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STUDYING MEDIA AS MEDIA: MCLUHAN AND THE MEDIA ECOLOGY APPROACH

LANCE STRATE

Let me begin with a story about a professor at my university. This professor was a senior faculty member and an accomplished scholar, and he had a “no nonsense” approach to education. He regularly taught a large, impersonal lecture course. It was a required course, which meant that the professor was free to make it as difficult and demanding as he liked. And he relished the reputation he gained for his strict and severe grading. His final examinations were especially tough, and at the beginning of the test, the professor would warn his students that they must stop writing when he announces that the test is over. Otherwise, they will be given a failing grade for the final, and fail the course.

One semester, one of his students ignored this warning, and continued to work on his essay after the professor announced that time had run out. All of the other students obediently put down their pens, and dropped their examination booklets in a great pile on the desk at the front of the room. As the rest of the students walked out of the room, the one student finished writing, and walked to the front of the class with his booklet. The professor looked at him sternly, and told him that he would not accept his exam, and that the student would receive a failing grade. The student looked the professor squarely in the eye and said: “Do you know who I am?” The professor responded: “No I do not, and frankly I couldn’t care less!” The student then said “Good!” and stuck his final into the middle of the pile of booklets, and ran away.

Now, I must confess to you that this is not a true story. I took it from a book of urban legends written by the American folklorist Jan Harold Brunvand (1986). Actually, Brunvand refers to this particular story as one of the legends of academe, but the important point is that it is truly a legend, a story passed on and preserved by word of mouth. It is told on many different college campuses, but always told as a true story that happened right here, at our school, at some time in the recent past. Nowadays, when so much of our attention is captured by our electronic technologies and digital communications, it is both important and humbling to recall that speech is still the foundation of human culture, and that oral traditions have yet to be extinguished altogether.

At the same time, it is clear that the urban legends of today are but a faint echo of the orality that existed before writing took hold. We have no living

tradition of orally composed epics such as the *Iliad* and *Odyssey*, *Gilgamesh*, *Beowulf*, the *Elder Edda*, or the *Kalevala*. We have no nonliterate singers of tales whose bardic performances maintain cultural continuity from generation to generation. We do not depend on collective memory alone for the preservation of knowledge. And poetry, proverbs, and other such oral media no longer serve as our dominant mode of public communication.

The legend of the professor and student originates as an oral form of communication, but its content is very much derived from literate culture. The setting of the school represents the institutionalization of literacy, and the university symbolizes literacy in its highest form. The professor is an embodiment of the literate mindset, demanding that his students proceed by the book, and that his instructions be followed to the letter. In other words, his rigidity mirrors the fixity of the written word, in contrast to the flexibility and multiformity of oral traditions. Also, the professor is an elitist, treating his students as if they were beneath contempt. The word “elite” comes from the same root as “literacy,” both referring to the distinction between the lettered and the unlettered. And, of course, the legend revolves around an examination, where the main activity is writing, and it is the student’s refusal to stop writing that gets him into trouble.

The student’s ultimate triumph is derived from the fact that the examination booklets are mass produced products, each one identical to the other, insuring his anonymity. They are, in fact, print media, a point we tend to overlook because most of what is printed does not consist of words, or pictures, but of straight lines to guide our handwriting. In one of my own classes, I use a piece of ruled paper as a test for my students. I show them the paper and ask them to write down what they see. Some students write that it is a blank piece of paper. To them I say that they need to shed their preconceptions and use their powers of observation. Other students write that it is lined paper, sometimes also noting the color of the lines and the paper. To them I say that they are using their senses, but need to think more about the meaning of what they see. And finally, a few students will say that they see lines *printed* on paper, or even that they see a *print medium*. And to them I say that you are ready to study media, that is, to study media *as media*.

