

There Is No New Self

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Efforts to change the way we think—and to enhance our cognitive capacity—are ancient. Brain enhancers come in several varieties. They can be either hardware or software, and they can be either internal or external to our bodies. External hardware includes things such as cave paintings, written documents, eyeglasses, wristwatches, wearable computers, and brain-controlled machines. Internal hardware includes things such as mind-altering substances, cochlear implants, and intracranial electrical stimulation. Internal software includes things such as education, meditation, mnemonics, and cognitive therapy. And external software includes things such as calendars, voting systems, search engines, and the Internet.

I've had personal experience with most of these (save cave painting and the more esoteric forms of hardware), and I think I can say with confidence that they have not changed my brain.

What especially attracts my attention, though, is that the more complex types of external software—including the Internet—tend to involve communication and interaction, and thus they tend to be specifically social: They tend to involve the thoughts, feelings, and actions of many individuals, pooled in some way to make them accessible to individuals, including me. The Internet thus facilitates an age-old predilection of the human mind to benefit from our tendency as a species to be *Homo dictyous* (network man)—an innate tendency to connect with others and be influenced by them. In this regard, the Internet is both mind-expanding and atavistic.

The Internet is no different from previous, equally monumental brain-enhancing technologies, such as books or telephony, and I doubt whether books and telephony have changed the way I think, in the sense of actually changing the way my brain works (which is the particular way I am taking the question before us). In fact, it is probably more correct to say that our thinking gave rise to the Internet than that the Internet gave rise to our thinking. Another apt analogy may be mathematics. It has taken centuries for humans to accumulate mathematical knowledge, and I learned geometry and calculus in high school in a way that probably would have astonished mathematicians just a few centuries ago. But, like other students, I did this with the same brain we've all had for millennia. The math surely changed how I think about the world. But did it change the way I think? Did it change my brain? The answer is mostly no.

To be clear, the Internet is assuredly changing quite a few things related to cognition and social interaction. One widely appreciated and important example of both is the way the Internet facilitates hive-mind phenomena, like Wikipedia, that integrate the altruistic impulses and the knowledge of thousands of far-flung individuals. To the extent that I participate in such things (and I do), my thinking and I are both affected by the Internet.

But most thinking serves social ends. A strong indicator of this fact is that the intellectual content of most conversation is trivial, and it certainly is not focused on complex ideas about philosophy or mathematics. In fact, how often—unless we are ten-year-old boys—do we even think or talk about predators or navigation, which have ostensibly been important topics of thought and conversation for quite some time? Mostly we think and talk about each other. This is probably even true for those of us who spend our lives as scientists.

Indeed, our brains likely evolved their capacity for intelligence in response to the demands of social rather than environmental complexity. The evolution of larger social groups among primates re-

quired and benefited from the evolution of a larger neocortex (the outer, thinking part of our brain), and managing social complexity in turn required and benefited from the evolution of language. Known as the social-brain hypothesis, this idea posits that the reason we think at all has to do with our embeddedness in social life.

What role might technology play in this? Very little, it turns out. Consider, for example, the fact that the size of military units has not changed materially in thousands of years, even though our communication technology has, from signal fires to telegraphy to radio to radar. The basic unit in the Roman army (the *maniple*) was composed of 120 to 130 men, and the size of the analogous unit in modern armies (the *company*) is still about the same.

The fact that effective human group size has not changed very substantially—even though communication technology has—suggests that it is not the technology that is crucial to our performance. Rather, the crucial factor is the ability of the human mind to track social relationships, to form mental rosters that identify who is who, and to develop mental maps that track who is connected to whom and how strong or weak, or cooperative or adversarial, those relationships are. I do not think the Internet has changed the ability of my brain to do this. While we may use the word *friends* to refer to our contacts online, they are decidedly not our friends in the truly social, emotional, or biological sense of the word.

There is no new self. There are no new others. And so there is no new brain and no new way of thinking. We are the same species after the Internet as before. Yes, the Internet can make it easy for us to learn how to make a bomb or find a willing sexual partner. But the Internet itself is not changing the fundamental reality of my thinking any more than it is changing our fundamental proclivity to violence or our innate capacity for love.