I needed to know how memory works."

Fukuda says his short-versus-long-study theory was also born out of his learning English in high school, when he would train himself to look at hundreds of words for a short duration, maybe just a second or shorter, to help learn more effectively in less time.

"So that's how I got into this business – as a lazy student," he says with a laugh.

Provided by University of Toronto