Robert K. Logan, Marcin Trybulec

Language and Media as Extensions of the Mind : An Interview with Robert Logan = Język i media jako przedłużenia umysłu : Wywiad z Robertem K. Loganem (RL)

2013

Language and Media
as Extensions of the Mind

Interview with Robert K. Logan (RL) by Marcin Trybulec (MT)[2,3]

Robert K. Logan
Department of Physics, University of Toronto
University of Saint Michael's College
The Strategic Innovation Lab – OCAD University
logan[]physics.utoronto.ca

MT: According to Lance Strate (2004), together with Harold Innis, Marshall McLuhan, Edmund Carpenter and Derrick de Kerckhove, you are one of the members of the Toronto School of Communication[4]. Could you tell *AVANT* what distinguishes the TS from other schools?

RL**:** Well, I guess the TS is characterised by the fact that it focuses on the effect of a medium rather than its content. It favours a field approach, as it takes into account the entire background or environment, so it looks simultaneously at all the factors that contribute to the creation of an effect. In other communication schools, the focus is on the content of the medium, usually followed by matching an effect with a single cause. So the TS is environmental, and it begins with effects and works back to the causes. Another aspect of the TS is the focus on figure/ground, the environmental aspect of the media. You cannot understand a figure unless you consider it in the context of the ground in which it operates. If you look at figure/ground, you can understand many of McLuhan's sayings. For example, in "the medium is the message" the message is a figure and the medium is a ground. In his other saying "the user is the content", the content is a figure and the user is a ground.

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[2] Maria Curie-Sklodowska University in Lublin

[3] The author would like to thank Georg Theiner, the editor of the issue, for all his suggestions and comments as well as Monika Włudzik for transcribing the interview and providing linguistic help.

[4] Hereinafter referred to as "the TS".

MT: You seem to have come a long way from the "hard" sciences to the humanities. Is your background in physics an asset in discussing media ecology?

RL: Well, first, I studied physics at the MIT and as an undergraduate I was obliged to choose a humanities specialisation and my specialisation was philosophy. I was always interested in things other than just physics. The first paper I ever published was in philosophy, I wrote it with my philosophy professor. I did an assignment and the professor really liked it. We published my essay as an academic paper, because he liked the content. The paper was about the philosopher R. G. Collingwood who claimed that the absolute presuppositions of science were arrived at *a priori* and I challenged that position and showed that in fact the absolute presuppositions of Einstein and Bohr were dictated by empirical observations and that was my first paper. The other thing is that, as a theoretical physicist, my research involved the use of field theory. McLuhan makes use of field theory too; so it was easy for me to work wih McLuhan, because he used the field approach to understand human interaction and communication. I got involved with McLuhan because I taught a course called "The Poetry of Physics and The Physics of Poetry" in which I ntroduced humanities students to the ideas of physics without using math. McLuhan heard about my course and wanted to meet me. We found that our ideas were very compatible and we enjoyed working with each other and that's how our research partnership began.

MT: What are your views on the relationship between the natural sciences and the humanities?

RL: That's a very difficult question. In fact, my research about the origins of language and the impact of communication media is based on empirical observation, which is as well McLuhan's way of doing things, so in a way the distinction between the sciences and the humanities is not that great. Science tries to focus on what is objective and, therefore, science tends not to look at questions that evoke values or purposes. Because science wishes to remain pure and objective, it has trouble dealing with what is subjective. In the humanities, the focus is on things that are subjective, like beauty and truth. With the development of complexity theory, chaos and emergence theory, the boundaries between the sciences and the humanities are beginning to disappear and so I do not know how to characterise myself as either a scientist or a humanist, I try to straddle both worlds at the same time. Some scientists don't like what I do and the same goes for certain humanists. I must be on to something good if I am getting criticism from both camps.

MT: What issues are the most exciting for you right now?

RL**:** I am interested in trying to understand how scientifically and humanistically the questions of value and purpose are connected, how it came to be that life emerges from inanimate matter and how thought arises. I began discussing these issues in my book *The Extended Mind* (2007) in which I propose that language allowed us to think conceptually and that before language our thoughts were percept-based and we are unable to plan or to have purpose in life. With language we were able to conceptualise, because words are themselves concepts.

