Getting Students to Turn Off Digital Distractions and Tune Into Lectures and Learning

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Your Mind on Media

One of the many challenges that can hinder academic success for college students is the barrage of information and entertainment that emanates from their laptops, cell phones, iPods, and other digital devices. Many professors decry the fact that students are surfing the web and playing games during lectures rather than paying attention. Some have even tried to ban computers in class, but such restrictions are difficult to enforce. Moreover, the distractions are equally problematic outside the classroom as students attempt to study and complete class assignments. In any event, rather than forbidding or mandating behavior, it is more effective to motivate students to change because they perceive it as being to their advantage. Students can be persuaded to moderate their digital connections if they are exposed to research findings on multitasking and information overload in a way that they perceive as empowering rather than judgmental. This article describes the essential elements of a program that was designed with that goal.

The Thriving on Campus and in Cyberspace Program

A program titled Thriving on Campus and in Cyberspace: Staying Connected While Succeeding in School (Cantor, 2010) was developed for first-year students and offered during the 2010-2011 academic year at the University of Wisconsin-Madison. The UW Center for the First-Year Experience arranged for the delivery of two lectures—one in a first-year dorm as part of Wisconsin Welcome activities (voluntary attendance, n=18), and one in a one-credit adjustment-to-college class for first-year students (n=16). Because of interest expressed by various members of the faculty, the program was also presented in venues that included upper-class as well as first-year students. The program was given as a guest lecture in two Communication Arts classes (n=93 and n=58) and in a class in the School of Human Ecology (n=58). In addition, Communication Arts students in four courses were invited to an optional lecture for which they could receive extra credit (n=67).

The key components of the program are as follows:

Empathy Rather Than Judgment

The speaker begins by talking about the wonderful digital devices that exist now that were not available when she was an undergraduate. Because of these devices, students have constant access to limitless information, endless entertainment, and 24/7 communication with friends. However, she adds that these new technologies make it much more challenging to get work done when such attractive distractions are always available. She argues that what makes it so difficult is that our brains are not designed to function well in this digital environment, which fosters multitasking and information overload. These two processes interfere with both productivity and creativity (Cantor, 2009).

Active Learning

Students engage in a series of simple brain exercises. One such exercise, an adaptation of the Stroop Test (Stroop, 1935), is used to demonstrate how difficult it is for the brain to multitask. In this test, as each word is flashed on a screen, students must yell out the color of the letters that the word is written in rather than read the word (Figure 1). By doing this they learn how difficult it is for the brain to switch back and forth between modes, something that happens during multitasking. Another exercise, adapted from Crenshaw (2008), has students write two familiar sentences. First, they write one after the other (single-tasking), and then they switch back and forth between the sentences (multitasking). They learn that it takes longer to do two tasks at once than to do them one after the other, and that trying to do them simultaneously produces more errors and increases stress. Another brain exercise involves having students experience information overload by trying to perform three-digit subtraction problems in their heads and observing how they intuitively shield their eyes from receiving distracting visual input.

Interesting Research Findings

Recent research findings that demonstrate the difficulties of multitasking and information overload are also reported. For example, Foerde, Knowlton, and Poldrack, (2006) found that if something is learned while multitasking, only a lower-level portion of the brain is available to each task, and thus what is learned is more like rote memory and is poorly understood. Another study showed that multitasking skills most likely cannot be improved because people who multitask the most are the least effective multitaskers (Ophir, Nass, & Wagner, 2009). The conclusion is that multitasking reduces the brain's workable IQ—that it "dims our bulb," so to speak, and that it is useless to try harder to get better at it. When information overload is discussed, research on how having too many choices interferes with decision-making is cited (Iyengar & Lepper, 2000).

