Communication Theory as an Anti-environment for Understanding the Effects of Technological Environments upon Cultural Change

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INTRODUCTION

Marshall McLuhan's work provides a communication theory of cultural change as a operational analysis of the effects of technological environments in the aid of heightening human perception regarding these effects on the development of psychological traits and social practices. For example, he offers a gestalt analysis of the status of the dominant infrastructural or media 'environment' in the information age; the age of cyberspace as an environment constituted by the convergence of information technologies and global systems of telecommunications. In the current age, where the digital infrastructural environment of cyberspace envelopes and transforms all pre-existing cultural and natural habitats, the scale and pace of this transformation and its psychological, sociological as well as material effects escapes perception. McLuhan's prose-poetic style and his mosaic form of discourse satirize, or as he says "puts-on", the reader in order to attune perception so that understanding the effects of media is facilitated. This is an understanding, which provides a gestalt or figure-ground analysis, as a means of 'standing-under' the figurative surface of daily fluctuation in order to perceive the formal cause or ground-works shaping fundamental or cultural paradigm shifts.

McLuhan's theory of cultural transformation associates social evolution with technological innovations and their concomitant sustaining and consequently self-qualifying infrastructural environments. In this regard, he has bracketed the evolution of the Western tradition between the past pre-literate, pre-historic societies and the present post-literate, post-industrial cultures of the emergent global village. In these cultures it is the dominant communication systems, which qualify changes while concurrently shaping identity and social patterns. However, the perception of the effects of a cultural paradigm shift remains subliminal to most people, because of the scale, pace and complexity of change; except to those individuals who delight in adapting their percepts and identities in sync with emergent conditions. McLuhan concurs with the poet, Ezra Pound, who claimed that artists were the "antenna of society" and that their art-work, as forms of education which McLuhan referred to as anti-environments, are a means of perceptual attunement to the transformation of the social environment.[1] He also refers to the work of the poet and engraver William Blake as well as James Joyce borrowing their insight that, although 'we shape our tools which in turn shape us', this remains a highly subliminal process. Therefore, art as anti-environments provides the means for altering perception and extending consciousness, in order to safeguard survival as a means of navigation through cultural transformation. Today, it has become cliché to remark that the one thing that is constant is change itself, but due to the accelerating degree of change (a major theme in Alvin Toffler's book *Future Shock*) therefore, merging perception through understanding is increasingly becoming critical for social survival.

ANTI-ENVIRONMENTS AS A MEANS OF PERCEPTION

A major concern for McLuhan, in *War and Peace in the Global Village*[2] and in his book *Through the Vanishing Point*[3], was that art as anti-environment has been used to either train perception within a culture or to

merge perception in the context or con-text (with-the-text) of an evolving society. The latter role of art as an act of merging perception with the social environment (i.e. as a con-textual interpretive act) is characteristic of non-literate collective societies (as in the ritual performance), which includes both pre-literate and post-literate cultures. Whereas, the notion of training perception has predominantly been the role of art in the Western individualistic tradition; a tradition whose aesthetics was in-formed by a cultural environment accommodated to the use of phonetic scripts (both chirographic and mechanic modalities) in which human beings, with regard to embodied sensory interplay, have biased visual perception. These cultures have, by means of the evolution of various scripts, progressively intensified the abstract ability innate to written codification systems; thereby transcribing pre-literate oral and organic cultures initially into civilized, modern fragmented, rationalized, and ultimately (by the 19th century) mechanically organized ways of life. In fact, an essential theme of McLuhan's work regarding literacy is that this abstract ability, particularly amplified by means of the development of the phonetic alphabet environment, conditions an inherent dualism between one's inner lifeworld (the psychological and imaginary life) and the natural and material reality of the outer world. That is, this implicit dichotomy, sustained by the alphabet as an extension of the eye, and qualified in terms of a visual spatial prejudice, is embodied socially in terms of the associated development of private and public identities. A society that privileged detachment and objectivity had conceived the world in the mechanistic image of a Newtonian Clockwork Universe.

