

## The Abbreviated Message

Gourav Bhattacharyya

In 1964, Marshall McLuhan introduced, in his book *Understanding Media: The Extensions of Man*, the idea that “the medium is the message.” He was the first to suggest that the technology through which we engage content can drastically affect the way we consume that content. McLuhan was reacting to the first cable satellite launches into space and the mass production of color televisions. Thirty-six years later, a new digital environment created by the flood of internet-based technologies emerged. This new “point-and-click” era stimulates our brains through the positive reinforcement of its immediate feedback, making us in many ways more connected, more aware, and less willing to deal with the long drawn out rhetoric of extensive copy. This digital world, built in 140 character tweets, 500 character YouTube comments, and news websites restructured in blurbs and bylines, has changed the way we consume media. The technology of this new medium has initiated the global abbreviation of the message, which many experts argue is leading to the abbreviation of our attention spans. However, if the core of this new attentive reduction is based upon the idea of plasticity, the theory that the brain remains flexible in its learning habits over time, then we should be able to emerge from our digital handicaps and tailor our own learning habits to reconstruct ourselves as more competent and flexible consumers of content in this new “global theater” (James 104; McLuhan and Nevitt 265).

The advances of digital technology have spurred incredible debate between luddites and technophiles. The two basic camps argue over whether or not the benefits of these new technologies are truly worth their costs. The Web’s detractors contend that the abbreviation of the message requires us to skim, surf and perform cursory readings, which reduce our attention spans, relieving us of the lengthy and sometimes rewarding aspects of what Nicholas Carr refers to as “deep reading” (122). Proponents claim, however, that the internet is actually “challenging the mind” to navigate the new digital environment of “interactive content” (Johnson 28). The results of these changes remain mired in research that has yet to concretize the negative impacts of the technology. Whatever the case may be, one thing remains clear: The internet is changing the way we consume and interact with information. Our interaction with

digital technology has rewired our brains to respond more instinctually to short bursts of information; however, the evidence has yet to prove that our capacity to deep read longer texts has been compromised.

### **Accumulation and Reduction**

The Internet's exponential and explosive growth has necessitated changes in the ways the medium is consumed. What started out as a handful of domains (less than four) in the sixties multiplied to over 200 million by the end of 2010 (Zakon). Compare this forty-six year emergence of the Internet with Facebook's astronomical growth rate, from zero to 500 million in less than six years (Zakon). Something happened in that time that transformed the internet from a commodity into a perceived necessity for millions of people across the world.

The first step in this digital transformation was what McLuhan called the phenomenon of the "global village," the increasing access of exponential numbers of people to information and content from a global ecology of providers at an almost instantaneous speed (31). People could now connect in ways previously unimagined, with a speed that brought information from across continents within seconds. As the technology of website creation became more accessible, and companies began offering web hosting services, many for free, a revolutionary thing happened: People became involved in creating content, a function formerly entrusted to companies, retailers, universities and government agencies. McLuhan and Nevitt referred to this kind of development as the movement from the "global village" to the "global theater," a stage on which the everyday person could play a role (265). This contributed to the explosion of people connecting over the World Wide Web. With so many people creating new content, it was only a matter of time before a new kind of web surfing strategy developed.

Soon enough, the amount of information on the internet had metastasized. Not only were an incredible number of people connecting online, but they were also exchanging information instantaneously. News that once took hours or even days to confirm could now be confirmed in seconds through online video feeds networked across continents (Feldman and Rosenberg 5). Tomorrow's news was here today, and today's news was already old. No industry felt the repercussions of this adage more severely than newspaper publishers. RSS (Really Simple Syndication) feeds, which were first developed in 1994, allowed internet users to subscribe to multiple news agencies, shortening their articles to a few sentences coupled with icon sized images to facilitate quick scanning and relegation of unimportant materials (Lash). People could now stay on top of changing

stock quotes, sports highlights, and world news all on the same screen.