MT: Since we are at it, what are your theoretical and personal inspirations?

RL**:** In the world of science my inspiration comes from Stuart Kauffman, a theoretical biologist, a leader in the field of biology and complexity. Another inspiration comes from Terry Deacon who wrote *Incomplete Nature* (2011), a book in which he is trying to understand the origin of life and sentience, or thinking. Terrence Deacon is a neuroscience and biology anthropologist at the University of California, Berkeley and I am a member of his research group. Another inspiration comes from Andy Clark and the group in Edinburgh which includes Duncan Pritchard and a project there called "The Extended Knowledge Project" of which I am also a member. Still another is Robert Ulanowicz who wrote *A Third Window* (2009) in which he talks about process ecology and I find that his notion of process ecology is very much related to McLuhan's ideas of figure/ground and media ecology. This is where I draw my inspiration from and these are the kinds of questions that I am thinking about.

MT: Is there any classic philosopher that inspires you?

RL**:** Not really, it seems that the philosophers take the ideas of scientists and humanists and reorganise them. The only philosophers that ever interested me were the pre-Socratic philosophers who were basically the scientists of their day and people like Voltaire, Nietzsche and other social critics. People who do analytic philosophy do not inspire me. I respect their work but philosophy is simply not my cup of tea.

MT: What about Andy Clark? It seems that he is pretty analytic in his mode of argumentation.

RL**:** Although Andy Clark is a philosopher, I see him as more down-to-earth, dealing with the problems of how people think and interact with their tools.

MT: So, in your opinion, Andy Clark is really more of a cognitive scientist?

RL**:** Yes, I find Andy Clark's works an inspiration. He deals with problems that concern everyday life. I know that he may come from a philosophical tradition, but he is practical. The same with Ducan Prichard, also at University of Edinburgh, who is trying to understand the effects of extended knowledge. Ducan and Andy have developed this project on the extended knowledge and the extended mind and that, of course, can be called epistemology, which is a field in philosophy, but again there is an empirical aspect to their research. For me, the philosophers that are most interesting are those who take an empirical approach. I enjoy my collaboration with these two philosophers and their research team.

MT: Let's now go back to the TS. From the perspective of a European researcher, in the TS there are two distinct strains of thought: the media ecological approach represented by you and de Kerckhove and the literacy theory approach represented by Brian Stock, David Olson and Keith Oatley. What are the main differences and conceptual links between these two theoretical orientations?

RL**:** I would only say that the literacy theory approach is more focused on the questions of education and literacy which I am very interested in. I am now doing research on the connection between the printed book and the e-book and I believe that both kinds of books are important and that one shouldn't have to try and choose between them, but rather books should be published simultaneously in ink on paper as well as digitally. In fact, I will have a book coming out this fall entitled *What is Information?* (2013). It will come out simultaneously as a printed book and as an e-book. Anyone who buys the printed book will automatically get the digital version of the book. We are going to organise a website with the electronic version of the book, so that readers can make comments and share their ideas with other readers. We are going to turn the book into a social medium through this site. I am very interested in what you would call literacy theory but I also address other issues what is the nature of life and sentience vis-à-vis information. I know David Olson and Keith Oatley personally, as they live here in Toronto, and I admire their work. I would say that they are a little more specialised in education issues than I am.

MT: According to Dennis McQuail, one of the leading communication theorists, it is practically impossible to separate media as independent factors of social change in empirical research. Therefore, for McQuail, it is impossible to verify the core claims of the TS. So, what do you think is the actual ratio of empirical research to speculation in the TS?

