Outsourcing the Mind

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When I came to the Center for Advanced Study in Palo Alto in the fall of 1989, I peered into my new cabinlike office. What struck me was the complete absence of technology. No telephone, e-mail, or other communication facilitators. Nothing could interrupt my thoughts. Technology could be accessed outside the offices whenever one wished, but it was not allowed to enter. This protective belt was there to make sure that scholars had time to think, and to think deeply.

In the meantime, though, the center, like other institutions, has surrendered to technology. Today people's minds are in a state of constant alert, waiting for the next e-mail, the next SMS, as if these will deliver the final, earth-shattering insight. I find it surprising that scholars in the "thinking profession" would so easily let their attention be controlled from the outside, minute by minute, just like letting a cell phone interrupt a good conversation. Were messages to pop up on my screen every second, I would not be able to think straight. Maintaining the center's spirit, I check my e-mail only once a day and keep my cell phone switched off when I'm not making a call. An hour or two without interruption is heaven for me.

But the Internet can be used in an active rather than a reactive way—that is, by not letting it determine how long we can think and when we have to stop. So the question is, Does an active use of the Internet change our way of thinking? I believe so. The Internet shifts our cognitive functions from searching for information inside the

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mind toward searching outside the mind. But it is not the first technology to do so.

Consider the invention that changed human mental life more than anything else: writing, and subsequently the printing press. Writing made analysis possible; it allowed us to compare texts, which is difficult in an oral tradition. Writing also made exactitude possible, as in higher-order arithmetic—without any written form, these mental skills quickly meet their limits. But writing makes long-term memory less important than it once was, and schools have largely replaced the art of memorization by training in reading and writing.

Most of us can no longer memorize hour-long folktales and songs, as in an oral tradition. The average modern mind has a poorly trained long-term memory, forgets rather quickly, and searches for information more often in outside sources, such as books, rather than from inside memory. The Internet has amplified this trend of shifting knowledge from the inside to the outside and taught us new strategies for finding what we want by using search machines.

This is not to say that before writing, the printing press, and the Internet our minds did not have the ability to retrieve information from outside sources. But these sources were other people, and the skills were social, such as the art of persuasion and conversation. To retrieve information from Wikipedia, say, social skills are unnecessary.

The Internet is essentially a huge storage room of information. We are in the process of outsourcing information storage and retrieval from mind to computer, just as many of us have already outsourced doing mental arithmetic to the pocket calculator. We may lose some skills in this process, such as the ability to concentrate over an extended period of time and the ability to store large amounts of information in long-term memory, but the Internet is also teaching us new skills for accessing information.

It is important to realize that mentality and technology are one extended system. The Internet is a kind of collective memory, to which our minds will adapt until a new technology eventually replaces it. Then we will begin outsourcing other cognitive abilities and—it is to be hoped—learning new ones.