A McLuhanite Kit for Designing Cyberspace Technologies

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Cyberspace is an art form. It is constructed of information composed by people using artistic perception and just-in-time learning. It provides an arena of creative human activity which has produced works of art such as Google and Wikipedia and many lesser known artifacts. How these artworks come into being is a central question of our times.

Why? For two reasons mainly: First, because all the cyberspace art works which currently exist – the Yahoos, the PayPals, the Twitters - are mere prototypes of what will come as we learn to more creatively construct cyberspace entities. The famous company names may not change (if the companies survive) but what these companies do, and how they do it, certainly will. Google today is not what it was when cyberartists Larry Page and Sergey Brin created it in 1998. The new cyberspace applications which will be designed in the next few years will produce even more dramatic and societal-changing times than the introduction of the microcomputer in the 1970s. Second, cyberspace is about to have a population explosion. As the developing world gets the infrastructure it needs to more fully participate in cyberspace billions more people will be creatively using and producing artworks of information, their way. This will have a profound effect on the world's politics, social change and economic activity.

How the global art form of cyberspace is created, who will work in it, and how we could use it to enhance not degrade humanity, are all questions we need to address if we are to take advantage of the opportunities and contain the negatives of cyberspace. There will be no shortage of journalists, professors, bloggers, entrepreneurs and others who will attempt to address these questions. However, few will provide answers as valuable as a Canadian media artist who died just when it was all starting, on New Year's Eve,1980. Marshall McLuhan introduced ways of thinking about media which are superbly suited to thinking about the media being created in cyberspace. His ideas can be put together as a kit of design tools which can be used to create cyberspace art forms. That is what this article is about. We will consider what a McLuhanite media design kit could look like and how it could be applied to cyberspace.

McLuhan was not timid about what he thought was being created by electronic media such as television, satellites and computers. He was convinced that humanity was in the process of moving from activity based mainly in nature, such as working in the mines, to artistic manipulation of information within a

humanly-created global art form. Today thanks to science fiction artists such as Vernor Vinge and William Gibson we call that global art form "cyberspace". McLuhan once told a bewildered interviewer, Mike Wallace, that: "We now have to accept the fact and responsibility that the entire human environment is an artifact, an art form, that can be staged and manipulated like show biz." When asked by another interviewer if everything shaped by human intervention is a work of art, McLuhan responded: "Oh yes, the making process . . . turns them into art forms". They are art forms because they are produced by humans who, quite naturally, apply human thinking to their design and use. This design work exhibits all the capabilities and restrictions of human ingenuity.

McLuhan thought it possible to build an ARTificial world of information created by artists and able to accommodate "the totality of human needs and aspirations". The artist could be anybody, in any field, who works at developing a clearer awareness of the world around them. The human needs addressed could include heightening consciousness (what it means to be truly human), expanding our creative powers, improving the conditions of life, and providing meaningful work for all. A McLuhanite design kit could be used to think imaginatively about how to produce commercially viable cyberspace entities, create applications useful to caring societies, educate, entertain, and perhaps most importantly, defend cyberspace from those who would, under the guise of protecting people from terrorism and criminal activity, make it less joyful, less free, less democratic.

A McLuhanite Cyberspace Design Kit

The core of a McLuhanite kit for designing cyberspace would have to include some of his more significant tools and insights about technologies. What follows are the top five McLuhanite strategies for thinking about and designing new cyberspace art forms.

1. Mimic the Mind

Not surprisingly, when humans think about creating and using technologies they think as humans do. And they see themselves, most often unconsciously, as the best model for what they are doing. The result is a world of technologies which mimic human body parts, functions and thinking patterns. When men or women first picked up a rock to bash a skull or pound a piece of meat they were extending their fist. When they put on animal skins as clothing they were extending their own skin. When they produced the first pictures and alphabets they were extending their language skills. Today, with the use of computers and the creation of software, they are extending the human brain.

Now this may strike some as overly fanciful – it certainly did when McLuhan started writing about this as a phenomena in the late 1950s. But some sixty years later with the development of search engines such as Google we can actually track how people think. Every month about 1 billion people use Google. The

service logs about two billion searches a day. And Google keeps everything: search terms, chat room comments, YouTube video choices, emails, ad clicks, geographic locations and much more so that all that data can be analyzed. If a giant asteroid was to hit earth tomorrow Google could very quickly produce a report showing how people were reacting to the news and what they were thinking about. We can see how people are thinking as they google. Now consider all the other services where we can track people online: Yahoo!, PayPal, YouTube, Wikipedia, eBay, news sites, online dating services and so on. Put together, all this activity resembles nothing less than the workings of a global mind.

