

# Technology: Good or Bad for the Brain?

Shana Berger

The consumption of media has hit the roof – young people who've grown up with cell phones, the Internet, and video games are connected! As more young people enter adult education classes, they bring their technology with them, and that can have both positive and negative effects on the classroom. Instructors are looking at ways both to rein in the use of technology *and* to promote it as an effective teaching tool. But whether our skyrocketing use of media is good or bad for the brain is still a controversial question.

## Increased Use of Technology

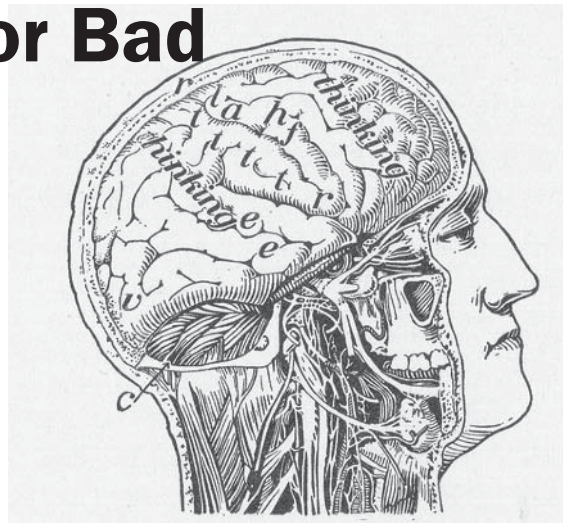
In 2008, people consumed three times as much information as they did in 1960. Not only do people devour information at an alarming rate, they shift their attention within and between the types of media. Computer users at work change windows or check email or other programs nearly 37 times an hour. At home, people consume 12 hours of media a day on average, when an hour spent with the Internet and TV simultaneously counts as two hours. In 1960, people consumed five hours of media a day on average at home, say researchers

### Try This

**Try out these computer games at <[www.gamesforchange.org](http://www.gamesforchange.org)> or <[www.impactgames.com](http://www.impactgames.com)>.**

**Write a review of a game (or two) and submit it for publication in *The Change Agent*.**

at the University of California, San Diego. Currently, computer users visit an average of 40 websites a day, according to research by RescueTime. I've been sitting at a computer for eight hours today at work and now



as I sit here typing and researching this article, a migraine is slowly creeping its way into my brain, but I must keep writing.

There is a lively debate among scientists over whether technology's influence on the brain is good or bad. Up until 15 years ago, scientists thought the brain stopped developing after childhood, but they now understand that the brain is wired to adapt. Juggling emails, phone calls, and tweets does indeed change how people think. Here are just some of the ways that technology influences brain function:

## Cons

**INABILITY TO FOCUS:** Technology may be intensifying a conflict between the part of the brain that helps a person focus and set priorities, and the part that demands it pay attention to new information. So for example, the goal of doing an essay assignment for homework can be overridden by the barrage of incoming email. People become accidental multi-taskers. Scientists are discovering that even after the multitasking ends, fractured thinking and lack of focus continue. "In other words, this is also your brain *off* computers." Clifford Nass, a communications professor at Stanford writes: "The scary part is, people can't shut off their multitasking tendencies when they're not multitasking." Researchers worry that constant

digital stimulation creates attention problems for children with brains that are still developing, who already struggle to set priorities and resist impulses.

**STRESS:** A study at the University of California, Irvine, found that people interrupted by email reported significantly increased stress compared with those left to focus. Stress hormones have been shown to reduce short-term memory.

**CAN BE ADDICTIVE:** Email messages and phone calls play to a primitive impulse to respond to immediate opportunities and threats. The stimulation of an email message or a text provokes excitement – a dopamine squirt – that researchers say can be addictive – like food and sex, which are essential but detrimental in excess. In its absence, people feel bored.

**Pros**

**EFFICIENT AT FINDING INFORMATION:** Imaging studies show the brains of Internet users become more efficient at finding information.

**EDUCATIONAL VALUE:** Scientists say that players of some video games develop better visual sharpness, reaction time, and the ability to pick out details amid clutter. These games have rehabilitative and educational value. Imaging studies reveal that Internet users showed greater brain activity than

nonusers, suggesting they were growing their neural circuitry.

**FREES YOUR MIND:** Using Google actually may be freeing up parts of your brain for other, more creative activities. Many psychologists know that it is easier to learn and understand complex concepts when the brain doesn't have to worry about remembering information. Roddy Roediger, a Washington University psychologist, said, "Why remember something if I know I can look it up again? In some sense, with Google and other search engines, we can offload some of our memory demands onto machines."

**Here to Stay**

Whether you think technology is good or bad for the brain, it has become part of everyday life for many people, especially young people. Almost every generation has complaints about the way younger generations do things. What do you think? Is it good for young people to be so steeped in technology? How might teachers be able to draw on the technology "smarts" that young people bring to the classroom? How might students' technology know-how be utilized as an asset to support older students who may be intimidated by technology?

*Shana Berger has taught young people and adults at several community organizations and at the community college level.*

**Write Your own Pros and Cons**

Technology works well for me in these ways:

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Technology creates problems in these ways:

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