



## Well it's Too Late Now: What the Internet has Done to Our Minds

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6/12/2013

We are no strangers to panic over and speculation about the dangerous effects of future technology. Socrates believed writing would “create forgetfulness in the learners’ souls, because they will not use their memories”[1]; books were ruining the mind. 19<sup>th</sup> Century Great Britain feared trains would “blight crops, terrify livestock, and asphyxiate passengers with their high speeds”; 20 mph was too much for the human body[2]. The printing press was an abomination because not only did it put monks out of jobs, it was marring their souls as “he who ceases from zeal for writing because of printing is no true lover of the scriptures”[3]. Television rotted your brain and produced slack-jawed children with no appreciation for or interest in books. Socrates would have approved. In 1876, the New York Times predicted that the telephone, in bringing “music and ministers into every home” would “empty concert-halls and churches”<sup>2</sup>.

In his book “The Shallows: What the Internet is Doing to Our Brains”, Nicholas Carr brings us the technology scare of the 21<sup>st</sup> century: Carr posits that the Internet creates distractions that force us to multitask and hampers our ability to form deep thoughts. Time spent online has – he thinks – shortened his attention span and made it more difficult to engage in deep text and process complex ideas. Carr acknowledges the usefulness of the internet with its vast network of seemingly endless information, but insists the negative side effects outweigh its benefits, and that technology is reprogramming our minds for the worse. Carr does cite valid studies that he believes support his theories, but the preponderance of scientific evidence suggests that the Internet and related technologies are actually good for the mind[4].

The malleability of the brain is known as neuroplasticity. Everything we do changes our brain: every minute thought, detail, and experience plays a role in the constant wiring of our neural circuitry[5]. A 2011 study by Sparrow et. al.[6], looked at what the Internet is doing to the way we store information and access it later. The scientists were able to conclude that we forget items we think will be available externally, and remember items we think will not be available, which suggests that the processes of human memory are adapting to communication and computing technology. Yes, the Internet is changing our brains, but too so does the decision to drink that mocha, reminiscing about that camping

trip in the woods, and the snide comment (in your head of course) that your boss' outfit looked particularly horrendous today.

Carr also believes that idle Web surfing is causing a decrease in our ability to critically analyze. This argument is broken down by a 2009 study by Gary Small et. al<sup>[7]</sup> that used functional MRI scanning to determine patterns of brain activation while subjects performed an Internet search task or read text on a computer screen in the layout of a printed book. The results showed increased activity in the brain regions controlling decision making and complex reasoning in subjects performing the Google search. The Internet, it appears, is not making us stupid, but is actually engaging the very areas of the brain that make us smarter.

Carr is not wrong in saying that the internet is “tinkering with [the] brain, remapping the neural circuitry, [and] reprogramming the memory”, but it is not abhorrently detrimental to our mental capacity as he believes. Fundamentally, we as a society adapt to keep up, and focus almost exclusively on efficiency and results; the internet is absolutely the epitome of efficacy. We have an almost symbiotic relationship with our technology and it's almost nostalgia at this point to wish to be less dependent on our gadgets. Ultimately, our brain will rewire, reconfigure, and revamp itself to facilitate efficiency on the net, so questioning the Internet's effect on the plasticity of the brain will be moot. Looking back, we will wonder what all the fuss was about.

[1] Socrates' nightmare [Editorial]. (2007, September 6). *The New York Times*.

[2] Digital native calms the anxious masses: Nick Bilton's new books puts Google, GPS, Twitter, Facebook, and your iPhone in proper perspective [Editorial]. (2010, September 13). *Slate*.

[3] Masnick, M. (2011, February 25). A fifteenth century technopanic about the horrors of the printing press. [Web Log Post]. Retrieved from <http://www.techdirt.com/articles/20110119/05022912725/fifteenth-century-technopanic-about-horrors-printing-press.shtml>.

[4] Our cluttered minds [Editorial]. (2010, June 3). *The New York Times*.

[5] Stafford, T. (2012, April 24). Does the internet rewire your brain? *BBC*. Retrieved from <http://www.bbc.com/future/story/20120424-does-the-internet-rewire-brains>

[6] Sparrow, B., Liu, J., Wegner, D. M. (2011). Google effects on memory: cognitive consequences of having information at our fingertips. *Science*, 333, 776-778.

[7] Small, G., et. al (2009) Your brain on Google: Patterns of cerebral activation during internet searching. *American Journal of Geriatric Psychiatry*, 17, 116-126

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