ARE KIDS TOO WIRED FOR THEIR OWN GOOD?

What science tells us about the pluses—and minuses—of doing everything at once

BY CLAUDIA WALLIS
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? By Claudia Wallis
"9:30 P.M., and Stephen and Georgina can know exactly where their children are. With their
bodies, at least. Elisa, 14, is hidden up in her
teed-room—eyes fixed on her computer screen—where
she has been logged into 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 commented for half
her life—at least. She, too, is busy doing, with the
chat on her cell phone and chirping away at homewor.
By all standard time-space calculations, the
four members of the family occupy the same
three-bedroom house in Visakhapatnam, India, but
psychologically each exists in his or her own little
universe. Georgiana, 31, who works for a display-
cabinet maker, is setting up the living room as
Bronte works, too, but her daughter notices
Stephen, 40, who juggles jobs as a money
manager, fitness trainer, event planner and
head of a social charity he founded, who
dresses down his dress clothes down, to the
kitchen, having missed dinner with the
kids. He, too, typically spends the evening
on his cell phone and receiving e-mails—
when he can make. Bronte calls the com-
puter, "One girl obsessed with one's
jackets," he recalls.
Zooming into on Piers' screen gives
a pretty good indication of what's on
his hyperactive mind. O.K., there's
a Google Images window open,
where her showing down pictures
of Kate Knightley. Good news got
added to a sexy Windows Media
Player video that serves as his
personal equivalent to the action.
Several of windows are also open,
revealing such pontificating text.

Photograph for TIME
by Aaron Goodman
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 steering an fire, strirring the pot with one eye on the toddler. Nor is electronic multitasking entirely new: we've been driving while listening to music or using our phones since the days of the Walkman. But there is no doubt that the phenomenon has reached a kind of warp speed in the era of enabled computers, when it has become routine to conduct via IM conversations, watch American Idol on TV and Google the names of last season's finalists all at once.

Tips for parents

Deborah Hoffer, a comparative cultural and social analyst who has been a Google/ Yahoo! Corporation, Onset/Boston-area parent to 9-year-olds, 90-year-old children, who says that young people have a "World wide Web" with a" computer interface for Internet research, often some games, and a" phone service. The reaction is that they do not happen, as in the case of the Census.

"We saw that when the working parent comes through the door, the other spouse and the kids are so absorbed by what they're doing that they don't give the arriving parent the time of day," says Ochs. The same is true for the children, who are often absorbed in their own worlds, even if they are sitting next to each other."

"I think that the kids have more control over their own lives than they did when I was growing up," says Ochs. "But I also think that they're more aware of the world around them."
They both make these fancy PowerPoint presentations about what they plan to do for Christmas. But both parents worry about the ways that kids compartmentalize screen time—sacrificing their schoolwork and squeezing out family life. "We rarely have dinner together anymore," says Stephanie. "Everyone is in their own little world, and we don't get out together to have a social life."

Every generation of adults sees new technology—and the social changes it brings—as a threat to the (right) order of things. "Photo," 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.

As for multitasking devices, social scientists and educators are just beginning to assess their impact, but the researchers already have some strong opinions. The mental habit of dividing one's attention among many small slices has significant implications for the way young people learn, reason, socialize, or create work and understand the world. Although such habits may prepare kids for today's frenzied workplace, many cognitive scientists are positively alarmed by the trend. "Pinkel, I'm not going to do well in the long run," says Jordan Grafman, chief of the cognitive neuroscience section at the National Institute of Neurological Disorders and Stroke (NINDS). Decades of research (not to mention common sense) indicate that the quantity of one's output and depth of thought deteriorate as one attends to ever more tasks. Scientists worry about the appearance of mental downtime to relax and reflect (Roberts notes Standard students "can't go the few minutes between their 10 o'clock and 11 o'clock classes without updating their cell phones."

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"—listening to phones, watching a movie and texting friends all at the same time. Increasingly, the media hungry members of Generation Y, 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 do—while some even mention "most of the time" while watching TV. Listening to music, using the computer, or even while reading.