The professor in our legend does not understand media *as media*. He is fully immersed in literate culture, and dismisses alternatives, or cannot imagine them in the first place. The student, on the other hand, is the central figure in an oral narrative, and very much resembles the trickster character of oral myth and legend, such as the Native American Coyote god, the ancient Greek Titan Prometheus, or the Norse pantheon’s Loki. The student has much in common

with these oral heroes (Strate, 1994, 1995, 2008), but at the same time, he is literate enough to pursue higher education. And given the fact that this is a contemporary legend, I think it safe to assume that the student is in fact postliterate, a product of the electronic media environment. Much like the computer hacker, he steps outside of the system, uncovers its code, and alters it to his own benefit. The literate culture that the school manifests is an invisible environment to the professor. But literate culture's structure, and its flaws, stand exposed to the students of the electronic era.

The student is the hero of the legend, and the story is told so as to foster our sympathy for him. Of course, those of us who are educators may feel guilty for taking sides against our colleague, the professor. But I want to suggest to you that it is in fact appropriate for us to identify with the student. As students ourselves, we need to use our powers of observation to reveal our otherwise invisible media environments. And as scholars, we need to use our powers of understanding to make meaning out of our media environments and their effects. After all, consider just some of the fields of study that have arisen in response to innovations in communication technology.

Alphabetic writing, by virtue of its ability to make speech visible, gave rise to the discipline of rhetoric in ancient times, and to the study of language and poetics, which was also known as grammar; the alphabet also set the stage for what was known as dialectics, or logic, as codified by Aristotle. Rhetoric, grammar, and logic together became known as the trivium, the basis of the Medieval university curriculum, and what became known as the liberal arts. In the nineteenth century, innovations such as the steam-powered printing press and telegraphy led to both the modern newspaper and also to journalism as an academic pursuit, while the addition of the motion picture gave birth to film theory and cinema studies. The introduction of broadcasting in the form of radio, following on the heels of mass circulation newspapers, magazines, as well as the movies, resulted in the study of mass communication. The invention of photography, film, and sound recording suggested the studies of interpersonal communication and nonverbal communication. Sound recording technology was also instrumental to the discovery of primary oral cultures and the beginning of orality-literacy studies (Lord, 1960; Ong, 1982; Parry, 1971). Electricity and electric devices, especially the electric media of communication, were essential to the development of technology studies (Carey, 1989, 1997), information theory, cybernetics, and systems theory (Bertalanffy, 1969; Wiener, 1950). In many ways, the modern field of communication established in the aftermath of World War II went hand-in-hand with the development of television, information technology, and the digital computer (Shannon & Weaver, 1949; Wiener, 1950).

These very same media and technologies had much to do with the sudden interest in studying language and symbols that is characteristic of the late nineteenth and early twentieth century, which includes the new fields of linguistics and semiotics, general semantics, and of course media ecology, the intellectual tradition with which I am associated. In this essay, my focus will be on Marshall McLuhan, but I want to make it clear that media ecology is more than “McLuhanism.” Its roots can be traced to the studies of technology produced by Lewis Mumford, Jacques Ellul, and Peter Drucker; the research on oral tradition, writing systems, and typography associated with Eric Havelock, Walter Ong, Jack Goody, and Denise Schmandt-Besserat, as well as Lucien Febvre, Henri-Jean Martin, and Elizabeth Eisenstein; the studies of media and culture of Harold Innis, Edward T. Hall, Edmund Carpenter, and James Carey; and the investigations into symbolic form carried out by Alfred Korzybski, Suzanne Langer, Dorothy Lee, and Neil Postman (for an extended review of the literature in the field of media ecology, see Strate, 2006; see also Lum, 2006).

Media ecology is the study of media *as* media, which follows from McLuhan’s (1964) famous maxim, “the medium is the message” (p. 7). “The medium is the message” is McLuhan’s wake-up call to individuals like the professor who, like most people, tend to ignore the medium and only pay attention to content. In effect, McLuhan was trying to say: “it’s the medium, stupid!” McLuhan’s goal was the liberation of the human mind and spirit from its subjugation to symbol systems, media, and technologies. This can only begin with a call to pay attention to the medium, because it is the medium that has the greatest impact on human affairs, not the specific messages we send or receive. It is the symbolic form that is most significant, not the content. It is the technology that matters the most, its nature and its structure, and not our intentions. It is the materials that we work with, and the methods we use to work with them, that have the most to do with the final outcome of our labors.

