

Essay

Understanding Humans: The Extensions of Digital Media

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Received: 12 September 2019; Accepted: 27 September 2019; Published: 29 September 2019



Abstract: With digital media, not only are media extensions of their human users, as McLuhan posited, but there is a flip or reversal in which the human users of digital media become an extension of those digital media as these media scoop up their data and use them to the advantage of those that control these media. The implications of this loss of privacy as we become “an item in a data bank” are explored and the field of captology is described. The feedback of the users of digital media become the feedforward for those media.

Keywords: McLuhan; extensions of man; media; technology

Technologies are merely extensions of ourselves—McLuhan [1] (261)

All media are extensions of some human faculty—psychic or physical—McLuhan and Fiore [2]

Digital industrialism turns human data into the new commodity—Rushkoff [3] (44)

This is Google's model of giving away everything in return for looking at their ads and sharing all our data—Rushkoff (ibid., 37)

1. Introduction

The idea that our tools are extensions of our body dates back to the latter half of the 19th century. Ralph Waldo Emerson [4] in 1870 wrote, “All the tools and engines on earth are only extensions of man's limbs and senses.” And Henry Ward Beecher [5] in 1887 wrote, “A tool is but the extension of a man's hand and a machine is but a complex tool.” This idea was then picked up in 1923 by C. K. Ogden and I. A. Richards [6] (98) in their book *The Meaning of Meaning*, where they wrote, “But language, though often spoken of as a medium of communication is best regarded as an instrument; and all instruments are extensions or refinements of our sense organs.” Lewis Mumford [7] (321) also dealt with this theme in *Technics and Civilization*:

The tools and utensils used during the greater part of man's history were, in the main, extensions of his own organism; they did not seem to have—what is more important they did not seem to have—an independent existence. But though they were an intimate part of the worker, they reacted upon his capacities, sharpening his eyes, refining his skill, teaching him to respect the nature of the material with which he was dealing. The tool brought man into closer harmony with his environment, not merely because it enabled him to re-shape it, but because it made him recognize the limits of his capacities. In dream, he was all powerful: in reality he had to recognize the weight of stone and cut stones no bigger than he could transport.

McLuhan, who was familiar with both Ogden and Richards's paper and Mumford's book, made use of this idea in his book *Understanding Media: The Extensions of Man* [8], where it became a central theme of his understanding of media and technology and their effects.

McLuhan wrote,

This is merely to say that the personal and social consequences of any medium—that is, of any **extension of ourselves**—result from the new scale that is introduced into our affairs by each **extension of ourselves**, or by any new technology

Physiologically, man in the normal use of technology (**or his variously extended body**) is perpetually modified by it and in turn finds ever new ways of modifying his technology. Man becomes, as it were, the sex organs of the machine world, as the bee of the plant world, enabling it to fecundate and to evolve ever new forms. The machine world reciprocates man's love by expediting his wishes and desires, namely, in providing him with wealth [8] (23; 55–56; bolding is mine; the page references in the text are for the McGraw Hill paperback second edition. Readers should be aware that the pagination in other editions is different. To aid the reader in calibrating note that Chapter 1 The Medium is the Message begins on page 7 in the edition I have referenced).

McLuhan made use of the theme of media as “extensions of man” throughout his career. He wrote with Quentin Fiore in *The Medium is the Massage: An Inventory of Effects*, “All media are extensions of some human faculty—psychic or physical” [9] (26). With Barrington Nevitt in *Take Today: Executive as Dropout*, he wrote, “Environments work us over and remake us. It is man who is the *content* of and the *message* of the *media*, which are extensions of himself” [9] (90).

McLuhan's notion of media as “extensions of man”, which he formulated before the digital age, also holds true for today's technologies. His insights into electric media apply with equal validity for many of the features of digital technology. He seems to have foreshadowed the Internet, Wikipedia, and Google when he wrote,

A computer as a research and communication instrument could enhance retrieval, obsolesce mass library organization, retrieve individual encyclopedic function and flip into a private line to speedily tailored data of a saleable kind [10] (295–96).

The sense in which the data provided by companies such as Google is of a “saleable kind” is that Google and other search engine companies receive revenue from advertisers for the advertisements that accompany the data that we request from these search engine companies.

McLuhan [11] developed the Laws of Media as a technique for analyzing media. It consists of four laws, namely, that every medium, tool, or human artifact enhances some human function (Law 1); obsolesces a former way of achieving that function (Law 2); retrieves something from the past (Law 3); and, according to Law 4, any technology pushed far enough **flips or reverses** into its opposite or complementary form.

Applying the Laws of Media to digital media, we find that

1. Digital new media **enhance** interactivity, access to information, and two-way communication.
2. They **obsolesce** mass media, such as television and newspapers.
3. They **retrieve** community.
4. And pushed far enough, they **flip or reverse** into hyperreality or the loss of contact with nature and our bodies.