RL**:** That's easy to answer. You just need to read McLuhan and look at all the predictions he made about the digital media. He once told IBM executives in 1965 that someday there would be a computer in everybody's home. It's like he was crazy and fifteen years later personal computers emerged. It is like one day you'd be able to go to the telephone to tell them what you want and they would send you that information in xerox for you personally. What he was talking about is basically the Internet, the basic way how we find information in the digital era. If you read McLuhan carefully, you will see that he made many predictions that have come to pass. One of the ones I like to laugh about is that he came up with the idea of twitter, about the one-liners. He said people no longer had the time to tell a long story, so if you wanted to communicate you would have to do it with one line.

MT: That's true, but I am wondering whether McLuhan's predictions, brilliant as they may be, were actually based on empirical research?

RL**:** They were based on what already had happened. He carefully observed the effects of technology of his day and that allowed him to predict how they would develop. Remember when he said there was a reversal of cause and effect, the effect of the telegraph was the cause of the telephone, the effect of the first digital computer was the personal computer. Although McLuhan never experienced a personal computer himself, he was able to perceive its existence that would come to be. He once said that one day we would have a computer the size of a hearing aid, back in his day the hearing aid was about the size of a smartphone. Today, we have the computers that you can hold in your hand. He once said that one day you would be able to have not only a whole book on your computer, but the whole library of the world on your computer. Now with Google books you are able to have the entire library on your computer. So as far as being empirical, McLuhan's ideas were totally based on empirical observations.

MT: What is McLuhan's stance on speculation?

RL**:** He doesn't speculate. He just observes and describes the effects of media.

MT: Are there any new media that McLuhan did not predict?

RL**:** McLuhan predicted all the new media. He did not predict the details of Facebook or Google, but he predicted how the functions of different applications would emerge. I think he nailed it. I might as well do a little advertising and promote my new book called *McLuhan Misunderstood: Setting the Record Straight* (2013) in which I destroy the argument that McLuhan was a techno-

logical determinist and I outline all the ways in which he made predictions about the digital age.

MT: And what about McLuhan's technological determinism? Is this a challenge for the TS or a simple conceptual fallacy?

RL**:** People did not understand Marshall McLuhan and were upset by the things he said, because he basically said that people who are focusing on content are becoming obsolete, as they don't take into account the ground or the medium in which the messages are expressed. They called him a technological determinist, but he was not the kind of determinist that makes a connection between a single cause and a single effect, rather he used a field or ecological approach. The environmental approach is the opposite of matching of a single cause with a single effect, which is what the pejorative of technological determinism means. In some ways, McLuhan foreshadowed the notions of complexity theory and emergence theory, because of his ecological understanding of the effects of media.

MT: Would you agree that the critics of McLuhan make inappropriate individualistic assumptions about the mind? In other words, they assume that the mind is an individual entity, separate from the environment and that's why they accused McLuhan, or in general the TS, of technological determinism. How would you conceptualise the relationship between our minds and the cognitive tools we use?

RL**:** I think the point is that media are extensions of our minds just as physical tools became the extensions of our bodies. These ideas of McLuhan parallel the ideas of the extended mind theorists, like Clark, Chalmers and Pritchard, in that they, too, perceive the tools that we use as extensions of our minds. When I met Andy Clark in Toronto many years ago, we began a correspondence by email and I pointed out the parallels between his ways of thinking and those of McLuhan. He said that, although he did not read McLuhan, he agreed that there were many important parallels between what he said and McLuhan's approach to the connection of mind and technology. As result of that dialogue that I had with Andy, I am now a part of the Extended Knowledge project based in Edinburgh with Andy Clark and Duncan Prichard.

MT: In his paper from 2010, Kim Sterelny juxtaposes the extended mind model developed by Clark and Chalmers with the idea of scaffolded mind and niche construction model (Odling-Smee, Laland et al. 2003; Sterelny 2012). His basic claim is that the cases used by Clak and Chalmers are too limited for explaining historical and evolutionary processes contributing

to our cognitive abilities. What model of the mind is closer to your line of argumentation in *The Extended Mind* (2007)?

RL**:** Extended is scaffolded and scaffolded is extended. These are two schools that arrived at approximately the same conclusion, because they were both empirically-oriented. They started from different points and arrived at the same place, because of their observations of what happens in the real world and that's the kind of philosophy that I like. Andy Clark's philosophy was based on empirical observations, and therefore it makes sense. That kind of philosophy is to me like science because it is empirically-based.