Of course, there are some who disagree with this point of view. For example, in the United States there is the National Rifle Association, a pressure group that opposes all attempts at gun control. Their slogan is “guns don’t kill people, people do.” If you disagree with this argument, and believe that there is greater potential for violence with firearms than without them, then you believe that the medium is the message. The idea has been expressed in any number of ways. It is inherent in Henry David Thoreau’s (1893/1980) observation on the building of the railroads: “we do not ride on the railroad; it rides upon us” (p. 67). The idea is also implied in Mark Twain’s wonderful remark that when you have a hammer in your hand, everything looks like a nail (quoted in Eastham, 1990, p. 17).

The medium is the message because content cannot exist without a medium. Words can take the form of speech, or writing, for example. Or they can exist as internalized speech within the mind, the product of nerve impulses in the brain. But there must be some physical basis for them in matter or energy. And the different forms that they take determine what their meaning and impact will be. The words we think to ourselves seem different when we utter them out loud. The words we write down take on a permanence, distance, and impersonal quality in comparison to speech.

Along the same lines, information does not exist in a vacuum. It can be found riding radiowaves or the electric current running through wires, or stored in magnetic or optical form. Or information can be found in the sequences of chemicals that make up strands of DNA and RNA. The code and the mode of information that is used will determine who has access to the data and who controls its dissemination, how much information will be distributed, how fast it will be transmitted, how far it will travel, how long the information will be available, and the form in which it will be displayed. As these variables change, so does the message that is being communicated.

Artists have long understood that the medium is the message, that the same subject will yield an entirely different effect if the image is rendered in oil paint or watercolors, or sketched in charcoal. Sculptors likewise know that the decision whether to chisel a bust out of stone, carve it from wood, or mold it in clay will have a major impact on the end product. And musicians will tell you that when the same melody is played on violin, trumpet, and xylophone, you have three different pieces of music.

The medium is the message as well because the medium precedes the message. Before we produce the finished product, we must first have the raw materials we need, and the means to shape them. Before we can encode a message, we must first have the code with which to construct it. And before we learn how to talk, we first must babble. The sounds that babies make, goo-goo, ga-ga, and the like, are the sounds of the medium of speech without the linguistic content. First we learn how to recognize and make the significant sounds of our language, and only later do we learn how to make the significant symbols, that is, spoken words.

McLuhan (1964) also argued that the medium is the message because the content of a medium is, in a certain way, another medium. For example, the medium of speech becomes the content of writing, the medium of writing becomes the content of print, the medium of print becomes the content of hypertext. Jay David Bolter and Richard Grusin (1999) refer to this process as *remediation*. And they point out that the computer and computer networks

remediate just about every other medium in existence, turning written documents, books, magazines and newspapers, paintings and photographs, sound recordings and telephone conversations, as well as radio, movies, and television, into content for websites and multimedia presentations. At the same time, computer displays and interfaces are themselves remediated as content for older media such as motion pictures and television. When one medium becomes another medium's content, it becomes the code, symbolic form, or aesthetic style used to create specific messages.

McLuhan explained that another reason why the medium is the message is because the user is the content. What he meant was that audiences and readers must interpret the messages that they receive, process the sensory data that they take in, make meaning out of their environments, the artifacts that exist in them, and the events that occur within them. This coincides with such approaches to the study of communication, media, and culture as reader response theory, uses and gratifications research, ethnographic research of audiences and consumers, and studies of the decoding process; it is also consistent with contemporary research on the biology of perception and cognitive science. The point here is that if the message is largely constructed on the receiving end of communication, then its effect on us is limited. Therefore, it is the medium and not the message that has the greatest influence on the user and the audience. Put another way, it is the context that determines the content.