The 2000s would see major changes in these websites as companies struggled to fit as many snippets of associated content on a page as possible. Agencies shortened “their articles, introduced capsule summaries, and crowded their pages with easy-to-browse blurbs” (Carr 94). Unable to keep up with the speed and price (often times free) of online syndications that could be updated on site, many print journals fell out of circulation and eventually went bankrupt. In 2009 alone, “105 newspapers were shuttered, 10,000 newspaper jobs lost, and 23 of the top 25 newspapers reported circulation declines between 7% and 20%” (Dumpala). The diminishing role of print newspapers was due to growing populations of people getting their news online. The speed at which new information emerged necessitated that people develop new content consumption skills to keep abreast of the most current events. Reading full-length feature articles became inefficient in the face of the new technology, where cursory browsing would suffice.

### **The Benefits and Costs of Convenience**

The new journalism required a new kind of reader, one more accustomed to skimming, surfing, and quickly extrapolating the important details from long texts. This buffet-style consumption of data required us to adapt new skills and techniques of separating worthwhile information from the voluminous terabytes of useless data. Communications expert Howard Rhinegold laconically refers to this phenomenon as a newer version of Hemingway’s “crap detection,” arguing that “the speed and ubiquity of the Internet actually help us to be on our critical guard” (137-38). Rhinegold expanded on D.C. Englebart’s arguments that the new technology would stimulate “more-rapid comprehension, speedier solutions, and the possibility of finding solutions to problems that before seemed insolvable” (qtd. in Rhinegold 138). Even Gary Small and Gigi Vorgan, whose research confirmed the Internet’s impact on “rewiring our brains,” admit that “technological experiences sharpen some cognitive abilities” (82). These experiences stimulate us to “react more quickly to visual stimuli and improve many forms of attention,” including our ability to “sift through large amounts of information rapidly and decide what’s important and what isn’t” (95).

The younger generation, which grew up with the luxuries of this digital age, quickly acquired these new skills. Digital natives, as they are described by software designer Marc Prensky, “are used to receiving information really fast” and rely on “parallel processing and multitasking” to interpret their data (“Digital” 4). Studies cited by Patricia Marks Greenfield in her book *Mind and Media: The Effects of Television, Video Games and Comput-*

ers show that certain cognitive skills are enhanced by these technologies, including “reading multidimensional images, mental mapping, inductive reasoning, and attentional deployment” (qtd. in Prensky, “Do,” 17). The amount of information on the web required these digital natives to learn how to sift through nonimportant information to find what they were looking for. In time, these sifting techniques teach the brain to think quicker and react more immediately to visual cues and certain patterns of website organization. Carr observes that “the need to evaluate links and make related navigational choices requires constant mental coordination and decision making” (122). Each time you visit a website you have to make multiple decisions simultaneously about the website’s content, integrity, authority, relevance, layout and organization. As a result, increased internet usage caused people to become accustomed to multitasking and parallel processing.

However, some researchers argue that that the faith in the net-generation’s newly acquired multitasking abilities may be misplaced. In a study by CHIME Labs on human-computer interaction, Robles, Nass, and Kahn found that “high multitaskers had difficulty keeping information sorted, always drawing from all the information in front of them, unable to filter irrelevant information from the task at hand” (Gorlick 1). Even Howard Rhinegold, a proponent of the mind over machine school of thought, confesses that internet “surfing can be addictive and a prodigious time waster, encouraging a habit of butterflying from topic to topic rather than attending to one thing at a time” (138). What for some is multitasking becomes attention fizzling for others. The real apprehension about the technology’s affect on our brains and thinking habits is centered on this growing shift in reading styles towards shallow reading. Maryanne Wolf, in her article “Learning to Think in a Digital World,” gives voice to the concerns many have for future generations, wondering if they will become little more than “decoders of information who have neither the time nor the motivation to think beneath or beyond their Googled universes” (35).

