

# Growing Up Digital

Wired to their cellphones and computers, students are having more trouble focusing on other things. Will a generation of teens end up with brains that work differently?

BY MATT RICHTEL IN REDWOOD CITY, CALIFORNIA

**T**he day before the start of Vishal Singh's senior year in high school, he faces a stark choice on his bedroom desk: book or computer?

Vishal, a bright 17-year-old Californian who spends most of his time on Facebook, YouTube, and making digital videos, has read just 43 pages of his summer reading assignment, Kurt Vonnegut's *Cat's Cradle*. Instead of picking up the book, he clicks to YouTube.

On YouTube, "you can get a whole story in six minutes," he explains. "A book takes so long. I prefer the immediate gratification."

Students have always faced distractions. But computers and cellphones, and the constant stream of stimuli they offer, are a new challenge to focusing and learning.

Researchers say the lure of these technologies is particularly powerful for young people. But because developing brains can get used to constantly switching tasks a lot more easily than adult brains, the risk is that today's teenagers will be less able to stay focused on anything, not just schoolwork.

"Their brains are rewarded not for staying on task but for jumping to the next thing,"

says Michael Rich, a professor at Harvard Medical School and head of the Center on Media and Child Health in Boston. "The worry is we're raising a generation of kids in front of screens whose brains are going to be wired differently."

But even as some educators express unease about students' digital diets, they are increasingly using technology in the classroom, seeing it as a way to connect with students and give them the skills they need. Across the country, schools are equipping themselves

with computers, Internet, and mobile device

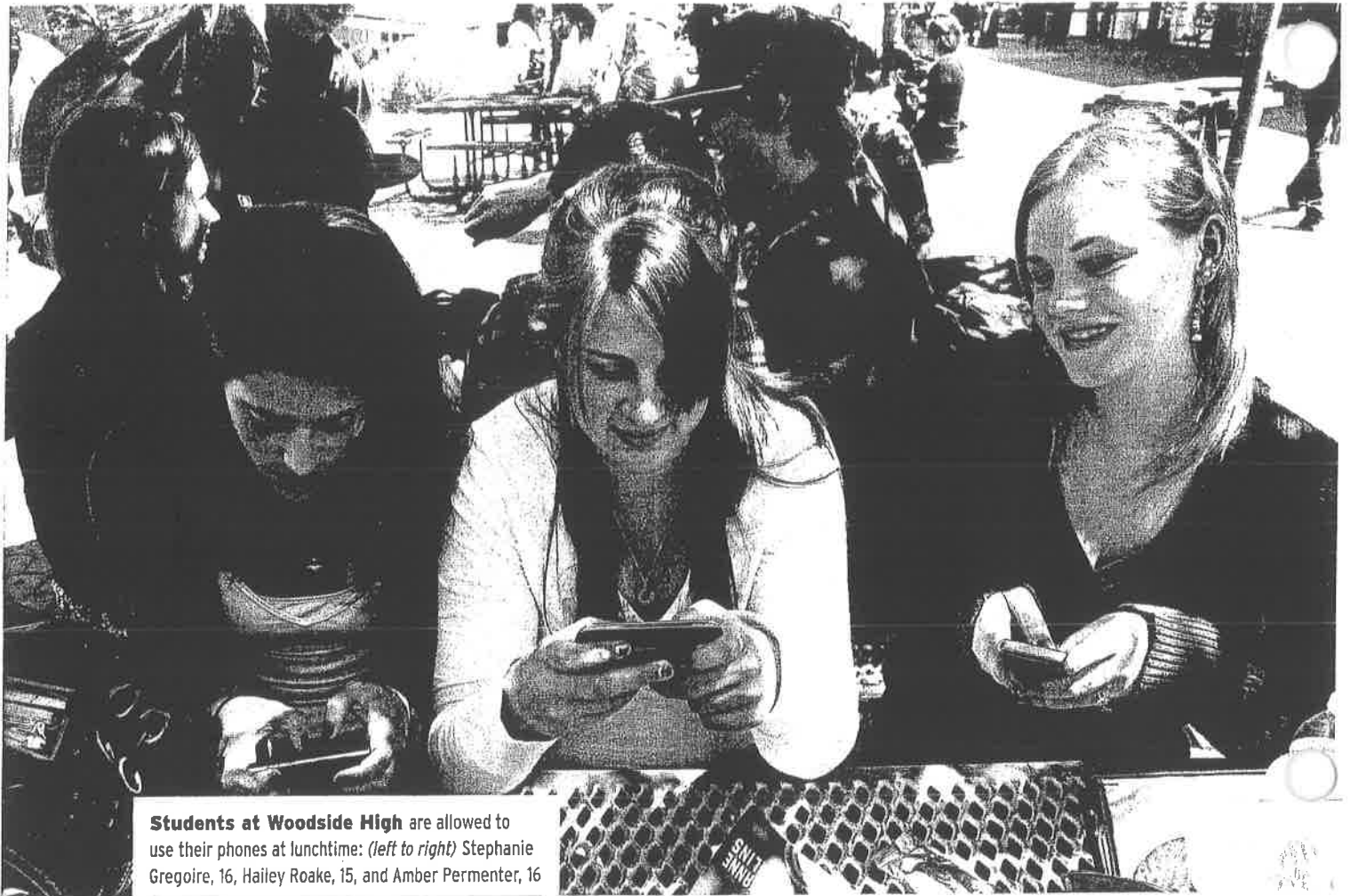
It is a tension on vivid display at Vishal school, Woodside High School in Redwood City, California. Here, as elsewhere, it's not uncommon for students to send hundreds of text messages a day or spend hours playing video games, and virtually everyone is on Facebook

## 27,000 Texts a Month

Allison Miller, 14, sends and receives 27,000 texts a month. She texts between classes, the moment soccer practice ends

**Multitasking:**  
Vishal Singh, 17, in his bedroom





**Students at Woodside High** are allowed to use their phones at lunchtime: (left to right) Stephanie Gregoire, 16, Hailey Roake, 15, and Amber Permenter, 16

while being driven to and from school, and often while studying. But it comes at a cost: She blames multitasking for the three B's on her recent progress report.