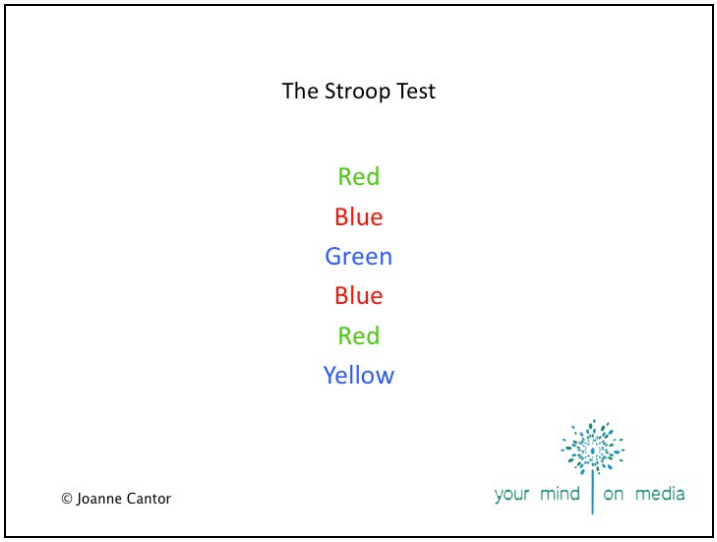

Figure 1. In the Stroop Test, students must call out the color of the letters rather than what each word says.

Colorful Visual Images and Metaphors

In demonstrating how information overload blocks creativity, familiar, colorful objects are used to represent what goes on in the brain. For example, a completely full jar of jelly beans segregated by color (Figure 2) represents how difficult it is to make creative connections (i.e., mixing the colors) when too much information is crowded into a small space. Shaking the jar does not allow the colors to mix. However, when those jelly beans are poured into a much larger container, the colors (representing the elements of a potential solution or creative breakthrough) can easily mix together (Figure 3). Moving from the smaller to the larger container is a metaphor for getting away from tight focus on a problem and allowing the ideas to marinate and consolidate at a sub-conscious level. It illustrates the importance of taking breaks when experiencing information overload and coming back with a fresh perspective.

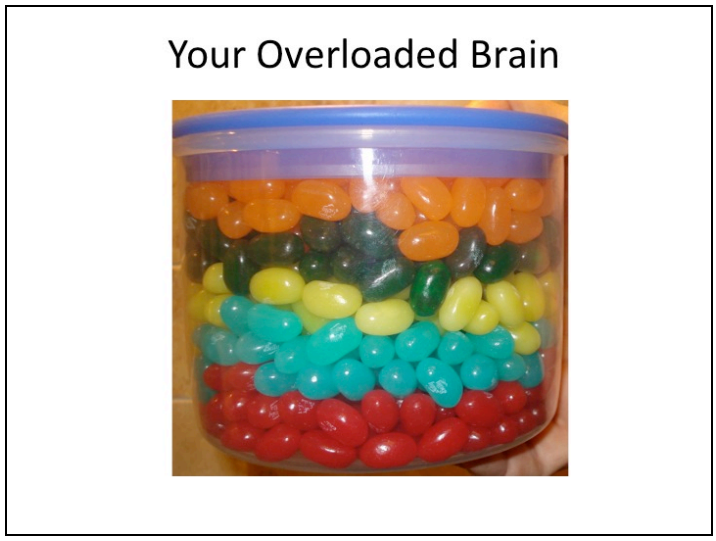

Figure 2. Metaphor for the overloaded brain that has difficulty making creative connections.

Figure 3. The larger container, a metaphor for taking a break and coming back later, allowing ideas to "marinate."

Promotion of Brain-Enhancing Breaks

Research shows that it is more effective to take breaks from studying or working than to plow through hour after hour (Cepeda, Pashler, Vul, Wixted, & Rohrer, 2006). The speaker cites research indicating that a break involving physical exercise brings more oxygen to the brain and promotes the creation of connections between neurons (Medina, 2008). Exposure to nature refreshes the brain better than looking at mortar and bricks (Kaplan, 1995). Sleep not only reinvigorates the brain; it is essential for the consolidation of new memories. People who sleep between studying and taking a test do better than those who do not (Mednick, Cai, Kanady, & Drummond, 2008). In addition, people who sleep on a problem come up with better and more creative solutions (Wagner, Gais, Haider, Verleger, & Born, 2004).