More and more research supports these claims, suggesting that the internet’s affects on our brains may be more tangible than we might like to admit. About a century after Michele Malacarne dissected pairs of rat brains trained to acquire different sets of cognitive skills and patterns of behavior, William James reintroduced the idea of neuroplasticity, “the malleable potential of the brain to create new neural connections well into adulthood” (104). The recent findings on the effects of digital technologies on brain activity, however, have been unprecedented. After conducting MRIs on a groups of readers accustomed to print and digital articles, Gary Small and Gigi Vorgan discovered drastically different neural activity in

the prefrontal cortex of what Prensky referred to as digital natives, people who have grown up fluent in internet technologies, compared to that of the digital immigrants, the generation of people who have had to acculturate themselves (Small and Vorgan 78; Prensky, “Digital” 4). Even more astounding, was that after only five days of practice, the digital immigrants began developing new neural pathways in the same areas of the prefrontal cortex as the others (Prensky, “Do” 17). These findings confirmed the results researchers of digital technologies have seen across the board: The brain adapts itself to the stimuli we provide for it by laying down neural pathways according to the patterns of knowledge consumption we utilize. How we adapt to those adaptations, however, remains a separate issue altogether.

### **How Our Brains Are Changing**

Luddites argue that the new skills of the technological world come at the cost of the old ones. And there is evidence to suggest that this may be true. “Daily exposure to high technology-computers, smartphones, video games, search engines like Google and Yahoo-stimulates brain cell alteration and neurotransmitter release,” say Small and Vorgan, are “gradually strengthening new neural pathways in our brains while weakening old ones” (92). The more time we spend online, the more these pathways become developed, and the more we become accustomed to “hurried and distracted reading,” depending on our brains to “organize scattered bits of information into patterns of knowledge” (Carr 24). These results, reproduced by many other studies, bring us to the same conclusion: The malleability and plasticity of the brain allow it to reorganize itself our entire adult lives.

However, if the brain is as malleable as these researchers claim it to be, why cannot it be trained to accommodate both the skills of deep reading as well as content filtering? As Rhinegold notes, “it’s easy to drift into distraction, fall for misinformation, allow attention to fragment rather than focus, but those mental temptations pose dangers only for the untrained mind” (138). Joshua Greene, cognitive neuroscientist and philosopher at Harvard University, argues that the difference between the internet and its technological predecessors is that it “hasn’t placed any fundamentally new demands on us,” but this is simply not true (133). “Learning the mental discipline to use thinking tools without losing focus” is not only one of those demands, but a demand that taxes our mental disciplines more than any other (Rhinegold 139).

In fact, there has also been a growing number of studies indicating that our cognitive abilities may be more complex than we realize. Marc Prensky cites one experiment conducted on the attention spans of

children watching Sesame Street in a room full of toys where children as young as five were able to multitask effectively. One group was allowed to watch the show without toys, while another group was given toys in the room. Even though the toy group only watched the television half as much as the group without toys, both groups were able to understand and recall the same amount of information from the episodes. The toy group was able to effectively divide their attention between playing and watching, “a strategy that was so effective that the children could gain no more from increased attention” (“Do” 17). Experiments like this support the argument that our tendency to divide our attention does not necessarily reduce our ability to absorb important information. Eric Kandell, a Nobel prize winning neuropsychiatrist, observed an even stranger phenomenon in his experiments, which indicated that the parts of our brain wired to respond to stimuli and the part wired to recall and reflect on important information operate on completely different wavelengths (Carr 182). As another Nobel prize winning author, Daniel Kahneman, observes in his book *Thinking, Fast and Slow*, the mind’s cognitive processes can be divided into two different systems. “System 1 operates automatically and quickly, with little or no sense of voluntary control,” while “System 2 allocates attention to the effortful mental activities that demand it, including complex computation, and the subjective experiences of agency, choice, and concentration” (20-21). This means that the relationship between the strengthening and weakening of neural pathways and exposure to technology may not be as direct as some studies suggest. Just because being on the internet causes us to become more scatterbrained, it does not imply that the same brain cannot participate in meaningful reflection and deep thinking when it is called upon for those kinds of tasks.

