INTERACTIVE SESSION: TECHNOLOGY

TOO MUCH TECHNOLOGY?

Do you think that the more information managers receive, the better their decisions? Well, think again. Most of us can no longer imagine the world without the Internet and without our favorite gadgets, whether they're iPads, smartphones, laptops, or cell phones. However, although these devices have brought about a new era of collaboration and communication, they also have introduced new concerns about our relationship with technology. Some researchers suggest that the Internet and other digital technologies are fundamentally changing the way we think-and not for the better. Is the Internet actually making us "dumber," and have we reached a point where we have too much technology? Or does the Internet offer so many new opportunities to discover information that it's actually making us "smarter." And, by the way, how do we define "dumber" and "smarter" in an Internet age?

Wait a second, you're saying. How could this be? The Internet is an unprecedented source for acquiring and sharing all types of information. Creating and disseminating media has never been easier. Resources like Wikipedia and Google have helped to organize knowledge and make that knowledge accessible to the world, and they would not have been possible without the Internet. And other digital media technologies have become indispensable parts of our lives. At first glance, it's not clear how such advancements could do anything but make us smarter.

In response to this argument, several authorities claim that making it possible for millions of people to create media—written blogs, photos, videos—has understandably lowered the quality of media. Bloggers very rarely do original reporting or research but instead copy it from professional resources. YouTube videos contributed by newbies to video come nowhere near the quality of professional videos. Newspapers struggle to stay in business while bloggers provide free content of inconsistent quality.

But similar warnings were issued in response to the development of the printing press. As Gutenberg's invention spread throughout Europe, contemporary literature exploded in popularity, and much of it was considered mediocre by intellectuals of the era. But rather than being destroyed, it was simply in the early stages of fundamental change. As people came to grips with the new technology and the new norms governing it, literature, newspapers, scientific journals, fiction, and non-fiction all began to contribute to the intellectual climate instead of detracting from it. Today, we can't imagine a world without print media.

Advocates of digital media argue that history is bound to repeat itself as we gain familiarity with the Internet and other newer technologies. The scientific revolution was galvanized by peer review and collaboration enabled by the printing press. According to many digital media supporters, the Internet will usher in a similar revolution in publishing capability and collaboration, and it will be a resounding success for society as a whole.

This may all be true, but from a cognitive standpoint, the effects of the Internet and other digital devices might not be so positive. New studies suggest that digital technologies are damaging our ability to think clearly and focus. Digital technology users develop an inevitable desire to multitask, doing several things at once while using their devices.

Although TV, the Internet, and video games are effective at developing our visual processing ability, research suggests that they detract from our ability to think deeply and retain information. It's true that the Internet grants users easy access to the world's information, but the medium through which that information is delivered is hurting our ability to think deeply and critically about what we read and hear. You'd be "smarter" (in the sense of being able to give an account of the content) by reading a book rather than viewing a video on the same topic while texting with your friends.

Using the Internet lends itself to multitasking. Pages are littered with hyperlinks to other sites; tabbed browsing allows us to switch rapidly between two windows; and we can surf the Web while watching TV, instant messaging friends, or talking on the phone. But the constant distractions and disruptions that are central to online experiences prevent our brains from creating the neural connections that constitute full understanding of a topic. Traditional print media, by contrast, makes it easier to fully concentrate on the content with fewer interruptions.

A recent study conducted by a team of researchers at Stanford found that multitaskers are not only more easily distracted, but were also surprisingly poor at multitasking compared to people who rarely do so themselves. The team also found that multitaskers receive a jolt of excitement when confronted with a new piece of information or a new call, message, or e-mail.

The cellular structure of the brain is highly adaptable and adjusts to the tools we use, so multitaskers quickly become dependent on the excitement they experience when confronted with something new. This means that multitaskers continue to be easily distracted, even if they're totally unplugged from the devices they most often use.

Eyal Ophir, a cognitive scientist on the research team at Stanford, devised a test to measure this phenomenon. Subjects self-identifying as multitaskers were asked to keep track of red rectangles in series of images. When blue rectangles were introduced, multitaskers struggled to recognize whether or not the red rectangles had changed position from image to image. Normal testers significantly outperformed the multitaskers. Less than three percent of multitaskers (called "supertaskers") are able to manage multiple information streams at once; for the vast majority of us, multitasking does not result in greater productivity.

Neuroscientist Michael Merzenich argues that our brains are being 'massively remodeled' by our constant and ever-growing usage of the Web. And it's not just the Web that's contributing to this trend. Our ability to focus is also being undermined by the constant distractions provided by smart phones and other digital technology. Television and video games are no exception. Another study showed that when presented with two identical TV shows, one of which had a news crawl at the bottom, viewers retained much more information about the show without the news crawl. The impact of these technologies on children may be even greater than the impact on adults, because their brains are still developing, and they already struggle to set proper priorities and resist impulses.

The implications of recent research on the impact of Web 2.0 "social" technologies for management decision making are significant. As it turns out, the "always-connected" harried executive scurrying through airports and train stations, holding multiple voice and text conversations with clients and co-workers on sometimes several mobile devices, might not be a very good decision maker. In fact, the quality of decision making most likely falls as the quantity of digital information increases through multiple channels, and managers lose their critical thinking capabilities. Likewise, in terms of management productivity, studies of Internet use in the workplace suggest that Web 2.0 social technologies offer managers new opportunities to waste time rather than focus on their responsibilities. Checked your Facebook page today? Clearly we need to find out more about the impacts of mobile and social technologies on management work.

Sources: Randall Stross, "Computers at Home: Educational Hope vs. Teenage Reality," *The New York Times*, July 9, 2010; Matt Richtel, "Hooked on Gadgets, and Paying a Mental Price," *The New York Times*, June 6, 2010; Clay Shirky, "Does the Internet Make you Smarter?" *The Wall Street Journal*, June 4, 2010; Nicholas Carr, "Does the Internet Make you Dumber?" *The Wall Street Journal*, June 5, 2010; Ofer Malamud and Christian Pop-Echeles, "Home Computer Use and the Development of Human Capital," January 2010; and "Is Technology Producing a Decline in Critical Thinking and Analysis?" Science Daily, January 29, 2009.

CASE STUDY QUESTIONS

- 1. What are some of the arguments for and against the use of digital media?
- 2. How might the brain affected by constant digital media usage?
- 3. Do you think these arguments outweigh the positives of digital media usage? Why or why not?
- 4. What additional concerns are there for children using digital media? Should children under 8 use computers and cellphones? Why or why not?

MIS IN ACTION

1. Make a daily log for 1 week of all the activities you perform each day using digital technology (such as cell phones, computers, television, etc.) and the amount of time you spend on each. Note the occasions when you are multitasking. On average, how much time each day do you spend using digital technology? How much of this time do you spend multitasking? Do you think your life is too technology-intense? Justify your response.