By the fifteenth century the infrastructure of the phonetic alphabet was intensified and amplified by means of the mechanical printing press which sustained the development of Modernity by eventually fostering the cultures of the Scientific and Industrial Revolutions of the 17th and 18th centuries respectively, within the context of emergent nationalistic and econocentric societies that were more aggressively individualistic, entrepreneurial and enterprising (i.e. goal-oriented). This mechanical social context did not foster a merging of perception with society, because emergent social patterns such as the democratization of literacy facilitated by the mass-production of mechanically produced texts, as well as perspectival prints, educated literacy and perceptually prejudiced an

'eye-I' bias. This prejudice exemplifies the dualistic dichotomy between subject and object, thereby precluding an understanding of change when the object of change, as formal cause, is the ground-works of the cultural environment.

A communication theory of cultural change provides a discourse resolving the Cartesian dichotomies in the manner of a phenomenological stance which is predisposed (as opposed to the scientific natural stance implicating subject-object dualities) to an inherent dialectical unity and identity between the individual and culture. This identity is the sustaining quality provided by technological environments understood as forms of extensions of individual and corporate embodiment; i.e. cultural environments as co-formal and co-creative operative extensions of human senses, faculties and organs. When this shaping dynamic does not fragment the interplay or unity of the senses, as qualified by the phonetic environment, then the resultant sensory space is what McLuhan refers to as 'acoustic space'. This is a synesthetic space of sensory interplay with the associated effect whereby a participatory and interpretive mode of perception is sustained. Consequently, in the context in-formed by acoustic space art educates human sensibilities by merging with the environment by the agency of total sensory interplay, rather than by means of simply training the ability for visual abstraction in the experiences of the modern world of detached observers.

Acoustic space in-forms both the oral pre-literate cultures and the current electronic societies which engage individuals in holistic sensory involvement because it is only the abstract ability of the phonetic script, as compared to all other modes of communication, which fragments and separates the eye from the human sensorium. In oral cultures, of various scales sustained by respective communication systems (i.e. the natural voice or voice extended by telephone: i.e. far-hearing), a sense of immediate participation is sustained by the simultaneity provided by instantaneous discourse; i.e. exemplified by pre-literate oral-aural cultures or in the contemporary post-literate acoustic societies of telephone, television, and internet communications. In other words, within visually biased societies objectivity is the ability to 'act without reacting' but in the oral resonant field of non-literate societies, action and reaction are virtually simultaneous. This is evident today

because instant communications, as an all-at-once envelop of environmental discourse occurring at the speed of light, fosters the development of the global village as an emergent Feudal society.

CULTURAL EVOLUTION AND MEDIA ECOLOGIES

The emergent infrastructural environment as resonant electronic fields, facilitated by the internet, mobile phones, digital TV and other such media, defines the dynamic cultural space of the global village. Ironically, it is this digital information environment at-large, that sustains ongoing media innovation because of the speed-up and increasing complexity facilitating reconfigurations of personal (Facebook) and collective relationships (European Union displacing nation-states). In an acoustic environment of co-creative, co-formative technical-social development, understanding the effects of these media becomes anti-environmental. That is, education becomes a means of merging, in the manner provided by technological diversity and innovative speed-up by comparing and contrasting environments and related effects as a means of heightening perception. In this regard the information environment at-large is becoming a work of art. Therefore, McLuhan states that nature is obsolesced, as each technological environment becomes a new 'culture as nature' to be perceived in terms of its constituent media ecology.[4] Hence, a study of media ecology and associated subliminal environmental effects could be raised to the level of conscious perception, thus providing effective means of adjustment or intervention with other technologies in order to sustain social well-being.