McLuhan's critics have been fond of making the counter-statement that the medium is *not* the message, to the point that this denial has become an academic cliché. And of course, it misses McLuhan's point entirely. We all know that medium and message are separate categories. That is our starting point, and dismissing McLuhan simply leaves us back at square one. The critics seem to think that we are dealing with a mathematical equation, which says, "let x equal medium, let y equal message, such that x equals y." But "the medium is the message" is a metaphor, not a math problem; it also is a contradiction in terms, an oxymoron—Ray Gozzi, Jr. (1999) calls it an oxymetaphor. Its purpose is to call our attention to the complex, dialectical relationship between medium and message.

McLuhan's critics have also taken him to task for denying the existence of content altogether, which would certainly be an absurdity. In point of fact, he was merely trying to put content in its place, a secondary role in relation to the medium. Whatever the consequences of the messages we send, it is the media we use that play the leading role in human affairs; it is our technologies that shape us individually and collectively.

McLuhan's emphasis on media effects has led some of his critics to label his approach as technological determinism. Technological determinism is a straw man used to caricature McLuhan as some sort of media Calvinist, and to dismiss his arguments without serious consideration. After all, most people get upset at the denial of free will, in theory as well as in practice. But McLuhan never actually used the term, "determinism," nor did he argue against human agency. In his bestselling book, *The Medium is the Massage*, he wrote, "there is absolutely no inevitability as long as there is a willingness to contemplate what is happening" (McLuhan & Fiore, 1967, p. 25). John Culkin (1967) summed up McLuhan's position with the quote, "we shape our tools and thereafter they shape us" (p. 52), suggesting a transactional approach to media.

Free will does not mean freedom from limits, constraints, and outside influences. As diffusion researcher Everett Rogers (2003) puts it, innovations have consequences, and while some of the consequences may be desirable, others may be undesirable. And while some consequences may be direct effects of the introduction of a new technology, these in turn may lead to further indirect effects. And while some consequences may be anticipated, there will always be others that are unanticipated. Along the same lines, it may be true that a good part of what we call reality is a social construction, but the construction we end up with is not necessarily one that we intended to build. Moreover, only an intellectual divorced from everyday life could forget that construction begins with raw materials and the tools that shape them. Media are the stuff with which we build our social realities.

Other critics complain that media ecology scholars like McLuhan, Havelock, and Ong put forth a "Great Divide" theory, exaggerating the difference between orality and literacy, for example. And it is true that they see a great divide between orality and literacy. And a great divide between word and image. And a great divide between the alphabet, on the one hand, and pictographic and ideographic writing, on the other. And a great divide between clay tablets as a medium for writing and papyrus. And a great divide between parchment and paper. And a great divide between scribal copying and the printing press. And a great divide between typography and the electronic media. And now a great divide between virtuality and reality. I could continue to add to this list, but the point is that there are many divides, which suggests that no single one of them is all that great after all.

The critics miss the point that media ecology scholars often work dialectically, using contrasts to understand media. Additional examples would include Mumford's (1934) organic and mechanical ideologies, Innis's (1951) heavy and light media and space and time biases, and McLuhan's (1964)

categories of hot and cool. Theorists such as Donald Theall (2001) and Daniel Czitrom (1983) have described McLuhan's method as a form of dialectics, while Judith Stamps (1995) and Paul Grosswiler (1998) have traced the parallels between McLuhan's implicit dialectical system, and the explicit dialectics of critical theorists. McLuhan (2006) himself rejected dialectics in the classical sense, it should be noted, arguing that the emphasis on logic originating with Socrates, Plato, and Aristotle was in conflict with approaches that favor rhetoric and grammar, with which he was aligned. But the concepts of the dialectician that Stamps and Grosswiler discuss represent a significant movement towards McLuhan's ideal of the grammarian. In general, media ecology represents a less mature body of theory than critical theory (if media ecology is to be considered theory at all), but also one that is more open-ended and adaptable, and more concrete, less prone to *the hardening of the categories*, as McLuhan was wont to say. Ultimately, dialectics is not an end-in-itself for media ecology scholars, but rather, a step that brings us closer to a truly ecological perspective.