The first step in designing for cyberspace is to recognize that we are extending our brain with the use of computers. Unique cyberspace applications will come from analyzing how the mind works and what it pays attention to. Pick an activity of the brain and build an app. A partial list of activities could include: loneliness and the need for companionship, reading, counting, sex, food cravings, the urge to learn, fear of dying and of course much more. Whatever the human mind can do we will do in cyberspace.

The result, according to McLuhan, will be the ultimate extension: human consciousness. As we participate in cyberspace and watch what we do, we will profoundly change how we think of ourselves as humans.

2. Care about the environments

Every medium builds an environment – a force field that induces new perceptual habits. Consider email. It is being used by almost three billion people to communicate over space and time. It has allowed people to connect with friends and communicate to companies about products and services. But it is more than just a communicative tool. Email is changing the way many of us think because we are writing more. Before email we may have written a few personal letters, if that, maybe the occasional office memo, and sometimes a few business letters a week. But now with email available 24 hours a day and so easy to use we write much more often. It has been estimated that 145 billion emails are sent every day. What all this emailing is doing is changing the way we think because we are spending much more time composing, manipulating and correcting sentences. The result is an immense growth in how we learn and express ourselves because writing forces us to think about what we want to convey. It is no exaggeration to say that the basis of civilization is humankind's ability to store and reflect upon thought that has been written down. And now the amount of time humanity spends writing has vastly increased. The consequences of this increase will no doubt be enormous.

What will be the effect of lots of email writing? We cannot be sure. First, because it is only a few decades since the introduction of email. But more importantly according to McLuhan because new environments are largely invisible. Their effects are difficult to see because we become entranced by the new extension

of ourselves. Email has extended our language capabilities and we are focused on its wondrous uses. We spend less time thinking about the effects increased writing will have on our civilizations than we do in writing emails. Paying attention to the practice of emailing should be less important than thinking about what effects it will have on humanity's thought processes. In other more famous words: the medium is the message. The content of the trillions of emails sent every year is of course significant. But what is more significant is the fact that the medium exists and is having profound effects on humankind and the civilizations it builds.

Designers of new cyberspace technologies should focus on what environments are being created by existing technologies. If email is changing the way we think then what products or services could address that change? This question goes beyond merely producing new aides such as spell checkers and thesauruses. Those are easy to consider needed. But what about tools which allow writers to construct their arguments or develop their thoughts more easily? This article was written with the help of an outliner which allowed random thoughts to be recorded and then ordered into categories. As the writing flowed along, online services were used to research topics (for example, the quantity of emails sent) so new information could be added to the argument. Could all this be made quicker and easier? And what about going beyond email? Could new cyberspace tools be developed which allow people to think more quickly and clearly in a vast host of situations: while talking with friends or while contemplating an emotion (fear? apprehension? confusion?). Focusing on what people are thinking about, and how people's thinking patterns are changing, could lead to many new cyberspace applications.

But it's not just about email or even its promotion of more writing. Every technology, according to McLuhan, creates a new environment. Consideration should be given to what environment a newly introduced technology is creating. Just as importantly, cyberspace designers should be thinking about the environment their technologies are creating so they can continue their development work with new insights.

3. Make a myth

There is a lot of information in the world. A 2011 estimate, which includes both digital storage and analogue storage (such as books) puts the figure at 295 exabytes. That's 295 billion gigabytes. And that amount is growing exponentially. It is simply impossible to conceive of this amount of information or even substantial subsets of it. So we resort to myths and linguistic structures such as similes and metaphors. What is 295 exabytes? It is like all the grains of sand in the world multiplied by 315. Or: a 295 exabyte hard disk is a mega-newspaper created by all seven billion humans in the world reading 174 regular-sized newspapers in one day. Or: 295 exabytes is “Gargantuanic” – the universe's largest computer.

Gargantuanic does not exist of course. But it could, in our imagination. It is easier for humans to think about vast amounts of information with myths, such as Gargantuanic, or metaphors such as the world's largest newspaper. It is how we think. How did the vastness of earth and sky come to be? For early Greeks it was the goddess Oceanus who decided to make something out of Chaos. For modern humans the Internet was created by Al Gore.