Particularly, in his work *War and Peace in the Global Village*, it can be argued that McLuhan provided a means of defining, evaluating, and creatively or artistically presenting an anti-environment by means of designing his text as an analogue of holistic insights of the world writ-large; i.e. a mode of being with the text which satirizes the con-text of the emergent electronic information environment. He provides a way of seeing that requires the reader to 'put-on' as a tribal mask the written words and ideas in order to share similar insights, whereby McLuhan wrote:

> The biologist used two other categories that are helpful for perceiving the relationship between the end of nature today and the problem of understanding the future of media and technology. They speak of

"outbreeding" and "inbreeding." As Mayr puts it, "Most animals are essentially outbreeders, most microorganisms are inbreeders."

> With electricity, all this has changed totally. At present the entire mammalian world has become the microorganismic. It is the total individual cultures of the world, linguistically and politically, that have become the mammals, according to the old classifications of evolutionary hypothesis. It is the cultural habitat in which we have long been accustomed to think that people were contained that has now become the mammal itself, now contained in a new microcosm or "connubium" of a super-terrestrial kind. Our technologies, or self-amputations, and the environments or habitats which they create must now become that matrix of that macroscopic connubial bliss derided by the evolutionists.[5]

The topic of this paper describes a method of study involving the concept of media ecology and the development of a cultural space as relative formations of a sensory response to technological environments that are extensions of human embodiment. McLuhan understood that what drives human evolution in the electronic environment manifests as a new aggregate of life-forms or cultural habitats as linguistic and political territories – a new "connubium of a super-terrestrial kind." But he concludes, in the above reference, by stating that this is a "matrix of that macroscopic connubial bliss derided by the evolutionists." The significance of this statement is that, at the time *War and Peace in the Global Village* was published in 1968, this idea went against the grain of conventional Darwinian evolutionary thought.

Darwin's theory of natural selection accounts for how particular features/traits of individual animals evolved by means of chance mutation and environmental selection. This, in turn, would allow for traits to be passed on to following generations through individuals by progressively slow evolution over many generations within a particular species. However, by contrast, social species have traits that benefit others or the group as a whole which argues for survival of the fittest groups, rather than the fittest individuals. This idea of group evolution, contrasts with the idea of individualistic selfish evolution, by selecting for 'prosocial' traits such as empathy, care, altruism, courage and sacrifice as the means of guaranteeing reproduction of the species. These traits operate to sustain survival, not at the scale of individual but rather, at a higher level of group evolution by means of cooperative rather than competitive behavior.[6]

That is, current evolutionary theory has advanced to explain why groups composed of individuals who behave in more prosocial ways outcompete groups of individuals who behave in less prosocial ways; traits that are for the good of the group will evolve. In other words, natural selection between groups will counteract the costs of prosocial behavior, injury or sacrifice of life, to individuals within groups. These ideas are part of a modern theory of multilevel selection and according to this theory, "biological systems are a nested hierarchy of units, from genes within individuals, individuals within groups, and groups within a population and even clusters of groups."[7] Again referring to the quote above, McLuhan refers to what he saw at the time, as an emergent cluster or global "connubium" of linguistic and political territories. This refers to the level of "outbreeders" whereby, by means of technological innovation we extend the frontiers of evolutionary development. Human evolution as embodied development is obsolete because evolution is no longer fundamentally biological with regard to human societies, but rather, technological in terms of shifting infrastructural environments. That is, an individual's trait that maximizes fitness within a group is unlikely to maximize fitness of that group as a whole. In this respect, this theory divided evolution in the whole population into within and between group components (for McLuhan the whole population is the global village and the between group components are the linguistic and political territories). A modern theory of group evolution understands that altruistic rather than competitive traits are usually a disadvantage within groups and evolve only with regard to between-group selection. The theory then accounts for a level of evolution in which "a group can only evolve into an individual when between-group selection is the primary force";[8] the individual in the new connubium is culture, or the linguistic and political territory.

