Is the Internet Changing the Way We Think?

By Anne Pauker Kreitzberg and Charles B. Kreitzberg, PhD

Is the Internet turning us into shallow thinkers?

Nicholas Carr thinks so. After writing a provocative article in the Atlantic Monthly titled "*Is Google Making Us Stupid?"* he's followed up with a book called *The Shallows: What the Internet Is Doing to Our Brains*.

The idea that the Internet is changing the way we think got another boost in July when the New York Times reported on a study published in the prestigious journal *Science.* The researchers found that people don't bother remembering facts they can locate on-line. Instead of remembering the information, they remember where to find it in case they need it again. The researchers dubbed this "the Google Effect."

What's going on? Is the Internet rotting our brains? And what can we do about it?

Don't panic, says Jonah Lehrer, contributing editor at Wired Magazine. What we are actually doing is using the Internet as an information storage machine. Why bother remembering stuff (and maybe getting it wrong) when you can look it up when you need it. If all you need are simple facts, why not use Google to find them when you need them?

Lehrer and Carr have come to different conclusions because each is looking at a different aspect of human memory.

Most people think of their memory as a "closet" where facts and experiences are stored. When you need a memory you pull it off the shelf. But that is not an accurate picture of how the brain works. Memories are actually reconstructed when you call them up – much as the transporter in Star Trek reconstructs the person who is being beamed down to a nearby planet. Whenever you recreate a memory, you risk introducing errors in your recall.

The fact that memories change over time, Lehrer suggests, is why using Google to remember facts is a good strategy. He concludes "I don't think it's a sign that technology is rotting our cortex – I think it shows that we're wise enough to outsource a skill we're not very good at."

Nicolas Carr has a different perspective. A fact on the Internet, he notes, is not the same as a fact in our brain. What makes us effective thinkers, he argues, is our human ability to make linkages among diverse ideas. By relying on the Internet to carry the load, we sacrifice building rich conceptual understanding. Instead we are treat information as isolated bits of data and the end result is lower quality thinking.

What does this mean to you?

If all you need is the phone number of the nearest pizza restaurant, Google works just fine. But if you need to think through a more complex business problem and need a more in-depth understanding the challenge is greater.

Acquiring knowledge by searching the Internet is a bit like assembling a jigsaw puzzle. You need to collect the different pieces and assemble them. Unfortunately, the pieces on the Internet often don't fit together nicely. Much of the information is conflicting. There is a lot of spin and misinformation. And unlike a boxed puzzle, you don't have a picture on the box lid to work from.

Psychologists call the process of building the big picture from the bottom up "synthesis." It is a difficult task that takes a great deal of effort. As an analogy, imagine that you were asked to hang some pictures on the conference room wall. When you get there, you discover there is no conference room, just a pile of lumber and wallboard. You need to build the room before you can hang the pictures. That's a big job.

When you are doing research on the Internet, a winning strategy is to seek a high-level understanding of the information at the beginning. How do experts see the question? What are the big ideas and burning issues? How do they organize the information.

By starting with the high-level you are creating "cognitive scaffolding" on which you can hang new information you locate. If the new information does not fit, it suggests that either the information is inaccurate or your high-level understanding needs revision. In either case you are led to a more accurate understanding.

Here are five ideas to help you think critically about information you encounter on the web:

1. **Start from the top.** Start with reputable sites that present high-level overviews of the situation you are researching. Consider Wikipedia, tutorials, sites like About.com and HowThingsWork.com, sites from universities and professional associations and high quality newspapers and magazines.

2. **Consult multiple sources.** In most cases, information posted on the Internet does not meet standards of quality. There are few fact checkers and thoughtful editors making sure that what is posted can be substantiated. So unless you are convinced that information presented is trustworthy, verify it by seeing what others say.

3. **Check for mindless copying.** When you come across an article of interest, try copying a key phrase into Google. Often you will find that many sites have simply copied the material and present it without comment or attribution. This kind of plagiarism is easy to spot since every entry on Google will show exactly the same words.

4. **Evaluate the source.** Can you trust what you are reading? It's not always an easy question to answer. A site that looks objective may actually be supported by an interest group with an agenda. A person touted as an expert may lack credentials and knowledge. Does the author

provide contact information? Are statements supported by references? You can find some more hints here.

5. **Place your spin detectors on high alert.** When you are seeking information you do not want to be "sold." You want objective and reliable data. Bias is rampant on the Internet. Look for statements that disparage and insult. See if the language used is measured or sensationalistic. Ask yourself what agenda the author might have.

The Internet is changing the way we get and process information. It is an incredible resource whose potential to enhance our knowledge is greater than any invention in human history. Yet it can also be the source of shallow and biased thinking. There is no magic bullet that can guarantee that the information you view or the conclusions you reach are accurate. But following the suggestions here can go a long way to reassuring you that the decisions you make are based on sound critical thinking.