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Overwhelmed by more information than we can possibly hold in our heads, we’re increasingly handing off the job of remembering to search engines and smart phones. (1)Google\* is even reportedly working on eyeglasses that could one day recognize faces and supply details about whoever you’re looking at. But new research shows that outsourcing our memory ―― and expecting that information will be continually and instantaneously available ―― is changing our cognitive habits.

Research conducted by Betsy Sparrow, an assistant professor of psychology at Columbia University, has identified three new realities about how we process information in the Internet age. First, her experiments showed that when we don’t know the answer to a question, we now think about where we can find the nearest Web connection instead of the subject of the question itself. For example, the query “Are there any countries with only one color in their flag?” prompted study participants to think not about flags but about computers.

A second revelation: when we expect to be able to find information again later on, we don’t remember it as well as when we think it might become unavailable. Sparrow’s subjects were asked to type facts into a computer ―― for example, “The space shuttle *Columbia* disintegrated during re-entry over Texas in February 2003.” Half were told that their work would be saved; the rest were told that their words would be erased. Those who believed that the computer would store the information recalled details less well on their own. Sparrow compares their situation to one we all experience in the hyperconnected real world: “Since search engines are continually available to us, we may often be in a state of not feeling we need to encode the information internally. When we need it, we will look it up.” Sound familiar?

(2)The researchers’ final observation: the expectation that we’ll be able to locate information down the line leads us to form a memory not of the fact itself but of where we’ll be able to find it. “We are learning what the computer ‘knows’ and when we should attend to where we have stored information in our computer-based memories,” Sparrow and her colleagues concluded in their report. “We are becoming symbiotic with our computer tools, growing into interconnected systems.”

Before you grow nervous about turning into a cyborg, however, you should know that this new symbiosis with our digital devices is really just a variant of a much more familiar phenomenon, what psychologists call transactive\*\* memory. (3)This is the unspoken arrangement by which groups of people give out memory tasks to each individual, with information to be shared when needed. In a marriage, one spouse might remember the kids’ after-school appointments while the other keeps track of the recycling-pickup schedule. In a workplace team, one member may be the designated number cruncher\*\*\* while a colleague is charged with remembering client preferences. The way we delegate to our computers is simply an extension of this principle ―― an instance of transactive memory carried out on a very grand scale.

But this handoff comes with a downside. (4)Skills like critical thinking and analysis must develop in the context of facts: we need something to think and reason about, after all. And these facts can’t be Googled as we go; they need to be stored in the original hard drive, our long-term memory. Especially in the case of children, “factual knowledge must precede skill,” says Daniel Willingham, a professor of psychology at the University of Virginia ―― meaning that the days of drilling the multiplication table and memorizing the names of the Presidents aren’t over quite yet. Adults, too, need to recruit a supply of stored knowledge in order to situate and evaluate new information they encounter. You can’t Google context.

(出典：*Time*, March 12 2012. 一部変更あり)

\*Google：a major corporation which provides Internet-related products and services.

\*\*transactive：relating to exchanges or interactions between people.

\*\*\*number cruncher：people whose jobs involve dealing with numbers or mathematical calculations.