A myth is a story which, while not literally true, provides truthful insight into a complicated process. According to McLuhan a myth is, "the instant vision of a complex process that ordinarily extends over a long period". Cyberspace technologies are the products of a long period of creative thinking, programming, testing, use and re-programming. Users know little of this cycle of creation. They just know PayPal as "PayPal the online payment system" or eBay as "eBay the online auction service". However neither service came into existence full-blown. They were created over many years by a complex development process which involved adapting original applications, adding new features, releasing versions, merging companies, embellishment by ad agencies and so on until they became what they are today. But here's the essential point: today's cyberspace technologies, because they are products of human imagination, are no less mythical than the creation myths of the Greeks or Chinese. They are stories made out of information - stories that have real-world applications such as money-transferring or exchanging goods.

Every technology in cyberspace is a myth – a story made out of information. Cyberspace designers wanting to create new technologies could spend rewarding time thinking about how existing cyberspace technologies are seen by users as stories that do things for them - and then create myths of their own.

4. Or what's a metaphor?

Because we use language to think, we design technologies with linguistic tools such similes and metaphors. For example, when microcomputers were introduced they were presented as being like fancy calculators or typewriters. They were of course much more. But similes (saying something is "like" another) help us understand new technologies. We can relate to the new concept if it is wrapped in something old. Programmers or system designers who are creating the new technology think in similes as they do their work. The result is often what McLuhan famously described as rear-view mirror thinking – which of course hinders how we think about the potentialities and consequences of the new technology.

Metaphors are similes without the the word "like". They bring together two things – words, images or products – to convey a new meaning. Computers are brains. A hard drive is a library of information. The internet is a series of tubes. Of course none of these examples are true, but they give people with a certain

set of experiences access into a new field. Metaphors translate existing experience into new ways of thinking and then, maybe, new art forms.

McLuhan argued that all technologies are metaphors – the bringing together or bridging of two entities or situations. As he told an interviewer: "It doesn't matter whether it's a word or hardware. It's an attempt to relate two situations that are not easily or ordinarily related". Tie this thought to the idea that the global art form of cyberspace is organically constituted as a whole (because it is an extension of our brain) and a powerful tool for technology designers is presented. If we know that everything is in relationship with everything else then there must be some relationship between any two existing technologies.

Cyberspace designers could use this technique to create new art forms. It has been done before: YouTube (home videos / computer communications); Facebook (university introduction resumé / computer forums). Take two disparate technologies and consider how they could be related. If that does not spark an idea for a new technology try two more until a new entity is conceived.

5. Become an artistic l'earner

Cyberspace designers are artistic l'earners. They are artistic because they use artistic perception to conceive, produce and evolve new technologies. They are l'earners because they earn their living by constant just-in-time learning.

McLuhan told Look magazine: "Already it is becoming clear that the main 'work' of the future will be education, that people will not so much earn a living as learn a living". In Understanding Media he wrote: "The artist is the man in any field, scientific or humanistic, who grasps the implications of his actions and of new knowledge in his own time. He is the man of integral awareness". Despite the sexist language (not unusual at the time) he included women in his view of worker-artists. In fact, he argued that "women today find themselves in an increasingly advantageous position". He points out that: "Business and politics today demand such deep involvement that men just get swallowed alive. Women are much better able to adapt". In any case, it is the artist – man or woman – who will work most effectively in the global art form. This is because, he says, "The artist smashes open the doors of perception".

The art form created by humankind will demand constant learning because it will change so quickly. It is much easier to alter a piece of software than re-tool an assembly line. One consequence of this is that cyberspace designers will not be able to rely on the body of knowledge they received in their early education or training. They will have to learn additional skills as they go along while contemplating the design and production of new art forms. They will become just-in-time l'earners.

The result may be a move away from the specialized, "fragmented-out-of life" job to something more akin to the roles workers used to have. The "one-task" job will give way to the multiple-task role because workers will be expected to use all their faculties and be totally involved just as hunter-gatherers or farmers had to use all their faculties to stay alive. As McLuhan said: "We seem to be moving from the age of specialism to the age of comprehensive involvement". This demands a move away from authoritarian work-places to more democratic ones because creativity cannot be commanded to occur.