It should be noted that the breaks recommended for brain enhancement (exercise, nature, and sleep) are also activities that promote health and wellness. By promoting these activities, The Thriving on Campus program encourages a balanced lifestyle rather than workaholism; it also emphasizes the importance of stress reduction for both academic success and personal well-being (Cantor, 2009). It argues that stress impairs cognitive functioning (Sapolsky, 1994) and that having fun and interacting with friends are important ways to reduce stress (Thompson, 2009).

Simple Strategies for Putting Information into Practice

The recommended strategies include:

- When learning, memory, quality, or efficiency is important to you, limit your multitasking.
- Save your interruptions for logical breaks during work, rather than answering every contact as it comes in. Turning off alerts for even brief periods of time makes this easier.
- Take breaks when your brain gets too full of information.
- Use exercise, nature, and sleep for brain-enhancing breaks.
- Stay connected with your friends but cooperate on timing so you can get work done.
- Include fun and relaxation in your day. (If you follow the above advice, you'll have much more time for fun, with less guilt!)

Evaluation

Students who attended these talks filled out an optional evaluation form immediately after the program. Because the 50- to 60-minute program sometimes ended precisely as a class period ended, some students did not have time to participate in the evaluation. A total of 207 students (out of 310 who saw the lecture) returned the forms. Beyond asking the students to indicate their class level and gender, the initial form contained only one prompt, which was open-ended. It asked for "comments about the presentation and the ideas and strategies you learned about today." Because several students at the first program spontaneously wrote that they would recommend the program to their friends, a question asking whether or not the student would recommend the program was added to the form for subsequent presentations. Almost all attendees who received this question (96%, n=192) said they would recommend the presentation to a friend. Most of the students who filled out the evaluation form made positive

comments about the exercises, the research findings, or the recommendations. (Negative comments were extremely rare.) The following responses are typical:

> I especially enjoyed the interactive tests because I felt involved and it proved the points.
>
> I really liked learning about the specific studies done on memory and learning. I feel like this will definitely be useful in working on my papers and studying for exams.
>
> I liked the Jelly Belly example. My mind often drifts during presentations and the visual brought me back to pay attention and also being able to participate.

Although there was no specific question on the evaluation form about whether they would use the techniques, many students spontaneously indicated an interest in trying some of the guidelines. The following are typical responses:

> The information was very applicable and interesting and I can't wait to put it to use.
>
> I text a lot and go on Facebook while I'm working; I'm going to try to do that less.

A few weeks after attending the program, the students in one of the classes (n=93) answered a follow-up question asking whether they had adopted any of the recommended behaviors. Most of these (93%) reported that they had tried at least one of the suggestions. Of those who tried at least one, 73% reported a positive effect. Typical comments include:

> I have started to multitask less while in lectures, and this has really helped me to understand lecture material much better the first time around.
>
> When I study and do homework, I have started to turn my phone off and not allow myself to go on Facebook. It is EXTREMELY difficult! BUT, it has had an amazing effect on my work already. I get things done much faster and I understand the material much better.
>
> In my study habits, instead of trying to cram for large amounts of time, I now go for a few hours and break. I find it very helpful in keeping me more sharp and focused for when I try to gain more information. It has definitely been a positive result when studying.

Transferability

The information conveyed in this program is straightforward and research-based, and the techniques and exercises are easily adaptable to any college program that wants to promote both academic success and emotional health. Although students at all levels have responded positively, the program seems particularly well suited to first-year students because they are in the process of establishing new study habits and are usually without parental supervision for the first time in their lives. The elements can be included in an orientation lecture or in first-year seminars, or they can be included in individual counseling sessions. The message can be useful at any time of the semester or year.

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