I believe there is another flip or reversal associated with digital media, namely, the reversal of the notion that media are extensions of man. McLuhan suggested that human communications could be divided into the eras of oral, written, and electric communication. Despite not having experienced the digital age which began with the emergence of the personal computer, the Internet, and the Web, McLuhan seems to have anticipated many of the features of the digital era. Because digital technology pushes electric technology to its extreme, it causes a flip or a reversal of the effects of this class of technologies. The flip is that not only are digital media an extension of the psyche of the user, as is

the case with oral, written, and electric media, but it is also the case that the user actually becomes an extension of his digital technology, unlike the situation in the earlier ages of nondigital media.

Culkin [12] wrote that, “we shape our tools and thereafter they shape us.” Culkin’s formulation is basically a reformulation of McLuhan’s remark that the users of technology are “perpetually modified by it [their technology].” With digital media, there is the added feature that the use of the digital media that we humans shaped is reshaped through our use of those media.

Let us explain the sense in which we believe that users become the extensions of their digital media. In addition to the hardware and software of which digital media systems are composed, they are also composed of the data that is stored within them (i.e., the Big Data that sits in the Cloud). Most of that data or information comes directly from the users of the system, as every key stroke and choice they make is information that is fed into that Big Data system, as Rushkoff [3] (90–91) explained in *Throwing Rocks at the Google Bus*:

Projects such as IBM’s Watson or Google’s Machine Learning lab are not augmenting human intelligence so much as creating systems that think for themselves. With every keystroke and mouse click we make; their algorithms learn more about us while simultaneously becoming more complex than we—or anyone — can comprehend. They are getting smarter while we humans are getting relatively, or perhaps absolutely, dumber. Our machines slowly learn how to manipulate us. It’s a field now called captology: the study of how computers and interfaces can influence human behavior.

The data associated with their reactions to the “speedily tailored data of a saleable kind” [10] (295–96) with which they are provided, unbeknownst to them, is captured and literally becomes an extension of that information system with which they, the users, are interacting. The users of a digital information system literally become an extension of that technology (i.e., de facto, the content of the medium with which they are interacting).

This content is different than the “content” McLuhan referred to in his one-liner “the user is the content.” The content in “the user is the content” is the way the users of an information system interpret the data they encounter. With digital media, the system itself is also interpreting. It is interpreting the users who literally become the content of that system as their keystrokes and the data those keystrokes represent are incorporated into the Big Data that comprises the system with which they just communicated. This way, we become an extension of that medium and it somehow seems to fulfill a sentiment McLuhan [8] (64) prophesized when he wrote, “In this electronic age we see ourselves being translated more and more into the form of information, moving toward the technological extension of consciousness.”

The digital media being an extension of us and at the same time we becoming an extension of our digital media is a cybernetic feedback loop in which we become trapped and at the mercy of the creators and controllers of the digital information systems with which we interact.

It has always been the case that a medium or tool had a certain control over us as a user of that medium or tool, as described by McLuhan and Fiore [2] (26):

All media work us over completely. They are so persuasive in their personal, political, economic, aesthetic, psychological, moral, ethical, and social consequences that they leave no part of us untouched, unaffected, unaltered. The medium is the message.

But the control of digital media is even more insidious because it is an invasion of our privacy and it is about us personally as we become “an item in a data bank”:

Electronic man wears his brain outside his skull and his nervous system on top of his skin. He is like an exposed spider squatting in a thrumming web. But he is not flesh and blood; he is an item in a data bank, ephemeral, easily forgotten, and resentful of that fact - McLuhan and Powers [13] (94).

This is what McLuhan [14] (1969) meant when he wrote, “The more the data banks record about each one of us, the less we exist.”

As extensions of our digital technology, the problem that arises is because of the monopolies that digital media creates such as Google, Facebook, Instagram, Amazon, Yahoo, Twitter, Apple, and Microsoft. The potential for their abuse is great. When our technologies were only extensions of us, they enhanced our capabilities and we were in command of them in the sense that they did our bidding as their servomechanisms. The tools no doubt affected us but they were not used by others to control us. That is no longer the case with digital media because those that control digital information systems can use the data we key into their systems to manipulate us. The field of captology has the direct aim of manipulating our behavior by making use of what they learn about us. We have always been manipulated by media through advertising with newspapers, magazines, radio, and television but not to the same degree as is the case with digital media, search engines, and social media.

Captology was started by BJ Fogg (<http://captology.stanford.edu/resources/thoughts-on-persuasive-technology.html>), who describes captology in the following terms:

After we ran a number of experiments, and after these studies were replicated elsewhere, the results were undeniable. Computers could indeed be designed to influence people, to change their thoughts and behaviors Today, we are surrounded by persuasive technologies. Everywhere that digital media touches our lives, more and more there is an element of persuasion; a design created by humans and implemented in code to influence what we think, and more and more, what we do

Today, we are surrounded by persuasive technologies. Everywhere that digital media touches our lives, more and more there is an element of persuasion; a design created by humans and implemented in code to influence what we think, and more and more, what we do. We are surrounded. Persuasive technology is in our living rooms, in our cars. When we communicate with our loved ones online, through Facebook, persuasion is there. When we withdraw money from the bank at the ATM, an element of persuasion may be there. When we purchase a gift online for a birthday, once again, we are being exposed to persuasion. In fact, we carry a persuasive platform, the mobile phone, with us most everywhere we go.