Parents have watched this phenomenon unfold with a mixture of awe and concern. The Census, for instance, are hauled over by their children's technical prowess. Parents requisite the family computer and own play. Parents use digital technology to connect students to professional colleagues and create a documentary of their father's ongoing treatment for cancer. April, says Georgia,
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 visiting four friends while watching That 70s Show, 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 breadth to in their ability to convey meaning and create bonds. What happens, wonders UCLA's Ochs, as we replace side-by-side and eye-to-eye human connection with quick, disembodied e-exchanges? These 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 MULTITASKS

ALTHOUGH MANY ASPECTS OF THE NETWORKED LIFE REMAIN TERRIFICALLY 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 shop online while watching "Jeopardy?" "We go 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 shopping online, can be easily done while thinking about other things, even though the decision to add an extra item to a recipe or change the direction in which you're walking it 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" as one task at a time, says Pashler. On the other hand, producing the anxious you've dreamed of moving your hand on the steering wheel, speaking the words you've rehearsed—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 tagging action, occurs in regions right behind the forehead, called Brodmann's Area 10 in the brain's anterior prefrontal cortex, according to a functional magnetic resonance imaging (fMRI) study by Grafman's team. 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 "sense of switlthking." 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 fMRI studies at Toronto's Rotman Research Institute suggest that as we get older, we have more trouble "turning down background thoughts when turning to a new task," says Rotman senior scientist and assistant director Cheryl Crandall, "Younger adults are better at turning stuff off when they want to," says Crandall. "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.

A Dad's Encounter with The Vortex of Facebook

by MICHAEL DUFFY

A mom I asked, her 15-year-old daughter recently addicted to her new found time on MySpace. The teenager, not exactly sure whether she was in when she replied that she's "Facebook" someone for the meditation, why not use the telephone? the mother wanted to know. Her daughter rolled her eyes at that one.

Where Else Just Outside Washington, Facebook.com is both noun and verb, the unchallenged colossus of inane communication that rival, like the telephone, the back fence, the school bulletin board and, at times, the locker room, all packed into one virtual mental pit. In other towns, MySpace.com plays the same starring role. In both cases, they have legions of parents pulling out their hair. Here's why: Those online social networks have become, almost overnight, looming teen magnets centering an almost irresistible pull on kids' time and attention. There are two sites only two years old, MySpace is the No. 2 most trafficked site on the Internet, Facebook is No. 7, right behind Google. MySpace is open to anyone with an e-mail address; Face book requires members to be affiliated with a college or a high school, which is why it's the preferred virtual arena in my household.

Created by a Harvard student, Facebook started out as a digital version of those little photo galleries of incoming college freshmen and has expanded to include the student bodies of more than 2,200 colleges. Last fall, high schools were invited to join, and now Facebook has 7 million members. Like all secret societies, it has its own language, passwords and handshakes. You can "pale" a friend—sort of like a wink or a wave—without saying much more. "We can check the "pale" to see what moves, books and music are opting the chart at your school. You can post pictures of yourself and your friends, and there's a nifty feature that allows kids to create specialized sub groups of Facebookers who share

EENE, MARCH 27, 2005
How the Brain Toggles

THE ANIMAL PSYCHEDELICS

Those areas are active when you are not focused on a task; they are not associated with default modes. When turning to the task, younger adults do better than older adults in engaging the nuclei of the default regions. This may explain why older adults are more distracted by background thoughts ("Did I return that call?").

But the ability to multiprocess has its limits, even among young adults. When people try to perform two or more related tasks, such as talking on the phone and listening to music, they may experience a decrease in efficiency. This is because the brain has a limited number of resources to allocate, and it is difficult to divide attention equally between tasks. As a result, people may experience a decrease in performance on both tasks.

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hobbies, observations great and
small or little jokes. And then
there’s the “say” which may be
Facebook’s most distinctive fea-
ture: it’s the place on every
member’s profile where friends can post
messages, have conversations and just generally keep up. The
wall makes sense in one respect: it’s easy and fun to spot on incom-
ing messages, but in another it’s a
curious: you can pore over the post-
ings of everyone else at your school. Which means the wall is one of those giveaway clues about Generation M: teenagers think
their lives are private just for long on their parents aren’t looking in.

As a social-networking tool, these sites have become almost indispensable. But they have
their darker passive side. When students begin posting pictures of themselves at parties holding a beer and leaving messages that were hurtful, inflammatory or
even threatening, schools began con-
sidering ways to regulate the
screaming on the site. Some high
schools have officially banned Facebook as well as MySpace activity during the school day and discouraged kids from spending time on those sites after hours. Colleges can’t begin
to enforce such rules, but many have groups studying how to control behavior or have
tabled guidelines. And they have
discovered a powerful incentive for improving digital departmental,
informing students that a variety of
employers admit they check Facebook pages for
oblique or potentially unacceptable
behavior before making jobs. “Most
of the people who we use Flame-
book,” says the company’s mar-
teting director, Murielle Daniel.
“realize that anything you post
is public information.”