"I'll be reading a book for homework and I'll get a text message and pause my reading and put down the book, pick up the phone to reply to the text message, and then 20 minutes later realize, 'Oh, I forgot to do my homework.'"

Some shyer students do not socialize through technology—they recede into it. Ramon Ochoa-Lopez, 14, plays six hours of video games on weekdays and more on weekends, leaving homework to be done in the bathroom before school.

Students say that their parents, worried about the distractions, try to police their computer time. But it's trickier with cellphones, since a lot of parents want to be able to call their children at any time, so simply taking the phone away isn't an option.

Sam Crocker, Vishal's closest friend, who has straight A's but lower SAT scores than he would like, blames the Internet's distractions for his inability to finish either of his two summer-reading books.

"Facebook is amazing because it feels like

you're doing something and you're not doing anything," Sam says. "It's the absence of doing something, but you feel gratified anyway."

He concludes: "My attention span is getting worse."

### No Downtime

That's what has doctors worried. "Downtime is to the brain what sleep is to the body," says Dr. Rich of Harvard Medical School. "But kids are in a constant mode of stimulation."

Rich isn't suggesting young people toss out their phones and computers, but that they take a more balanced approach to what he says are powerful tools necessary to compete and succeed in modern life.

Vishal has mixed feelings about technology. "If it weren't for the Internet, I'd focus more on school and be doing better academically," he says. But thanks to the Internet, he says, he's discovered and pursued his passion: filmmaking.

Vishal often spends hours working on music videos or film projects with sophisticated film editing software that he taught himself how to use—and then he's focused in a way he rarely is when doing homework. He hopes

colleges will be so impressed by his portfolio that they'll overlook his school performance.

Some teachers are alarmed by what they see. Marcia Blondel, a veteran English teacher, has resorted to having students read aloud in class because many lack the attention span to read assignments on their own.

"You can't become a good writer by watching YouTube, texting, and e-mailing a bunch of abbreviations," says Blondel.

By late October, Vishal's grades began to slip. Vishal says he's investing himself more in his filmmaking. But he is also using Facebook late at night and surfing for videos on YouTube. Evidence of the shift comes in a string of Facebook updates.

Saturday, 11:55 p.m.: *Editing, editing, editing.*

Sunday, 3:55 p.m.: *8+ hours of shooting, 8+ hours of editing. All for just a three-minute scene. Mind = Dead.*

Sunday, 11:00 p.m.: *Fun day, finally got to spend a day relaxing . . . now about that homework . . .* ●

Matt Richtel covers technology for *The New York Times*.

# Typical U.S. home now has more TV sets than people

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NEW YORK — The average American home now has more television sets than people.

That threshold was crossed within the past two years, according to Nielsen Media Research. There are 2.73 TV sets in the typical home and 2.55 people, the researchers said.

With televisions now on buses, elevators and in airport lobbies, that development may have as much to do with TV's ubiquity as an appliance as it does conspicuous consumption. The popularity of flat-screen TVs now make it easy to put sets where they haven't been before.

Rick Melen, a facilities manager, has three sets in the Somers, N.Y., home he shares with his wife. That doesn't count the bathroom set that broke down and hasn't been replaced, or the speakers installed near their hot tub, allowing them to watch a wide screen set through a window.

"It's really just a matter of where your living takes place, what rooms you tend to spend your time in," Melen said Thursday. "Other appliances you can move from room to room, but if

you have cable, you can't move a television."

His wife might want to watch something while she's cooking while he's got a baseball game on downstairs, he said.

Half of American homes have three or more TVs, and only 19 percent have just one, Nielsen said. In 1975, 57 percent of homes had only a single set and 11 percent had three or more, the company said.

David and Teresa Leon of Schenectady, N.Y., and their 4-year-old twins have seven sets, plus an eighth they haven't set up yet. They include TVs in both the parents' and kids' bedrooms, the family and living rooms and one in the kitchen that is usually turned to a news station.

"No one ever sits down for more than a few seconds in this house," said Teresa Leon, a stenographer. "This way, you can watch TV while you're moving from room to room, folding laundry or taking care of the kids."

In the average home, a television set is turned on for more than a third of the day — eight hours, 14 minutes, Nielsen said. That's an hour more than it was a decade ago. Most of that extra TV viewing is coming outside of

prime time, where TVs are on only four minutes more than they were 10 years ago.

The average person watches four hours, 35 minutes of television each day, Nielsen said.

While people are watching more television, ratings for the big broadcast networks have declined steadily. That's a function of the greater number of channel choices available in each home, the company said.

One new Nielsen finding — that people ages 12 to 17 watched 3 percent more television during the season that ended in May than they had the previous year — is a particular relief to TV network executives.

For a few years, Nielsen had been finding that TV viewing among teenagers was flat or even declining, a trend blamed on the Internet or the popularity of electronic games and other devices.

"There are just more opportunities for them to watch whatever they want to watch," said Patricia McDonough, Nielsen's senior vice president of planning policy and analysis.

Oddly, one of the driving factors is teenage girls watching more TV late at night or early in the morning, she said.

