Imaginative and applied views of the brain and the self

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In 1957, Herbert Simon, one of the founding fathers of artificial intelligence, was quoted as saying we now live in a world where machines can think. Today, almost fifty years later, many of his critics remain unconvinced that this is the case. As these critics point out, and I count myself among them, it would perhaps be more accurate to say that the combination of brain research and computer technologies has helped us articulate some of the questions we have about human consciousness. More specifically, technology has failed to replicate intelligence, the functions of the brain, and even the 'sense' of self known to humans. Nonetheless, technology has been useful in fostering some measure of understanding about how symbolic logic and connectivist dynamics are integrated into our experience of the self. Technologies have also supplemented our explicit data and thus helped us re-consider long-standing conclusions about the brain, the mind, and consciousness.

How technology has helped us re-frame many long-standing questions about the relationship of machines, mind, and intelligence is germane to this paper, where I show that the computer revolution, like earlier technological revolutions, has transformed our ideation process. Building on the work of diverse thinkers, I detail how emergent and connective views of consciousness inform the scientific agenda and, by extension, how imagination, physics, biology, chemistry, mathematics, and technology have combined in the formation of new personal and cultural ideas and habits. What is key here, as I will demonstrate, is that innovations do not reside only in the applied and practical domains. For example, computers, like older technologies, have given us useful metaphors.

This paper will illustrate these many new metaphors that are illuminating the dialogue on the mind, the brain, the self, human learning, human action, human interaction, and how we even define reality. I will also outline how the comparisons of computer 'intelligence' with the human mind resonate with earlier couplings of the mechanistic and biological. Among the well known historical precedents I will draw upon are the British neuroscientist Sherrington's supposition that the brain worked like a telegraph, Freud comparison of the mind to hydraulic and electromagnetic systems, Descartes' machine analogy, and how the Greeks saw the brain in terms of a catapult. In sum, this paper proposes to show that earlier pairings of the biological and mechanical have value in evaluating contemporary metaphors and proposals about the brain and the self. As I explain (by combining historical case studies with contemporary research), technological innovations have repeatedly impacted the formulation of cultural conclusions about the brain, the self, the nature of technology, the relationship between the biological and the mechanical, and what we mean by human intelligence. Particular attention will be given to illuminating how imaginative and applied views of consciousness and technology impact human values and communication, how technology influences our capacity to think, and how technologies impact our capacity to 'do' science.