Media ecology scholars also use broad categories like oral, scribal, print, and electronic cultures. These are alternatives to divisions such as agricultural, industrial, and information societies, based on the notion that it is communication, not economics, that most influences social life. In this sense, we would view the evolution of speech and language as intrinsically related to the origin of the human species. The development of systems of writing from various forms of notation is associated with the transition from tribal societies to what has traditionally been called civilization, that is, the founding of cities in Egypt, Mesopotamia, India, and China. The substitution of paper for parchment and the printing revolution that began with Johannes Gutenberg are tied to the shift from the Medieval period in Europe to modernity. And as electronic and audiovisual media have been introduced over the course of the nineteenth and twentieth centuries, we recognize that we have entered a new period of history, one that we have yet to understand, so that the best we can do is to term it "postmodern."

Each of these broadly defined historical periods can also be understood as a basic type of media environment, that is, the oral, scribal, print, and electronic media environments. But media ecology scholars also recognize that any given society at any given time has its own unique media environment. Whether we focus on the general or the specific, what is essential is to understand that media *are* environments. It is more common to think of media in terms of a pipeline or transportation, something that links or bridges two points. Media ecology scholars have long been critical of the transportation model, McLuhan (1995) arguing that we should replace transportation with

transformation, Tony Schwartz (1974) that we should use the concept of *resonance*, James Carey (1989) that we substitute *ritual*, and Walter Ong (1982) that we simply use *human communication*.

All of these possibilities have ecological connections, but the term in question, “medium,” is also defined as “a substance that surrounds or pervades, that goes between two points not by drawing a straight line between them, but by drawing a circle around them.” For example, fish swim through the medium of water, just as we move through the medium of air. Bacteria such as *acidophilus* live in the medium of milk, which they transform into yogurt. And we call that colony of bacteria a culture. In other words, as Neil Postman (2000) has explained, cultures are formed *within* media, rather than media simply being produced by cultures.

One of the dictionary definitions for the word “medium” is “an environment,” and understanding media as environments is the antidote to thinking of media in terms of cause and effect relations. A medium is not like a billiard ball, producing its effects by striking another ball. Rather, it is more like the table on which the game is played. Put another way, a medium is not an actor, it is a stage on which human agents play their parts. As environments, media do not determine our actions, but they define the range of possible actions we can take, and facilitate certain actions while discouraging others.

Media function as environments, ecologies, and systems. Content is what happens within the system, and it may or may not affect the system. Technological innovation is a change that occurs to the system itself, and its impact will be profound and far-reaching. And from a systems perspective, we can understand that media do not cause certain effects in a linear manner, but rather, particular forms of communication, consciousness, and culture emerge out of particular media ecologies.

While McLuhan viewed media as environments, he is better known for using the popular notion that technologies are extensions of our bodies and our capabilities. But these two conceptions differ only in emphasis, not essence, and McLuhan’s emphasis is on the human end of technology. In extending ourselves, our technologies come between ourselves and our environment, and thereby become our new environment. In shielding and protecting us from our old environment, our media numb our bodies and our minds, which is why McLuhan said that every extension is also an amputation. Or as Max Frisch (1959) put it in his novel, *Homo Faber*, “technology is the art of never having to experience the world” (p. 178). But keeping the world out also allows us to establish a sense of order and a degree of control. Niklas Luhmann (1989, 1995) emphasizes the importance of closing a system off from the chaos that

surrounds it in order for that system to organize itself and maintain its structure. In other words, the medium is the membrane.

