

# The Multitasking Generation

Today's teens are e-mailing, IMing and downloading while writing the history essay. What is all that digital juggling doing to kids' brains and to their family life?

By **CLAUDIA WALLIS**

IT'S 9:30 P.M., AND STEPHEN AND Georgina Cox know exactly where their children are. Well, their bodies, at least. Piers, 14, is holed up in his bedroom—eyes fixed on his computer screen—where he has been logged onto a MySpace chat room and AOL Instant Messenger (IM) for the past three hours. His twin sister Bronte is planted in the living room, having commandeered her dad's iMac—as usual. She, too, is busily IMing, while chatting on her cell phone and chipping away at homework.

The Coxes are one of 32 families in the Los Angeles area participating in an intensive, four-year study of modern family life, led by anthropologist Elinor Ochs, director of UCLA's Center on Everyday Lives of Families. While the impact of multitasking gadgets was not her original focus, Ochs found it to be one of the most dramatic areas of change since she conducted a similar study 20 years ago. "I'm not certain how the children can monitor all those things at the same time, but I think it is pretty consequential for the structure of the family relationship," says Ochs.

The big finding of a 2005 survey of Americans ages 8 to 18 by the Kaiser Family Foundation is not that kids were spending a larger chunk of time using electronic media—that was holding steady at 6.5 hours a day (could it possibly get any bigger?)—but that they were packing more media exposure into that time: 8.5 hours' worth, thanks to



“media multitasking.” Increasingly, the media-hungry members of Generation M, as Kaiser dubbed them, don't just sit down to watch a TV show with their friends or family. Between a quarter and a third of them, according to the survey, say they simultaneously absorb some other medium “most of the time” while watching TV, listening to music, using the computer or even while reading.

Although many aspects of the networked life remain scientifically uncharted, there's substantial literature on how the brain handles multitasking. And basically, it doesn't. It may seem that a teenage girl is writing an instant message, burning a CD and telling her mother that she's doing homework—all at the same time—but what's really going on is a rapid toggling among tasks rather than simultaneous processing. “You're doing more than one thing, but you're ordering them and deciding which one to do at any one time,” explains neuroscientist Jordan Grafman, chief of the cognitive neuroscience section at the National Institute of Neurological Disorders and Stroke (NINDS).

Then why can we so easily walk down the street while engrossed in a deep conversation? Why can we chop onions while watching *Jeopardy*? It turns out that very automatic actions or what researchers call “highly practiced skills,” like walking or chopping an onion, can be easily done while thinking about other things, although

the decision to add an extra onion to a recipe or change the direction in which you're walking is another matter.

When people try to perform two or more related tasks either at the same time or alternating rapidly between them, errors go way up, and it takes far longer—often double the time or more—to get the jobs done than if they were done sequentially, says David E. Meyer, director of the Brain, Cognition and Action Laboratory at the University of Michigan. “The toll in terms of slowdown is extremely large—amazingly so,” Meyer says. He frequently tests Gen M students in his lab, and he sees no exception for them, despite their “mystique” as master multitaskers. “The bottom line is that you can't simultaneously be thinking about your tax return and reading an essay, just as you can't talk to yourself about two things at once,” he says. “If a teenager is trying to have a conversation on an e-mail chat line while doing algebra, she'll suffer a decrease in efficiency, compared to if she just thought about algebra until she was done. People may think otherwise, but it's a myth. With such complicated tasks [you] will never, ever be able to overcome the inherent limitations in the brain for processing information during multitasking. It just can't be, any more than the best of all humans will ever be able to run a one-minute mile.”

Other research shows the relationship between stimulation and performance forms a bell curve: a little stimulation—whether it's coffee or a blaring

soundtrack—can boost performance, but too much is stressful and causes a fall-off. In addition, the brain needs rest and recovery time to consolidate thoughts and memories. Teenagers who fill every quiet moment with a phone call or some kind of e-stimulation may not be getting that needed reprieve. Habitual multitasking may condition their brain to an overexcited state, making it difficult to focus even when they want to. “People lose the skill and the will to maintain concentration, and they get mental antsiness,” says Meyer.

But turning down the noise isn't easy. By the time many kids get to college, their devices have become extensions of themselves, indispensable social accessories. “The minute the bell rings at most big public high schools, the first thing most kids do is reach into their bag and pick up their cell phone,” observes Denise Clark Pope, lecturer at the Stanford School of Education, “never mind that the person [they're contacting] could be right down the hall.”

Many educators and psychologists encourage teenagers to break free of compulsive engagement with screens and spend time in the physical company of human beings—a growing challenge not just because technology offers such a handy alternative but because so many kids lead highly scheduled lives that leave little time for old-fashioned socializing and family meals. Indeed, many teenagers and college students say overcommitted schedules drive much of their

multitasking.

In the end, Generation M has a lot to teach parents and teachers about what new technology can do. But it's also important to remember what technology can't do—and that there's life beyond the screen. ■

## How the Brain Toggles

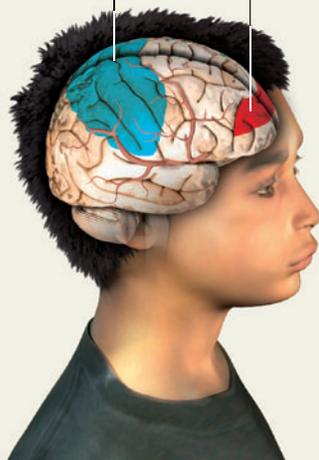
*Imaging studies have begun to reveal the anatomy of multitasking. Young adults have some advantages*

### THE MEDIAL PARIETAL LOBES

These areas are active when you are not focused on a task; they are considered default regions. When turning to a task, young adults do better than older adults in quieting the activity of the default regions. That may explain why older adults are more distracted by background thoughts (“Did I return that call?”).

### BRODMANN'S AREA 10

This section of the anterior prefrontal cortex acts as the switching station for multitasking. fMRI studies show increased blood flow to that region when one turns from one task to another and when one resumes the first task. The prefrontal cortex is much more highly developed in humans than in lower primates. It is one of the last to mature in adolescence and one of the first to decline with aging. Young children and people over 60 tend to be less adept at multitasking than young adults.



### Questions

1. What was the surprise finding in a 2005 Kaiser Family Foundation study of Americans ages 8 to 18?
2. What are the drawbacks of multitasking?