

The Multitasking Generation

By: Wallis, Claudia, Cole, Wendy, Steptoe, Sonja, Dale, Sarah Sturmon, Time South Pacific (Australia/New Zealand edition), 08180628, 4/10/2006, Issue 14

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

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.

Naturally, iTunes is open, and Piers is blasting a mix of Queen, AC/DC, classic rock and hip-hop. Somewhere on the screen there's a Word file, in which Piers is writing an essay for English class. "I usually finish my homework at school," he explains to a visitor, "but if not, I pop a book open on my lap in my room, and while the computer is loading, I'll do a problem or write a sentence. Then, while mail is loading, I do more. I get it done a little bit at a time."

HUMAN BEINGS HAVE ALWAYS HAD A CAPACITY to attend to several things at once. Mothers have done it since the hunter-gatherer era--picking berries while suckling an infant, stirring the pot with one eye on the toddler. Nor is electronic multitasking entirely new: we've been driving while listening to car

radios since they became popular in the 1930s. But there is no doubt that the phenomenon has reached a kind of warp speed in the era of Web-enabled computers, when it has become routine to conduct six IM conversations, watch TV and Google sports scores all at once.

Today 82% of kids are online by the seventh grade. And what they love about the computer, of course, is that it offers the radio/CD thing and so much more--games, movies, e-mail, IM, Google, MySpace. The big finding of a 2005 survey of Americans ages 8 to 18, is not that kids were spending a larger chunk of time using electronic media--that was holding steady at 6.5 hours a day--but that they were packing more media exposure into that time: 8.5 hours' worth, thanks to "media multitasking"--listening to iTunes, watching a DVD and IMing friends all at the same time. 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. From a quarter to 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.

Every generation of adults sees new technology--and the social changes it stirs--as a threat to the rightful order of things: Plato warned (correctly) that reading would be the downfall of oral tradition and memory. And every generation of teenagers embraces the freedoms and possibilities wrought by technology in ways that shock the elders: just think about what the automobile did for dating.

Although such habits may prepare kids for today's frenzied workplace, many cognitive scientists are positively alarmed by the trend. "Kids that are instant messaging while doing homework, playing games online and watching TV, I predict, aren't going to do well in the long run," says Jordan Grafman. Some are concerned about the disappearance of mental downtime to relax and reflect. Roberts notes Stanford students "can't go the few minutes between their 10 o'clock and 11 o'clock classes without talking on their cell phones. It seems to me that there's almost a discomfort with not being stimulated--a kind of 'I can't stand the silence.'"

Gen M's multitasking habits have social and psychological implications as well. If you're IMing four friends while watching a favorite sitcom, it's not the same as sitting on the couch with your buddies or your sisters and watching the show together. Or sharing a family meal across a table. Thousands of years of evolution created human physical communication--facial expressions, body language--that puts broadband to shame in its ability to convey meaning and create bonds. What happens, wonders UCLA's Ochs, as we replace side-by-side and eye-to-eye human connections with quick, disembodied e-exchanges? Those are critical issues not just for social scientists but for parents and teachers trying to understand--and do right by--Generation M.

YOUR BRAIN WHEN IT MULTI-TASKS

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 Grafman.

Then why can we so easily walk down the street while engrossed in a deep conversation? Why can we chop onions while watching a game show? "We, along with quite a few others, have been focused on exactly this question," says Hal Pashler, psychology professor at the University of California at San Diego. 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. "It seems that action planning--figuring out what I want to say in response to a person's question or which way I want to steer the car--is usually, perhaps invariably, performed sequentially" or one task at a time, says Pashler. On the other hand, producing the actions you've decided on--moving your hand on the steering wheel, speaking the words you've formulated--can be performed "in parallel with planning some other action." Similarly, many aspects of perception--looking, listening, touching--can be performed in parallel with action planning and with movement.

The switching of attention from one task to another, the toggling action, occurs in a region right behind the forehead called Brodmann's Area 10 in the brain. Brodmann's Area 10 is part of the frontal lobes, which "are important for maintaining long-term goals and achieving them," Grafman explains. "The most anterior part allows you to leave something when it's incomplete and return to the same place and continue from there." This gives us a "form of multitasking," he says, though it's actually sequential processing. Because the prefrontal cortex is one of the last regions of the brain to mature and one of the first to decline with aging, young children do not multitask well, and neither do most adults over 60. New studies suggest that as we get older, we have more trouble "turning down background thoughts when turning to a new task," says Rotman. "Younger adults are better at tuning out stuff when they want to," says Grady. "I'm in my 50s, and I know that I can't work and listen to music with lyrics; it was easier when I was younger."

But the ability to multiprocess has its limits, even among young adults. 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: "The toll in terms of slowdown is extremely large--amazingly so" Meyer 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.

GOT 2 GO. TXT ME L8ER
BUT TURNING DOWN THE NOISE ISN'T EASY. By the time many kids get to university, 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."

Dominique Jones, 12, of Los Angeles, likes to IM her friends before school to find out what they plan to wear. "You'll get IMs back that say things like 'Oh, my God, I'm wearing the same shoes!' After school we talk about what happened that day, what outfits we want to wear the next day."

Turkle has an explanation for this breathless exchange of inanities. "There's an extraordinary fit between the medium and the moment, a heady, giddy fit in terms of social needs." The online environment, she points out, "is less risky if you are lonely and afraid of intimacy, which is almost a definition of adolescence. Things get too hot, you log off, while in real time and space, you have consequences." Teen venues like MySpace, Xanga and Facebook--and the ways kids can personalize their IM personas--meet another teen need: the desire to experiment with identity. By changing their picture, their "away" message, their icon or list of favorite bands, kids can cycle through different personalities. "Online life is like an identity workshop," says Turkle, "and that's the job of adolescents--to experiment with identity."

In the absence of rules, it's all too easy for kids to wander into unwholesome neighborhoods on the Net and get caught up in the compulsive behavior that psychiatrist Edward Hallowell dubs "screen-sucking" in his new book, *CrazyBusy*. Patricia Wallace, a techno-psychologist who directs the Johns Hopkins Center for Talented Youth program, believes part of the allure of e-mail--for adults as well as teens--is

similar to that of a slot machine. "You have intermittent, variable reinforcement," she explains. "You are not sure you are going to get a reward every time or how often you will, so you keep pulling that handle. Why else do people get up in the middle of the night to check their e-mail?"

For all the handwringing about Generation M, technology is not really the problem. "The problem," says Hallowell, "is what you are not doing if the electronic moment grows too large"--too large for the teenager and too large for those parents who are equally tethered to their gadgets. In that case, says Hallowell, "you are not having family dinner, you are not having conversations, you are not debating whether to go out with a boy who wants to have sex on the first date, you are not going on a family ski trip or taking time just to veg. It's not so much that the video game is going to rot your brain, it's what you are not doing that's going to rot your life."

Generation M has a lot to teach parents and teachers about what new technology can do. But it's up to grownups to show them what it can't do, and that there's life beyond the screen.