McLuhan describes the primary force for group development in terms of the consensus of sense and sensibilities that define that group and also as a result of the defining influence of an embodied technological extension or prosthesis. In the global village, as media ecology, the various territories are qualified by the effects of technological extensions and innovations that alter cultural biases; a bias in-formed by the prejudice of visual, acoustic or other dominant sensory spaces. Understanding the production of space at this generic social level would facilitate the design of architectural and urban forms as authentic expressions of cultural identities.

The interplay of cultures and the possibility for global cooperation depends on harmonizing spatial biases as determined by the media ecology of a cultural group and its effects on group behavior. In terms of modern evolutionary group theory then, the fact of life for all species including our own, is that prosocial adaptations usually put individuals at a disadvantage relative to other members of the group, but evolution occurs when another layer to the process of natural selection occurs, which is the layer of group selection. This is the layer whereby, by shaping our tools we shape ourselves as a culture. Therefore, by complementing the modern evolutionary group theory with McLuhan's communication theory of cultural change this integration provides insight, and consequently a means of anticipatory design, for architects and urban planners.

These theories provide an awareness of innovation as anti-environmental which means we no longer depend upon 'Darwinian chance' selection as a concept of human evolution, but rather depend upon intelligent and insightful intervention through the development of media ecologies, both locally and globally. In this way a vital constraint for design and technological selection would be a measure of the effects whereby prosocial traits are reproduced. For architects and urban designers this would involve a consideration of developing forms that harmonize sensory spaces for the best fit that, in turn, sustains prosocial traits. For this purpose Modern evolutionary group theory can be effectively integrated with McLuhan's theory of cultural evolution in a proactive way because:

> The new consensus states definitely that the individual organism is not a privileged level of the biological hierarchy. The harmony and coordination associated with the word "organism" can exist at any level and individuals can lose these properties when selection takes place within them, such as when cancers evolve. Social groups can become organisms, and organisms are highly regulated social groups – not just figuratively but literally.
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> Group selection has become an exceptionally strong force in human genetic and cultural evolution. Accepting it at face value and exploring its consequences will have implications for all branches of the biological and human-related sciences, from the origin of life to the regulation of human society at large spatial and temporal scales.[9]

McLuhan's work provides a means of developing this advance of evolutionary studies (regarding group evolution) and its significance for defining the qualities of social groups. He believed that the gestalt analysis of cultural transformation and consequent heightened awareness of, as well as, the evolution of group formations is products of electrifying the planet. Consequently, a study and design of the space of these events would require the necessary assistance of information technology, networking and modeling. To develop environments of well-being, and at the scale of cultural and global transformation would require massive data collection, analysis and modeling. This would be needed in order to provide a means of anticipatory design for the selection of prosocial behaviors within groups and in turn to select for the best fit between groups. This was McLuhan's fundamental thematic concern in his book *War and Peace in the Global Village,* whereby war is a consequence of identity crisis and the resulting attempt to retrieve that lost status and identity.

As mentioned above, each culture, by extending and thus defining its self image and world image is susceptible to the altering effects of technological environmental innovation. If technological innovation occurs within cultures then the established identity is threatened with effacement. These are the conditions for identity crisis, which is the root of all violence, e.g. generation gaps and civil wars. Unless technological innovation can be harmonized with the existing media ecology, which in turn selects for prosocial or anti-social traits, then war remains a consequence of what McLuhan refers to as "a spastic condition that could be eliminated by more feedforward." More feedforward could be provided by means of modeling simulations of cultures as they are exposed to technological innovation. The global connubium could be modeled as a digital simulacrum of the digital simulacra of cultures in evolutionary interplay and of interfacing sensory spaces. Environmental design augmented with an understanding of emergent sensory spatial prejudices, would bias in favor of sustaining identity and thus reducing the possibilities for violence. This would be a vital role for architects and urban planners in the emergent context of the Global Village.