It is no secret that I am using a variety of biological metaphors for media and technology, but it may come as a surprise to you that some media ecology scholars consider them to be more than metaphors. For example, Lewis Mumford (1952) argues that technology is not unique to human beings. In particular, he points to beaver dams, bird nests, anthills, and beehives as some of the most elaborate technological constructions in the animal kingdom. Technology is not only an extension of man, but also an extension of nature. All living things adapt to their environments in order to survive, and they also modify their environments in order to make them more survivable. The drive to remake one's environment is the technological imperative, and it is present in bacteria and viruses, just as it is in us.

Technology is natural, and that is why human speech is a medium. It is true that we are born with the genetic predisposition for language use, which is then activated by interaction with others. But we are also born with the genetic predisposition towards tool use, an instinct we share with other species, a trait that natural selection seems to have favored in us as much as human evolution has favored language use.

The human body is our primary medium, which is why Mumford (1967) argued that the first machines were made of flesh and blood, and appear early in antiquity. Mumford called them invisible machines, because they were based on the coordination of human labor for engineering, architectural, or military purposes. The building of the pyramids, of temples and palaces, of irrigation ditches and canals, as well as the building of empires, all were accomplished by invisible machines. Such complex coordination only became possible after the introduction of writing as a medium of organizational communication. Eventually, the fallible human parts of early machine technology would be replaced with the more reliable inorganic components we associate with modern machines. But the important point is that today, as in the past, human techniques and procedures, human organizations and institutions, are technologies comparable to tools, machines, and computers.

But today, unlike the past, we are overwhelmed by our technologies, and uncertain about what will emerge out of our electronic media environment. McLuhan (1951) found inspiration in Edgar Allen Poe's short story, "A Descent into the Maelstrom," in which a shipwrecked sailor is trapped within a whirlpool, but escapes death by finding the pattern hidden within the vortex.

The maelstrom is our media environment, and the only way out is through synthesis or pattern recognition. We cannot get out through linear logic and cause-and-effect thinking alone. We need to work dialectically and ecologically, riding through complex systems on the edge of chaos.

At this point, I would assume that you expect me to tell you how we might go about doing this. And now I must confess that my reach exceeds my grasp, and I cannot do much more than provide you with some preliminary thoughts. In contrast to print media, which maintain a sense of distance between reader and writer, electronic technologies, through their speed and audiovisual form, bring us together. At the same time, in contrast to face-to-face communication, the electronic media keep us apart. We are simultaneously together and apart. Consequently, we demand commitment from each other, and we run away from the demands of commitment. We expect each other to behave responsibly, and yet refuse to take responsibility for our behavior. We seek intimacy and depth, but find only surfaces. The synthesis of together and apart is a constant sense of connection, for example, as the cell phone makes us available at all times, and a constant sense of dislocation, as the cell phone call interrupts and disrupts the pre-existing situation and imposes a new set of conditions upon us.

As individuals as much as in relationships we are both together and apart. We project ourselves through the Internet, creating alter egos, electronic doubles, shadow selves. Kenneth Gergen (1991) explains how, through the multiplication of mediated interactions, we increase the number of roles that we play, the number of selves that we “put on.” We create aliases and avatars, which result in identity diffusion. And we leave traces of ourselves behind for others to encounter, multiplying ourselves over time to a degree unprecedented in human history. We may meet our past selves online or stored as data, further fragmenting our self-image. And we may even find our identities hijacked by others, a truly horrifying violation of our personal integrity.

McLuhan (1995) suggested that loss of identity results in violence, not just out of frustration, but in an effort to form a new identity. And terrorism may in fact be a response to the theft of identity that occurs when the electronic media environment absorbs primarily oral cultures. But are our aggressive tendencies intensified or reduced when identity is not lost, but multiplied? Also, are we experiencing a permanent breakdown along the lines of a multiple personality disorder? Or might we eventually come to terms with our legion of selves, and create a new synthesis, a new integrated mindset, a new form of consciousness?

