

Special
Reprint
Edition

USA
TODAY®

NO. 1 IN THE USA

As seen in



Tech

December 19, 2005

This is the Google side of your brain

By Elizabeth Weise
USA TODAY

As more people find themselves spending much of the day within arm's reach—or even pocket's reach—of something that can tap into the Internet, search engine Google quickly is taking the place of not only a trip to the library, but also a call home to Mom, a recipe box, the phone book and neighborly advice.

In fact, it has become the key to a huge repository of trivia, the kind that once rattled around in the back of our minds. Call it our auxiliary brain.

Kristin Beltramini, a recent college graduate, can't imagine keeping things like the capital of Turkey or how to get red wine out of the carpet in her long-term memory.

"It is amazing how often I use the search engine when I can't think of something," says the public-relations associate at PAN Communications in Andover, Mass. "My roommate and I don't have arguments about trivia anymore—they usually last about as long as it takes our DSL to open up the search page."

If we are the sum total of our knowledge and experiences, then the Internet is a collection of other people's knowledge and experiences. And Google—so ubiquitous that it has become its own verb—allows us to tap into that collection.

As recently as five years ago, "googol" was just a funny word that meant a really big number (1 followed by 100 zeroes). The news in search engines was mostly about Alta Vista and Yahoo.

But it started shifting around 2002, says Danny Sullivan, editor of SearchEngineWatch.com.

Just as a new generation of users was flooding online, Google revolutionized search with its canny ability to quickly zero in on exactly the fact we were looking for, without sorting through dozens of off-topic references.

"Google was the Marcia Brady of search," he says. "It was suddenly 'Google, Google, Google.' You could almost hear Jan saying, 'What about me?'"

And with the growth in always-on fast broadband connections and wireless devices, Mrs. Brady herself would probably be Googling today. Jen Singer of MommaSaid, a website for stay-at-home moms, says if it weren't for Google, her son might not think she is the world's most intelligent person. But by Googling answers to questions like "How do birds breathe inside eggs?" and "Why are tires black?" she can keep up with his questions.

Even though it has existed for nearly as long as the Web, search is one of the fastest-growing services. Google's searches grew 21% in just four months this year. In October, Google logged 2.4 billion requests, nearly half of all searches.

Some of that represents the outsourcing of our personal fact-collecting functions. In the midst of packing for her family's move from New Jersey to Las Vegas, marketer Cynthia Mun had a revelation: "I was going through my files and I thought, 'Why do I need this stuff anymore? If I need something, I'll just Google it.'" She and her husband were in the process of turning a decade or so's worth of clippings, files and reports into packing material when their overheated shredder gave up the ghost.

Shredders aren't the only things that overheat. James Olds, a professor of computational neuroscience at George Mason University in Virginia, says he often feels his "brain would fry" if he had to keep one more fact in it. To him, Google is a way to "off-load" everything he doesn't have to keep front and center in his brain for work.

The process of memory

Do these experiences mean that Google is fundamentally changing our notion of memory? Plato wrote: "For this discovery of yours will create forgetfulness in the minds of those who learn to use it; they will not exercise their memories." He wasn't talking about Google; he was talking about writing.

Not bothering to commit trivia to memory isn't a character flaw; it's part of a long-ongoing process, academics say. "Memorizing is not something that people typically have done since the invention of writing," says Fernando Pereira, chairman of the computer and information science department at the University of Pennsylvania.

And despite Plato's complaints, even writing didn't change the process of memory, just what we chose to remember, says Pam Frese, a professor of anthropology at The College of Wooster in Ohio.

In pre-literate societies, what was worth remembering might be complex information about who can marry whom, or the history of long-term trading relationships, she says. Today, "the emphasis on what kinds of

knowledge need to be remembered has shifted.”

Even such veteran memorizers as physicians use Google. “It’s a little embarrassing, coming from a really rigorous academic program,” says Eric Swagel, assistant clinical professor of medicine at the University of California-San Francisco. But often, he says, a Google search is far faster than plowing through PubMed, the authoritative medical literature database.

