

Book review

**THE SHALLOWS, *What the Internet is Doing to Our Brains***

Nicholas Carr

In the last decade, technology hasn't slowed down long enough for someone to write a print book about it that doesn't seem out of date by the time it's published. Though Nicholas Carr's 2010 book *The Shallows* contains a few predictions that today seem unlikely, and though it was written before the proliferation of the many forms of social media that are having such a profound impact on our lives today, Carr's underlying thesis, that the internet is changing not only our behavior and relationships, but also the brain itself, raises some thought-provoking questions.

The Prologue begins with a brief look at Marshall McLuen's prophetic 1964 book *Understanding Media: The Extension of Man*, in which he coined the phrase "The medium is the message," and containing McLuen's insight that when new media technology is introduced people get very excited by all the new content available to them, but far more significant is how the particular medium *itself* influences the way people think and act as individuals and as a society. Carr then examines the current understanding of the brain's physiology and its plasticity throughout our lifetime as it responds and adapts to changes in our experience or new demands of the environment; and briefly describes the history of intellectual technology in general, from the development of writing and reading through mapmaking and mechanical clocks, showing how each of these new technologies changed our language, leading humans to conceptualize the world in new ways.

What makes the internet so different from the other mass media it replaces, Carr argues, is the bidirectional nature of the internet (being able to send as well as receive messages). "Every medium develops some cognitive skills at the expense of others," concluded a prominent developmental psychologist in 2009 after reviewing over fifty studies of the effects different media have on people's intelligence and learning ability, and the internet is no exception.

Later, Carr discusses the impact the internet is having on print books, which have existed essentially in their current form for over 500 years. Despite the real affection they have for their books, many avid readers are succumbing to the seductive convenience of the e-book—I downloaded *The Shallows* to my Kindle in less than a minute, as I do most of the books I buy these days—despite the compelling advantages over e-books that print books still have (they don't need recharging, won't be damaged by being sat on or dropped, are easier to navigate and less fatiguing to the eye). He also reports that some modern younger scholars are beginning to argue that books are archaic and dispensable," that surfing the Web is a suitable, even superior, substitute for deep reading and other forms of calm and attentive thought," rejecting "the intellectual tradition of solitary, single-minded concentration" we get from books. A Rhodes scholar philosophy major reports that not only does he not read books but can see no particular reason to read them, since "you can Google the bits and pieces you need in a fraction of a second."

A book about the internet would be incomplete without a chapter on "the Internet's High Church," Google. Carr describes what he calls Google's "messianic faith in its cause" which he sees as "organizing the world's information in a universally accessible and useful way". Carr believes that "anything that stands in the way of the speedy collection, dissection and transmission of data is a threat not only to Google's business but to the new utopia of cognitive efficiency it aims to construct on the Internet" changing the relationship its users have with the content they access through the powerful search engine. He quotes one Google executive: "Our goal is to get users in and out really quickly. All our design decisions are based on that strategy." For those at Google who believe the human brain operates by the same formal rules of

mathematics as does a computer, intelligence is no more than overall computation ability, and the faster the better.

So, is the internet making us smarter? The good news: Certain cognitive skills, such as hand-eye coordination, reflex response and visual-spatial skills (i.e. the processing of visual cues), are strengthened, sometimes substantially; there's a small expansion in the capacity of our working memory; and new brain circuits develop to allow "rapid and incisive spurts of directed attention," making multitasking easier.

The bad news: The many distractions from rapid-fire delivery of competing, sometimes irrelevant messages and other stimuli impair concentration, reading comprehension, memory and learning, weakening brain circuits that support linear reasoning, reading entire books and composing sentences as well as quiet reflection. With increased multitasking comes the exploration of more topics but at a more superficial level, encouraging users to rely more on conventional ideas and solutions that they can find quickly online rather than taking the time to pursue original lines of thought.

But more than the impairment of concentration, memory and learning, when deep thinking is replaced by the "rapid and incisive spurts of directed attention" that make us better multitaskers, something else is lost. Empathy and compassion also require a calm and attentive mind. Carr quotes brain scientist Mary Helen Immordino-Yang from USC's Brain and Creativity Institute, "For some kinds of thoughts, especially moral decision-making about other people's social and psychological situations, we need to allow for adequate time and reflection. If things are happening too fast, you may not ever fully experience emotions about other people's psychological states."

Quoting German philosopher Martin Heidegger who, in the 1950s, "observed that the looming 'tide of technological revolution' could 'so captivate, bewitch, dazzle, and beguile man that calculative thinking may someday come to be accepted and practiced *as the only* way of thinking'", Carr concludes: "Our ability to engage in 'meditative thinking', which (Heidegger) saw as the very essence of our humanity, might become a victim of headlong progress."

The Epilogue ends with this observation of the dark prophecy found in the final scene of Stanley Kubrick's movie *2001, A Space Odyssey* as HAL, the rogue robot, poignantly begs the human astronaut Dave to stop, as Dave robotically goes about disassembling the computer that makes up HAL's mind: "...as we come to rely on computers to mediate our understanding of the world, it is our own intelligence that flattens into artificial intelligence."