MT: But what is the most useful metaphor for interpreting the relationship between the mind and the media? As far as I can see we can distinguish two kinds of metaphors: the augmentation/extension metaphors and the transformation metaphors. Which one do you think is more useful?

RL**:** First of all, if you consider speech a tool, it extended our brain, which was a percept processor, into the human mind, which is capable of conceptualisation. That's the first example of how technology, or technique, extended the brain to become the mind, so in some ways both metaphors make sense to me. The technology we have been using extends our minds and, therefore, transforms them. In a sense every new technology represents a transformation of the mind.

MT: What are the future perspectives for thinking about the media in terms of the extended mind model?

RL**:** It is the best way to understand the new media as they are. It is the social media which includes smartphones, applications like Facebook or LinkedIn. They are creating a new language, a new way of thinking and the work of Duncan Prichard, Andy Clark and Orestis Palermos in Edinburgh is creating a new knowledge model. Crowd-sourcing is an example of this augmented reality or virtual reality. These are all technological tools that are going to change our minds and the way we think.

MT: Perphaps it would be instructive to see how communication technologies have developed in the past. For instance, consider the transition from spoken to written language. Humans have been able to externalise symbols in art forms long before writing proper was developed, why then did it take so long to externalise language in the form of phonetic writing?

RL**:** Well, it didn't take all that long. First humans were capable of using verbal language, but language with full syntax is only 15,000 to 100,000 years old and writing is only about 5,000 years old. The gap between the development of speech and the development of writing is due to the fact that in a hunting and gathering society there was no need to keep track of information, one lived day to day. Writing emerged because one had to keep records, due to agriculture, and what happened was that writing emerged then to manage this activity. Proto-writing emerged around 10,000 years ago, when the Sumerians gave receipts to farmers for the produce they gave to their priests. The tributes received by the priests were then redistributed to irrigation workers that made agriculture possible. Writing allowed the managers of Sumerian agriculture to keep track of large amounts of information. The first system that developed was a system of three-dimensional, palpable clay tokens to keep track of what tributes the farmers gave to the priests and in time, the three dimensional clay tokens evolved into writing. Clay tokens were pressed into clay tablets and created a two-dimensional, visual display of information. Reading and writing emerged from speech as solutions to the practical problem of record keeping needed for agriculture-based commerce.

MT: In *The Extended Mind* (2007), you claim that the rising complexity of social organisation among our ancestors gave rise to ecological pressure towards communication and finally the emergence of language. What about the complexity generated by social life of other species? Why did humans create language and other species did not?

RL**:** My answer would be that we developed tools and learned to control fire which no other animal did. We lived in a situation where there was a need for a coordinated hunting and gathering. This required sophisticated forms of communication, which at first were mimetic, consisting of hand signals, facial gestures, body language and tone which animals also do. But in the case of human species, because of our tools, a new kind of cognitive development took place. When you use tools you see a causal connection between the tools that you use and the function you want that tool to create for you, so this cognitive development made language possible.

MT: In *The Sixth Language* (2004), you claim that computing and the Internet be defined as languages in their own right. Could you perhaps clarify what you mean by "language"? What definition of language do you use?

RL**:** When people look at phonological structures they look at hardware, whereas what I am talking about is software. Obviously, as we developed the capacity for verbal communication, oral language that was fully grammatical

emerged 50 000 years ago. Before that going back perhaps a million years there was something called proto-language, where there was no syntax but there were oral signs. It flourished because it aided survival.

Writing is one mode of thinking, speech is another mode of thinking, computing is another mode of thinking and each of these different modes are communication and also modes of thought. So, not that one should think of a language as an expression of one's thought, but rather that language is the way in which we think. Language is not just the medium for thought, a medium for expression of our thoughts, but languages are the medium through which we think. And when I use the term language I claim that speech, writing, math, computing, science, the Internet are six languages that are distinct forms of thought and expression and that they form an evolutionary chain. We began with speech from which writing emerged and math, then there were schools and schools led to scholarship and science, and science led to science-based technology which led to computing and computing led to the Internet. Each new language arose to deal with the information overload created by the languages that came before them. Right now, I am working on the idea that perhaps social media is the seventh language.