Recently, a colleague told Swagel the Centers for Disease Control and Prevention now recommend that adults get the whooping cough vaccine because the immunity from childhood vaccinations wanes.

But the thought of going on PubMed was daunting. “If you plugged in ‘pertussis booster in adults,’ you’d get a hellacious collection of articles”—none of which would have told them the news.

Instead the doctors typed the same phrase into Google and got the CDC’s press release and a news article with a quick overview—maybe not at profound depth, but enough that they understood current medical thinking.

Being able to Google down any fact is a point of pride to many. David Becker, president of Philippe Becker Design in San Francisco, says sleuthing out a prospective client’s e-mail address or a hidden fact about a company is “almost like a game. It’s a haystack and there’s a needle out there.”

In fact, he has always thought there should be a kind of Google Olympics to see who can find a craftily hidden piece of information the fastest. Giving up on memorizing state capitals is one thing. But Google has definitely had an effect on students, says Jeffrey Schwartz, a professor of the history of science at the University of Pittsburgh. “They’re worse at spelling,” he says, because Google is life’s spell checker. Type in conscious and Google pops back with “Did you mean: conscious.”

While the lack of a question mark might drive grammarians crazy, the ability to blindly misspell and get back a correct answer is a boon to the alphabet-impaired.

Truth and consequences

But as in all things, beware gifts from strangers. Google’s spell check is based on

occurrences of all the words it finds on the Internet. And Noah Webster isn’t the one writing them. As JJ Jacobson, a research librarian at the Georgia Institute of Technology in Atlanta, notes, “The problem is that other people can’t spell, either.”

So if enough people think equipment is spelled “equiptment” (more than 1,110,000 sites, according to Google), the unwary could be lulled into a false sense of security.

Then there’s Wikipedia. The online free encyclopedia is written collectively by Internet users and can be modified by those who feel they have better information. It’s so frequently used that Wikipedia articles tend to show up at the top of many Google searches.

But, as recently became obvious, the veracity of the information depends on who has done the posting. In a widely publicized case, false and malicious information found its way into the online biography of former USA TODAY editorial page editor John Seigenthaler. (Related item: Author apologizes for fake Wikipedia biography)

And even when malicious intent isn’t the problem, mastery of a subject can be, says Jacobson. “The opinions that get heard are from people who have a lot of time to create websites, not necessarily the people with the best information.”

Search-engine ‘optimization’

Does our increasing dependence on Google pose a danger? John Rooney, professor of psychology at La Salle University in Philadelphia, worries. “The knowledge that we have ‘in our heads’ is much more than factual information. It provides us with perspective on ourselves and our relationship to our physical and social environment.”

Up until now, “society’s intelligentsia has been the most intellectual. In the next generation, it will be those best at search-engine optimization,” says Fern Reiss, the chief executive of a Newton, Mass.-based media company.

But even the most inveterate Googler realizes that it’s not appropriate for every question, as physician Jennifer Lee found out in the happiest of all possible ways.

One evening this fall her courtship with Jan Liphardt, a physics professor at Berkeley, took a turn for the permanent when he popped the question. When the reality began to sink in, she wondered aloud, “So I guess we’re engaged. What are we supposed to do?”

Liphardt, who has been known to look up geological terms on his cellphone from mountain peaks, did what any red-blooded man who just got the woman he loves to agree to marry him would do. He said, “Let’s Google it!” and started for his Treo to search for “engagement rituals.”

Fortunately, he reconsidered in time and returned to the side of his new fiancée without touching an electronic device. The wedding is set for June 3.

Googling by the numbers

Total number of Internet search queries in October: 5.1 billion

Percentage increase since June: 15%

Number of Google searches in October: 2.4 billion

Percentage increase since June: 21%

Google share of Web searches: 47.7%

People who search on Google per month: 91 million

Google’s rank among websites: No. 3

Last week’s top search term: Richard Pryor

Sources: Nielsen//NetRatings; ComScore Media Metrix; Google