The Internet gives us the illusion of being part of a two-way channel of communication. The reality and the danger is that we are becoming extensions of our digital technologies controlled by the monopolies of the Internet that dominate this medium of media. We are not suggesting that any of the organizations that we listed above have any malicious intents, but still, when the concentration of computing power becomes so great, the possibility of malevolent actions is something we need to think about. There is always a danger when control of the dominant technology of a culture is in the hands of a small number of agents.

Many years before digital media invaded our world, McLuhan [8] (73) warned against this invasion of our privacy when he wrote,

Once we have surrendered our senses and nervous systems to the private manipulation of those who would try to benefit from taking a lease on our eyes and ears and nerves, we don't really have any rights left. Leasing our eyes and ears and nerves to commercial interests is like handing over the common speech to a private corporation, or like giving the earth's atmosphere to a company as a monopoly.

2. More Reversals with Digital Media

There is another flip with digital media in addition to the reversal where the users become the extension of their media. Our tools or media comprise the environment or ground in which we operate. That is still true with digital media but we as the users of digital media become the ground in which digital media operate, as their effectiveness depends on the information ground that we, their users,

create. So, we have the flip of digital media operating in the information ground of their users in addition to their users operating in the ground of the very same digital media. The feedback of the users become the feedforward for the digital media.

There is even the reversal of McLuhan's signature one-liner "the medium is the message", which reverses into "the user is the message". The user's information becomes the content of the digital medium. That data is then tailored to exploit the needs, interests, and desires of the user to the advantage of the operators or owners of the digital medium and the clients of that digital medium, who use the data they collect from the visitors to their sites for their commercial interests. Not only are the effects of digital media subliminal like all other media but the appropriation of the user's data is also subliminal in that the user is unaware of the process. In addition to the visitor to an Internet site becoming a user of the site, the site becomes a user of the visitor. Just as there is no privacy in a village, it is also the case that there is no privacy in the global village of the Internet. Finally, there is a new reversal of cause and effect in that the effect of users using a website becomes the cause of the website using the visitors' data and eventually the users.

3. The Digital Monopoly of Knowledge

Harold Innis [15,16] defined a monopoly of knowledge as pertaining to a ruling class that could maintain political or economic power by their exclusive use or control of a vital communication technology. In the oral era, it was through rhetoric or the ability to use spoken language persuasively. In the literate age before universal education, those who possessed the skills of literacy were able to dominate those who were illiterate. In the age of print, those who possessed or controlled a printing press could dominate their society, as was the case when the dominance of the Hearst newspaper chain was able to set the agenda for the foreign policy of the United States.

The fears that Innis expressed in 1951 have abated somewhat because computing and connectivity have led to open systems in which information is free to flow and small elites are no longer as able to completely control the creation of wealth and the flow of information. The Internet and the World Wide Web have played a prominent role in the breakdown of Industrial Era monopolies of knowledge by providing a medium whereby nonprofessionals have been able to share their experiences and network their knowledge. Websites that act as electronic support groups have sprung up all over the Net, providing practical suggestions for those who have to cope with a variety of different political, economic, medical, psychological, and social problems. Bloggers represent a further evolution of this trend not only for political opinion but also support and information for a variety of interests and concerns.

While the Internet has abated some forms of the monopoly of knowledge, the harvesting of personal data by Internet monopolies such as Google, Facebook, Amazon, and the like represents a new form of the monopoly of knowledge of the personal information associated with the users of these sites.

4. Conclusions

Digital technology and specifically the Internet and the Web seemed to hold the promise of the liberation of the 99% from the 1% that control the wealth of the planet and its channels of communication. It looked like freedom of the press was not going to belong only to those who owned one, but with the two-way flow of information, finally, the 99%-ers could find a voice. This has certainly happened. What we did not see was that the two-way flow of information not only allows for self-expression for all (at least for those with access to the Net) but it also allows the large monopolies that dominate the Internet to exploit without our permission the information and data we generate unintentionally while visiting their sites.

Funding: This research received no external funding.

Acknowledgments: This paper was formulated as a direct result of listening to Douglas Rushkoff's presentation based on his book *Throwing Rocks at the Google Bus* at the McLuhan Centre for Culture and Technology at the University of Toronto on 21 November 2016. The ideas were developed as a result of the dialogue Doug and I had during his seminar presentation and in the private conversation that ensued after the seminar as well as the result of a number of email exchanges. The idea presented here that we become the content of digital media is basically Doug's with the exception of the twist I gave to it by suggesting the flip that we are extensions of the digital media we make use of instead of the usual McLuhan notion that our media are extensions of us, both of which are claimed to be true.

Conflicts of Interest: The authors declare no conflict of interest.

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