MT: In your recent book *Understanding New Media* (2010), you said that the definition of new media is ambiguous. Could you explain why their definition is problematic?

RL: What McLuhan called new media were the mass media of his day, like the telephone, television and radio. Of course, in the digital age, we now call the digital media new media. There is a big difference between the electric media and the digital media, McLuhan talked about the age of oral communication, written communication and electric communication, I believe that there is a fourth age which I will call the age of digital communication. Digital communication has many features in common with electric communication but there are many things that are different about digital communication. That's what my book *Understanding New Media* is all about, where I postulate the fourteen messages of new media. The first five I identified with the Internet and they are two-way communication; ease of access to and dissemination of information; continuous learning; alignment and integration; community. Then, specifically in the case of mobile technology and Web 2.0, there are nine additional messages. They are portability and time flexibility (time-shifting); convergence of many different media in one; interoperability; aggregation of content; increased variety and choice; the closing of the gap between producers and consumers of media; social collectivity and cooperation; remix culture and the transition from products to services.

MT: In *The Sixth Language* (2004) you demonstrated that each of the six languages (from speech to the Internet) led to information overload that created new challenges for human survival and cooperation and finally resulted in a new kind of language. As we live in the age of relentless information overload, are you able to spot any symptoms of the emerging seventh language?

RL McLuhan said that in the electric era we constantly lived with information overload. The information overload with electric media is tiny in comparison to the overload with digital media. Due to the challenges of digital media, new forms of digital technology emerge, so one of the first technologies to deal with the information overload was the Internet, the Web and Google. So, for a while, I thought that Google was the seventh language, but now I think of it as nothing more than a tool for organising the sixth language of the Internet and I believe that social media, augmented reality and virtual reality are the seventh language. By the way, these ideas emerged when I lectured at the Tecnologico de Monterrey in Mexico City with a group of professors at that institution who took my course on the ideas of Marshall McLuhan. We had wonderful conversations and arrived at the conclusion that the seventh language is social media, virtual reality and augmented reality.

MT: These are three different languages or one?

RL**:** I cannot answer your question yet, because we have just formulated this idea last week. We plan to develop a research project where we will make use of social media to study social media. We founded a Google Group for studying what is the seventh language. I will be happy to repeat this interview in a year and then answer that question.

MT: I will be happy to talk to you again. Could you say a few words about the practical dimension of the TS approach to studying media and cognition?

RL**:** With the help of digital media, information is now so readily available that education should not be about teaching or transmission of facts, because kids can do that on their own using the computer, the Internet and their smartphones. Education has to be more about raising questions, figuring out what are the things one should study, figuring out where the students want to go in terms of their career or what role they want to play in life. Education should not be a sage on the stage, but a guide on the side. In other words, the role of the educator is moving from that of a teacher to that of a coach. That would be the important point about studying media and cognition. Now, we face a new challenge because we can access information automatically, so we

need to talk about how we make use of information and not how we acquire it. We don't have to teach people how to acquire information, they do it automatically.

MT: What new technologies emerged after the publication of your book *Understanding New Media* (2010)? Are there any new technologies that you would consider analysing in the next book?

RL**:** When I gave the course in Mexico City, Octavio Islas had a copy of this book. I looked at the contents of *Understanding New Media* and realised that things have changed in the couple of years since I wrote the book, so right now I am going through my copy of this book and I devoted a chapter to bulletin boards, usenets, chats. Usenet still exists and are very useful, that is what Google groups is basically, but bulletin boards and usenets are gone, we don't use them any more. I talked about IM and SMS, and I don't even remember what they mean any more, because we now have texting. I devoted a page to Instant Messaging and Short Message Systems, if I wrote it today I would call it texting.