A few cases of online friend-
ships that turned violent or even
homicidal have prompted social
network sites to provide better
security for their members. Face-
book recently shut down private and
public accounts of an individual who
was暧凶手. It’s the sheer
amount of school-sounding time
the company has invested that is
already overwhelming. Being a
teenager is one inerrant exercise in
time management. Watching your
kids try to juggle schoolwork, homework,
sports, music lessons and sleep, I
sometimes think my life is easier
than theirs. That’s partly because I
have some tools they lack, but it’s
equally because I think I learn an
alot by what I see. Facebook is one
glimpse at a time frame—of black hole
of clutter—and for many kids it’s
hard to find out. Establish a influ-
ence. 30 minutes of homework,
then up taking four to five hours, says
Dr. Alex Goodman, principal of

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creations. In lecture halls with wireless Internet access—now more than 40% of college classrooms, according to the Campus Computing Project—the assumption is that students can get out of hand. "People are going to lecture by some of the greatest minds and they are doing their work," says Sherry Turkle, professor of the social studies of science and technology at M.I.T. In her class, says Turkle, "I tell them this is not a place for email, it's not a place to do online searches and not a place to set up an Internet relay channel to which to comment on the class. It isn't going to help if there are parallel discussions about how boring it is. You've got to get people to participate in the world as it is."

Such concerns have, in fact, led a number of schools, including the M.B.A. programs at UCLA and the University of Virginia, to look into blocking Internet access during lectures. "I tell my students not to treat me like TV," says University of Wisconsin professor A尖叫 Brower, who has been teaching social work for 20 years. "They have to think of me like a real person talking. I want to have them thinking about things we're talking about."

On the positive side, Gen M students tend to be extraordinarily good at finding and manipulating information. And presumably because modern childhood tilts toward visual rather than print media, they are especially skilled at analyzing visual data and images, observes Chuck Koones, professor of history at Duke University. A growing number of college professors are using film, audio clips and PowerPoint presentations to play to their students' strengths and capture their inquisitive attention. It's a powerful way to teach history, says Koones, "I love bringing media into the classroom, it is a little bad to put the website for Edward B. Mower and hear his voice as he walked with the diaries of Bouchonard. Another adjustment to teaching Generation M: professors are assigning fewer full-length books and more excerpts and articles. (Koones, however, was stunned when a student matter-of-factly informed her, "We don't read whole books anymore," after Koones had assigned a 350-page volume. "And this is Duke?"

Many students make brilliant use of media in their work, embedding audio files and video clips in their presentations, but the habit of yanking among many data streams leaves alike signs in their writing, according to some educators. "The breadth of their knowledge and their ability to find answers has just burgeoned," says Roberts of his students at Stanford, "but my impression is that their ability to write clear, focused and extended narratives has eroded somewhat." Says Koones: "What I find is paragraphs that make sense internally, but don't necessarily follow a line of argument."

Koones says that today's students are less tolerant of ambiguity than the students they taught in the past. "They demand clarity," says Koones. "They want identifiable good guys and bad guys, which she finds problematic in teaching complex topics like Hutu-Tutsi history in Rwanda. She also thinks there are political implications: "Their belief in the simple answer, put together in a visual way, is, I think, dangerous." Koones thinks this aversion to complexity is directly related to multitasking. "It's as if they have too many windows open on their hard drive. In order to have a taste for sifting through different layers of truth, you have to stay with a topic and pursue it deeply, rather than go across the surface with your thumb!" She tries to reconvene her students to find a quiet spot (on campus to just think, cell phone off, laptop packed away).

GOT 2 GO, TXT ME LATER: BUT TURNING DOWN THE NOISE ISN'T EASY. By the time many kids get to college, these devices have become extensions of themselves, indispensable social accessories.
minutes without talking on their cell phones. There's being stimulated—a kind of 'I can't stand the silence.'

DONALD ROBERTS, Stanford professor

Edward Hallward, dubbing "screen-avoiding" in his new book, Everything That Matters: How to Avoid Being Screened Out, says the following holds true: "You have a certain amount of social currency, and that's not going to change. We're all looking for the same thing—connection. But now, with technology, we can have too much of a good thing. It's like too much sugar or too much alcohol. It's not good for us in the long run."

DEAN LEVY, professor at the University of Washington Information School, agrees: "I think it's important to be mindful of the quality of time we spend with others, both in person and online. It's about finding a balance and being present in the moment."

GETTING THEM TO LOG OFF

Many educators and psychologists say parents need to actively encourage their children to unplug from technology. They also advise teachers to be mindful of their own digital habits.

"It's important for parents to set a good example by limiting their own screen time," says Hallward. "If we model healthy digital habits, our children are more likely to follow.

"As for teachers, it's important to be aware of the impact technology can have on the learning environment," says Levy. "We need to find ways to integrate digital tools in a meaningful way that enhances rather than detracts from the learning experience."

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