However, it must be immediately added here, that just because work in cyberspace needs playful, non-authoritarian, environments does not mean that managers, steeped in an Industrial Revolution mindset, will readily see this. They may have to be forced to respect the need for democratic workplaces in order to promote creativity. As well, it cannot be forgotten that we are discussing here the workers who will be allowed to work within the information art form. Many, such as those in the growing sectors of service work, will not. Or they will do so only in a peripheral sense such as in the operation of cash registers. Some, such as the workers who flip hamburgers when the bell tells them to do so, will be treated as appendages to software-driven machines. One of our goals should be to create jobs within the information world which use the creativity of workers, not treat them, as McLuhan would have put it, as 'servomechanisms'.

The great possibility is that, because cyberspace is unlimited, we may be able to produce full, global, employment. But, again, this may have to be fought for as powerful corporations try to design a world divided between a few uber-rich and the many much poorer workers.

Kit-cetra

The five strategies just described are at the core of what could be a McLuhanite cyberspace design kit. But McLuhan, and his collaborators, produced many more insights which could be included in the kit. Here are some.

Translating hardware into software. Everything that can have its basic design put into a computer will be made into software. What is important today is not the physical item, such as a chair, but the design of that item being translated into software. The software can be easily re-programmed to produce a new design, such as a baby chair or a car seat. This will become even more important as 3D manufacturing, which has software at its core, becomes more prevalent.

The user as content. In cyberspace the users can be the content. Think of Facebook, YouTube and Flicker. People want to be considered as content and feel that their contribution matters. Many more new cyberspace art forms could be created using this strategy.

Decentralization. Because we no longer need central offices to hold file cabinets of paper and we have powerful communication systems we can decentralize our organizations. Every node in the organization can become a centre, if only just for a little while, as a project is conducted. And of course, we can decentralize work to anywhere on the globe that has access to computer communications.

The sender is sent. While work is being done in one part of the world users from anywhere else can participate in it. The worker in New York becomes as much a part of the Singaporean project as anybody actually residing in Singapore. The remote worker can be considered sent to the project.

Look for the services and disservices. Every new technology creates both a new service (or why else would it be adopted) and disservices. Email for example provides a now vital service for millions. But it also comes with the possibility of viruses and the certainty of spam. Both the services and the disservices provide opportunities for designing new cyberspace technologies.

Work to produce effects. Cyberspace artists should look to the effects that existing technologies are having on people and consider designing new art forms which either address those effects or produce new effects. Facebook, for example, is having profound effects on relationships as friends keep in touch more often, long-lost friends re-connect and corporations study the activities of its users in order to sell more goods or services.

McLuhan and his collaborators produced many more strategies which could be included in a cyberspace design kit. They can be found in studying his works – especially The Gutenberg Galaxy, Understanding Media and Take Today.

Usin' McLuhan

Studying McLuhan effectively takes some understanding of his style and complexity.

First, and above all, it must be understood that McLuhan was an artist producing artistic works – so complaints about his "disjointed" style or his "incomplete" thoughts should be set aside. A painting by Picasso does not look like a photograph because it is not a photograph. It is a work produced by an imaginative genius who was trying to produce a particular effect on his audience. Complaining that McLuhan's works such as the Gutenberg Galaxy or Understanding Media are not written in a traditional, linear, style is like grumbling that Guernica or Les Desmoiselles d'Avignon are not real pieces of art because the faces and horses are not lifelike. McLuhan created as one of his literary heroes, the 19th century Symbolist poet Charles Baudelaire did: to evoke an experience in the reader. The Symbolists believed in leaving room for the reader to participate, to help complete the thought. For them pinning down an idea completely would be like pinning down a butterfly; pretty maybe, but nevertheless quite

dead. Like the Symbolists McLuhan hoped to stimulate points of instant awareness – aha! moments. His goal was to spark people into breaking out of the trance-like effects induced by new technologies and live more humanely, not as "supine consumers of processed goods" or "servo-mechanisms" of the tools they built.

Secondly, McLuhan's complexity is the result of thinking about technologies which are radically new in the spread of human history. For four hundred years the printed book was at the centre of human attempts to communicate across space and time. Then suddenly, over the course of a few decades, comes the telegraph, radio, movies, television, the computer! Pondering the effects of newly introduced electronic media forced McLuhan to adopt innovative vocabulary and map out fresh patterns of thought.

It is not much of an exaggeration to say that as Picasso is to painting, McLuhan is to media. It is now up to us to use his works as a source of cyberspace design strategies and as flintstones for sparking ideas for new strategies. In doing so a more beautiful, safe, useful and democratic cyberspace can come into being