### **Interpreting the Data**

Yes, the internet is definitely changing our brains, and causing us to process information in completely new ways, but that does not necessarily mean that we can no longer engage in the long meditative spells of deep reading. If the web is reducing our attention spans, it must be doing so in superficial ways, or at in least ways which we cannot yet concretely measure. There has been no mass exodus from book reading or even book writing. In fact the very opposite has taken place. Electronic readers have reignited book reading. According to *Shelf Awareness*, a website dedicated to keeping members of the publishing industry up to date, there has been a “4.1% increase in the number of books sold across all formats,” with the growth of eBook sales steadily increasing (Mutter). Ironically, it is the more tech savvy

people who are more likely to purchase electronic reading devices and who are in turn more likely to purchase more books, at least electronically. One study showed that 40% of people who had already purchased electronic readers reported that the devices had stimulated their book purchasing habits (Fowler and Baca). Certainly, our predilections towards “deep reading” have not suffered if more – and not fewer – people are reading more books.

Perhaps a better metric of our cognitive functions might be how we communicate over the internet. A Stanford study conducted on university students found that “students were remarkably adept at what rhetoricians call *kairos*—assessing their audience and adapting their tone and technique to best get their point across” (La Force). Science and technology writer Clive Thompson describes, “the modern world of online writing, particularly in chat and on discussion threads, [as] conversational and public, which makes it closer to the Greek tradition of argument than the asynchronous letter and essay writing of 50 years ago” (qtd. in La Force). However, could the same thing be said about university students across the board? Another researcher drew similar conclusions about the shorthand used in SMS and chatting, saying that the reductive and perceivably “loose” attention to grammar often seen in online conversation is “a challenge to ingenuity, not an invitation to anarchy” (La Force). Some linguists might argue that it requires more creativity than laziness to construct a digital vernacular.

The expanding body of research suggests one thing and one thing only thus far: It confirms that the medium can change how we consume and interpret data. It does not, however, imply that the medium overpowers our ability to decide how much of an impact it may have on us. It is clear that the internet affects cognitive function, but to what extent it does so negatively is still not clear. We also know that increased internet usage affects attention span and focus, but its effects on critical thinking and deep reading are still debatable. Most people, it would seem, are able to utilize a compartmentalized set of responses to engage the burst transmissions of internet copy and a separate set of cognitive energies to engage the deep reading of longer texts. These findings hardly warrant the exaggerated claims of anti-internet enthusiasts. Moreover, the negative impacts of digital technology on our attention spans vary from group to group.

### **The Next Generation**

The generation now growing up on these new technologies will not only inherit these issues, but decide whether or not and to what extent they will play a role in our future. The consistent problem with all of the studies concerning the effects of the internet is that they are either too small, account

for too few variables, or it is simply just too soon to tell. Arguments on both sides of the coin seem largely anecdotal, deriving their evidence from personal experience, popular trends, and small sample sizes that simply cannot account for the wide variety of experiences encountered by the populace.

Based on the current scientific evidence, Small and Vorgan suggest that the “the consequences of early and prolonged technological exposure of a young brain may in some cases never be reversed, but early brain alterations can be managed, social skills learned and honed, and the brain gap bridged” (78). The internet has undoubtedly added a level of unprecedented convenience to our lives that enables us to track down and react to data more quickly. We have also been forced to accommodate ourselves to this new “ecosystem of interruption technologies” that comes with the benefits of the internet (Carr 91). Certain studies show that web users are more attuned to consuming small packets of data, while their ability to enter deep states of meditative reflection may diminish over time. It seems more likely, though, that the internet is not waging a war against our attention spans, but rather providing new avenues of thinking. How we use our brains determines how our brains grow and develop. The brain’s malleability puts that power in our hands. The people who spend more time on the internet in interruption-prone spaces will be more likely to suffer the internet’s negative effects, and those who are able to allocate and focus their own attention will always retain the ability to shut off the screen and walk away. How much the internet influences our brains will be determined by how we choose to continue to interact with the technology.

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