MT: In popular discourse the debate between techno-enthusiasts and techno-skeptics rages on. On which side of the debate are you?

RL**:** Well, I am a human-enthusiast and I believe that humans will figure out the best ways to exploit technology. All technology has service and disservice. We need to be aware of both. In our enthusiasm to enjoy the service of technology we often ignore the disservice. So I am a techno-enthusiast if the technology is used mindfully, taking into account the negative effects of the technology and not just focusing on the things that it brings us. McLuhan talks about technologies as extensions of our bodies and our minds but there is something about overextensions, so let's say that I am a conscientious techno-enthusiast.

MT: What are the perspectives for further developments in literacy theory and media ecology scholarship?

RL**:** I can't talk about the TS as a whole, but I can talk about my own research. There are three directions that I am moving in. One is understanding social media, virtual reality and augmented reality as the seventh langugage. Then there is work with Terry Deacon and his research group based on his book *Incomplete Nature* (2011). Terry is trying to understand how inanimate matter emerged into life and into sentience. He has some interesting ideas inspired by thermodynamics and morphodynamics. Mophodynamics is about self-

organisation, like the way in which turbulence develops in water flowing down the river in which there are rocks that impede the flow of water. This kind of self-organisation is temporary, because once you remove the constraints, the thing moves back into disorganisation. Life is a situation which is able to sustain itself; it can act in its own interest. I am very interested in combining the ideas of the TS with the work of Terence Deacon and I feel honoured to have been included in this research group based in Berkeley, California. I feel that the ideas of the TS media ecology may help Terry and his group in their work.

To give you an example, one of the things he makes use of in his book is the idea of constraints as information. It is the idea that I developed with Stuart Kauffmann a biologist. Let me tell you the story of how we came up with idea of information as constraint, I mention information because it is related to McLuhan's idea the medium is the message. Stuart and I went to the inaugural meeting of the Canadian Society of Systems Biology. After the meeting I am sitting with Stuart drinking a beer in a hotel. Stuart asks me "What is systems biology?" and I say "Come on, Stuart. It is about biology and information". "Yes, but what is information in biology?" he says. I have the following problem: in order for a living system to function it has to take energy from the environment and turn it into work. But in order to turn raw energy into work you need constraints. Consider the internal combustion engine in a car, you have an explosion of gasoline vapour and air but that explosion of energy is constrained within a cylinder, so that it pushes the piston up and down and that's the way raw energy is turned into work. And then Stuart says "But Bob, where does the work to create constraints come from?". In other words, it is a chicken-and-egg problem, if you need constraints to do work, where does the work come from to build the constraint. All of a sudden I hear McLuhan saying to me the medium is the message, and I say to Stuart "I don't know where the energy to build the constraints comes from, but the constraints are the information". And he says "That's such a great idea, we have to develop it. It is the answer to a question that I have been working on for the last ten years". So we wrote the paper "Propagating Organisation: An Enquiry" (2007) where we claim that there is a difference between Shannon information, which is symbolic, and biotic information, which is contained in DNA and RNA. The difference is that the information in DNA and RNA cannot be separated from the chemical processes it catalyses, namely the production of proteins. DNA is not a symbol of RNA. RNA is not a symbol of proteins but DNA and RNA catalyse the production of proteins. This is how we came up with the idea that information is constraint and Terry Deacon used that in his book *Incomplete Nature* (2011). This is one way in which the ideas of the TS influenced the development of biology, neuroscience, in particular the work of Kauffman and Deacon. It was basically taking a metaphor from McLuhan's work and applying it to the field of information. I want to continue trying to

understand these questions about the origin of life and the origin of thought. One of the key ideas in the work of Terrence Deacon, the idea that living systems operate in their own interest and are able to repair themselves, is the direction in which I plan to develop in working with these colleagues. There is also work with Andy Clark, Duncan Prichard and Orestis Palermos in Edinburgh working on the Extended Knowledge project. Finally, I look forward to seeing you and Georg Theiner in Toruń where we will explore these questions in detail.

MT: Thank you. It's has been a pleasure talking to you.

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