As societies, we are also coming together and falling apart. McLuhan (1962) coined the term “global village,” another example of dialectical thinking as the globe is the largest possible social unit, and the village or tribe is the smallest. He argued that this new form of social organization, the global village, is emerging out of the electronic media environment. The old media environment, dominated by typography, had seen the birth of nationalism and the emergence of the nation-state as the only legitimate form of social organization. This occurred in part because print made possible coordinated systems of government, for example by the printing of law books and bureaucratic forms. And it facilitated the creation of homogenous cultures, through the production of literature and the establishment of universal schooling. In the electronic era, we see nations coming together to form a global community in the form of the United Nations and the European Union. But we also see nations breaking apart, as has been the case throughout the former Soviet bloc, in the developing world, and much to our chagrin, in Iraq. But it is also happening in stable western countries like Belgium, Spain, and Great Britain.

Both from above and from below, the nation-state is under assault, and not just from larger and smaller political units. We have long known of the revolutionary potential of multinational capitalism. And we now know of the appalling possibilities presented by terrorist networks such as Al Qaeda. Virtual tribalism in forms both benign and threatening is undermining social stability. I fully expect the United Nations to emerge from this turmoil not as the champion of globalization, but as a conservative force protecting the nation-state against these assaults. In the end, we may find ourselves in a world where multiple affiliations are possible, and power and status is measured by the number of associations or citizenships we can claim.

I think it is no secret that the city, too, has been under attack since World War II. Death has come from the skies to London, and Dresden, and Hiroshima, and New York. The airplane and missile is to the city as firearms were to knights in armor. The concentration of populations into urban centers once served the function of mutual protection, but it now renders us vulnerable to attack. It is important to understand that the city was one of the most important and most powerful technologies human beings ever created. The city was the first supercomputer, the first medium for gathering, storing, and processing information on a scale that transcends human experience. And like the electronic computer, the city-computer could not function without a special, artificially constructed language, a language for creating programs and processing data. That special language was writing. But the electronic media have not been kind to literacy, and the development of the digital computer in

the aftermath of World War II has rendered the city-computer obsolescent. This does not mean that the city will disappear. I certainly have no intention of moving away from the New York Metropolitan Area despite the patterns I have recognized and related to you. But the future belongs to new forms of social life, new media of communication, whether I am a part of it or not.

And so, in the end, I fear that I am not all that different from the professor giving the exam in our urban legend. I have my habits and expectations, and cannot help but be taken by surprise by students like the one in the story I related at the beginning of this article, who represent the future, as the professor represents the past. But what I can do is embrace those students and enter into a dialogue with them. I believe we can create a dialectic within ourselves, between the student and the professor. I believe that we can create a new synthesis, so that, like the student, we can find the freedom to step outside the system to understand our media environment, and like the professor, we can find the discipline to systematize that knowledge and make it available to others. And maybe then we will be able to find our way out of McLuhan's maelstrom.

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Works Cited

- Bertalanffy, L. v. (1969). *General system theory: Foundations, development, applications*. New York: G. Braziller.
- Bolter, J. D., & Grusin, R. (1999). *Remediation: Understanding new media*. Cambridge, MA: MIT Press.
- Brunvand, J. H. (1986). *The Mexican pet*. New York: W. W. Norton.
- Carey, J. W. (1989). *Communication as culture: Essays on media and society*. Boston: Unwin Hyman.
- . (1997). *James Carey: A critical reader* (E. S. Munson & C. A. Warren, Eds.). Minneapolis: University of Minnesota Press.
- Culkin, J. (1967). Each culture develops its own sense ratio to meet the demands of its environment. In G. Stearn (Ed.). *McLuhan: Hot and cool* (pp. 49-57). New York: New American Library.
- Czitrom, D. J. (1983). *Media and the American mind: From Morse to McLuhan*. Chapel Hill, NC: University of North Carolina Press.
- Eastham, S. (1990). *The media matrix: Deepening the context of communication studies*. Lanham, MD: University Press of America.
- Frisch, M. (1959). *Homo faber: A report* (M. Bullock, Trans.). San Diego: Harcourt Brace Jovanovich.
- Gergen, K. J. (1991). *The saturated self: Dilemmas of identity in contemporary life*. New York: Basic Books.
- Gozzi, R. Jr. (1999). *The power of metaphor in the age of electronic media*. Cresskill, NJ: Hampton Press.
- Grosswiler, P. (1998). *Method is the message: Rethinking McLuhan through critical theory*. Montreal: Black Rose Books.
- Innis, H. A. (1951). *The bias of communication*. Toronto: University of Toronto Press.
- Lord, A. B. (1960). *The singer of tales*. Cambridge, MA: Harvard University Press.
- Luhmann, N. (1989). *Ecological communication* (J. Bednarz, Jr., Trans.). Chicago: University of Chicago Press.

