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[Back to previous page](#)

Serious reading takes a hit from online scanning and skimming, researchers say

By [Michael S. Rosenwald](#), Published: April 6

Claire Handscombe has a commitment problem online. Like a lot of Web surfers, she clicks on links posted on social networks, reads a few sentences, looks for exciting words, and then grows restless, scampering off to the next page she probably won't commit to.

"I give it a few seconds — not even minutes — and then I'm moving again," says Handscombe, a 35-year-old graduate student in creative writing at American University.

But it's not just online anymore. She finds herself behaving the same way with a novel.

"It's like your eyes are passing over the words but you're not taking in what they say," she confessed. "When I realize what's happening, I have to go back and read again and again."

To cognitive neuroscientists, Handscombe's experience is the subject of great fascination and growing alarm. Humans, they warn, seem to be developing digital brains with new circuits for skimming through the torrent of information online. This alternative way of reading is competing with traditional deep reading circuitry developed over several millennia.

"I worry that the superficial way we read during the day is affecting us when we have to read with more in-depth processing," said Maryanne Wolf, a Tufts University cognitive neuroscientist and the author of "Proust and the Squid: The Story and Science of the Reading Brain."



If the rise of nonstop cable TV news gave the world a culture of sound bites, the Internet, Wolf said, is bringing about an eye bite culture. Time spent online — on desktop and mobile devices — was expected to top five hours per day in 2013 for U.S. adults, according to eMarketer, which tracks digital behavior. That's up from three hours in 2010.

Word lovers and scientists have called for a “slow reading” movement, taking a branding cue from [the “slow food” movement](#). They are battling not just cursory sentence galloping but the constant social network and e-mail temptations that lurk on our gadgets — the bings and dings that interrupt “Call me Ishmael.”

Researchers are working to get a clearer sense of the differences between [online and print reading](#) — comprehension, for starters, seems better with paper — and are grappling with what these differences could mean not only for enjoying the [latest Pat Conroy novel](#) but for understanding difficult material at work and school. There is concern that young children's affinity and often mastery of their parents' devices could stunt the development of deep reading skills.

The brain is the innocent bystander in this new world. It just reflects how we live.

“The brain is plastic its whole life span,” Wolf said. “The brain is constantly adapting.”

Wolf, one of the world's foremost experts on the study of reading, was startled last year to discover her brain was apparently adapting, too. After a day of scrolling through the Web and hundreds of e-mails, she sat down one evening to read Hermann Hesse's “The Glass Bead Game.”

“I'm not kidding: I couldn't do it,” she said. “It was torture getting through the first page. I couldn't force myself to slow down so that I wasn't skimming, picking out key words, organizing my eye movements to generate the most information at the highest speed. I was so disgusted with myself.”

Adapting to read

The brain was not designed for reading. There are no genes for reading like there are for language or vision. But spurred by the emergence of Egyptian hieroglyphics, the Phoenician alphabet, Chinese paper and, finally, the Gutenberg press, the brain has adapted to read.

Before the Internet, the brain read mostly in linear ways — one page led to the next page, and so on. Sure, there might be pictures mixed in with the text, but there didn't tend to be many distractions. Reading in print even gave us a remarkable ability to remember where key information was in a book simply by the layout, researchers said. We'd know a protagonist died on the page with the two long paragraphs after the page with all that dialogue.

The Internet is different. With so much information, hyperlinked text, videos alongside words and interactivity everywhere, our brains form shortcuts to deal with it all — scanning, searching for key words, scrolling up and down quickly. This is nonlinear reading, and it has been documented in academic studies. Some researchers believe that for many people, this style of reading is beginning to invade when dealing with other mediums as well.

“We're spending so much time touching, pushing, linking, scrolling and jumping through text that when we sit down with a novel, your daily habits of jumping, clicking, linking is just ingrained in you,” said Andrew Dillon, a University of Texas professor who studies reading. “We're in this new era of information behavior, and we're beginning to see the consequences of that.”

Brandon Ambrose, a 31-year-old Navy financial analyst who lives in Alexandria, knows of those consequences.

His book club recently read [“The Interestings,”](#) a best-seller by Meg Wolitzer. When the club met, he realized he had missed a number of the book’s key plot points. It hit him that he had been scanning for information about one particular aspect of the book, just as he might scan for one particular fact on his computer screen, where he spends much of his day.

“When you try to read a novel,” he said, “it’s almost like we’re not built to read them anymore, as bad as that sounds.”

Ramesh Kurup noticed something even more troubling. Working his way recently through a number of classic authors — George Eliot, Marcel Proust, that crowd — Kurup, 47, discovered that he was having trouble reading long sentences with multiple, winding clauses full of background information. Online sentences tend to be shorter, and the ones containing complicated information tend to link to helpful background material.

“In a book, there are no graphics or links to keep you on track,” Kurup said.

It’s easier to follow links, he thinks, than to keep track of so many clauses in page after page of long paragraphs.

Kurup’s observation might sound far-fetched, but told about it, Wolf did not scoff. She offered more evidence: Several English department chairs from around the country have e-mailed her to say their students are having trouble reading the classics.

“They cannot read [‘Middlemarch.’](#) They cannot read William James or Henry James,” Wolf said. “I can’t tell you how many people have written to me about this phenomenon. The students no longer will or are perhaps incapable of dealing with the convoluted syntax and construction of George Eliot and Henry James.”

Wolf points out that she’s no Luddite. She sends e-mails from her iPhone as often as one of her students. She’s involved with programs to send tablets to developing countries to help children learn to read. But just look, she said, at Twitter and its brisk 140-character declarative sentences.

“How much syntax is lost, and what is syntax but the reflection of our convoluted thoughts?” she said. “My worry is we will lose the ability to express or read this convoluted prose. Will we become Twitter brains?”

Bi-literate brains?

Wolf’s next book will look at what the digital world is doing to the brain, including looking at brain-scan data as people read both online and in print. She is particularly interested in comprehension results in screen vs. print reading.

Already, there is some intriguing research that looks at that question. A 2012 Israeli study of engineering students — who grew up in the world of screens — looked at their comprehension while reading the same text on screen and in print when under time pressure to complete the task.

The students believed they did better on screen. They were wrong. Their comprehension and learning

was better on paper.

Researchers say that the differences between text and screen reading should be studied more thoroughly and that the differences should be dealt with in education, particularly with school-aged children. There are advantages to both ways of reading. There is potential for a bi-literate brain.

“We can’t turn back,” Wolf said. “We should be simultaneously reading to children from books, giving them print, helping them learn this slower mode, and at the same time steadily increasing their immersion into the technological, digital age. It’s both. We have to ask the question: What do we want to preserve?”

Wolf is training her own brain to be bi-literate. She went back to the Hesse novel the next night, giving herself distance, both in time and space, from her screens.

“I put everything aside. I said to myself, ‘I have to do this,’ ” she said. “It was really hard the second night. It was really hard the third night. It took me two weeks, but by the end of the second week I had pretty much recovered myself so I could enjoy and finish the book.”

Then she read it again.

“I wanted to enjoy this form of reading again,” Wolf said. “When I found myself, it was like I recovered. I found my ability again to slow down, savor and think.”



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