CONCLUSION

In the past, change was slow, but today by means of accelerated innovation technology plays the role

of art reveals how media are modes of perception conditioned by technological environments. By analogy, McLuhan refers to the temperature in the bath that rises slowly as opposed to when the temperature is changed instantly. In other words, when would the bather know to scream in the former situation, whereas in the latter situation one's senses and feelings are immediately alerted by the rapid rise in temperature? Rapid change today, involving both instant information retrieval and communication fosters simultaneity of events in space and time exemplifies the resonant field of instant global communications. This environment, in turn fosters not abstraction but rather perception in terms of pattern recognition. These abilities supplemented with the power of computer feedback, programming and feedforward facilitates navigation (i.e. from the Greek 'cybernetics') and sustaining global change through understanding cultural evolution as a simulacrum (i.e. super-terrestrial connubium) of cultural simulacra (i.e. habitats of political and linguistic territories); McLuhan wrote that,

> Unlike mammals, man has no nature but his own history – his total history. Electronically, this total history is now potentially present in the kind of simultaneous transparency…by placing our own nervous system around the entire globe. The first satellite ended "nature" in the old sense. "Nature" became the content of a manmade environment. From that moment, all terrestrial phenomena were to become increasingly programmed artifacts and every facet of human life now comes within the scope of the artistic vision…yet, whole environments can be programmed to accommodate the sensory preferences and needs of entire communities.[10]

In the electric age, the territorial boundaries or interfaces are resonant because of the instantaneity of the communication systems which sustains immediate response. Like a spider web, if any strand is plucked then all strands and the web as whole respond immediately, in a pattern of reciprocating communications. If any culture induces an excessive sensory spatial differential through design and innovation, which implies identity threat, then the effect becomes global today. This implies that the evolution of cultural territories by means of understanding the developmental effects of technological environments may be factored by means of anticipatory environmental design, to sustain prosocial rather than anti-social traits.

The 21st century environment of the global connubium which increasingly experiences a flux of

constant change fosters dis-ease; i.e. excessive stress and anxiety. In the 19th century, architects and engineers as well as urban and social planners modified the hardware infrastructures of the urban metropolis to reform hygiene, water resources, housing design, etc., in order to eliminate diseases such as cholera and typhus. In the 21st century, 'dis-ease' managed in terms of altering human per-ception by mediating technological innovation and resulting sensory thresholds can reduce identity crisis and corresponding levels of anxiety.

All technologies alter sensory equilibrium. This new equilibrium alters human sensibility and conscious-ness; i.e. changes in technology are literal meta-phors for transformations of the human mind which is another way of saying that understanding media is an art or anti-environment enhancing the perception of cultural transformation and concomitant spatial formations of architecture and urbanism. In terms of technological extensions and the effect upon the human sensorium an application of a pragmatic aes-thetics in terms of understanding media and group evolutionary theories is a manner of anti-environ-ment or art. This engages in the unity of a humanis-tic theory of the evolution of culture and technology with a scientific theory of the biological evolution of culture that transcends the dichotomy between art and science as a way of developing an architectural education for sustainable environments.

ENDNOTES

1	Marshall McLuhan & Harley Parker, *Through the Vanishing Point* (NY: Harper and Row, 1968), 26-27.
2	Marshall McLuhan & Quentin Fiore, *War and Peace in the Global* Village (San Francisco: Hardwired, 1997).
3	McLuhan, *Through the Vanishing Point*.
4	Lance Strade, *On the Binding Biases of Time* (Fort Worth, Texas: Institute of General Semantics, 2011), 57-63.
5	McLuhan, War and Peace, 190.
6	George C. Willims, "a Package of Information," in *The Third Culture*, ed.John Brockman (NY: Simon and Shuster, 2010) 44-45.
7	David Sloan Wilson, "Evolution of Selfless Behavior," *New Scientist*, August 6, 2011, iv-v.
8	Wilson, "Evolution of Selfless Behavior," v.
9	Wilson, "Evolution of Selfless Behavior," v.
10	McLuhan, War and Peace, 177-179.