- . (1995). *Social systems* (J. Bednarz, Jr. with D. Baecker, Trans.). Stanford: Stanford University Press.
- Lum, C. M. K. (Ed.). (2006). *Perspectives on culture, technology, and communication: The media ecology tradition*. Cresskill, NJ: Hampton Press.
- McLuhan, M. (1951). *The mechanical bride: Folklore of industrial man*. New York: Vanguard.
- . (1962). *The Gutenberg galaxy: The making of typographic man*. Toronto: University of Toronto Press.
- . (1964). *Understanding media: The extensions of man*. New York: McGraw-Hill.
- McLuhan, M. (1995). *Essential McLuhan* (E. McLuhan & F. Zingrone, Eds.). New York: Basic Books.
- . (2006). *The classical trivium: The place of Thomas Nashe in the learning of his time*. Corte Madera, CA: Gingko Press.
- McLuhan, M., & Fiore, Q. (1967). *The medium is the message: An inventory of effects*. Corte Madera, CA: Gingko Press.
- Mumford, L. (1934). *Technics and civilization*. New York: Harcourt Brace.
- . (1952). *Art and technics*. New York: Columbia University Press.
- . (1967). *The myth of the machine: I. Technics and human development*. New York: Harcourt Brace and World.
- Ong, W. J. (1982). *Orality and literacy: The technologizing of the word*. London: Routledge.
- Parry, M. (1971). *The making of Homeric verse: The collected papers of Milman Parry* (A. Parry, Ed.). Oxford: Clarendon Press.
- Postman, N. (2000). The humanism of media ecology. *Proceedings of the Media Ecology Association 1* (pp. 10–16). Available online [here](#).
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York: The Free Press.
- Schwartz, T. (1974). *The responsive chord*. Garden City, NY: Anchor Books.
- Shannon, C. E., & Weaver, W. (1949). *The mathematical theory of communication*. Urbana: University of Illinois Press.

- Stamps, J. (1995). *Unthinking modernity: Innis, McLuhan, and the Frankfurt School*. Montreal & Kingston: McGill-Queen's University Press.
- Strate, L. (1994). Heroes: A communication perspective. In S. Drucker & R. Cathcart (Eds.). *American Heroes in a Media Age* (pp. 15–23). Cresskill, NJ: Hampton Press.
- . (1995). The faces of a thousand heroes: The impact of visual communication technologies on the culture hero. *The New Jersey Journal of Communication* 3(1), pp. 26–39.
- . (2006). *Echoes and reflections: On media ecology as a field of study*. Cresskill, NJ: Hampton Press.
- . (2008). Heroes and/as Communication. In S. Drucker & G. Gumpert (Eds.). *Heroes in a global world* (pp. 19–46). Cresskill, NJ: Hampton Press.
- Theall, D. F. (2001). *The virtual Marshall McLuhan*. Montreal & Kingston: McGill-Queen's University Press.
- Thoreau, H. D. (1980). *Walden or, Life in the woods and On the duty of civil disobedience*. New York: Signet. (Original work published 1893).
- Wiener, N. (1950). *The human use of human beings: Cybernetics and society*. Boston: Houghton Mifflin.