Isaac Lerner

Towards an Understanding of the Analogical and Digital interface in Architecture by Means of Communication and Cultural Theory

Isaac Lerner

Assistant professor

Eastern Mediterranean University

Turkey

Isaac.Lerner@emu.edu.tr

Isaac Lerner

Towards an Understanding of the Analogical and Digital interface in Architecture by Means of Communication and Cultural Theory

Abstract

In Siegfried Giedion's last text entitled, *Architecture and the Phenomena of Transition*, he traces the evolution of Western architectural space-conceptions from Antiquity to Modernity. In turn, Gideon's work influenced the cultural theorist Marshal McLuhan (McLuhan 1962, 44), who developed a media-structuralist account of the Western evolution of space-conceptions but, in terms of media effects on human senses, sensibility and consciousness.

McLuhan referred to the pre-Socratic perception of space as 'acoustic space', which engages perception synesthetically (a ratio of all the senses in interplay) at a human scale; i.e. as an embodied consciousness. However, since Antiquity, a Western space-conception evolved which he describes as 'visual space'; the result of the abstraction of the eye from synesthesia or the dominance of the eye over the other senses. This sensibility, or spatial bias, was conditioned by the evolution of the phonetic alphabet environment (a medium that extends the eye) which fostered a progressively analytical mechanical worldview in the West. However, during the 19th century, with the invention of electric communications (a medium that extends the nervous system) and, eventually with the emergence of wired connectivity and information technology, McLuhan again characterised our post-modern space-conception as 'neo-acoustic'; i.e. a digitally amplified space and concomitantly extended perception characterized as virtual synesthesia. Post-Modern neo-acoustic space is a side-effect of the electronic extension of our nervous system and brain which constitutes the environmental surround facilitating human communication within the 'Global Village'. Today, we more and more live in a networked world (wired and wireless) sustaining individual and collective consciousness by means of disembodied images, or virtual simulacra; that is, a social reality in which consciousness is constituted of sensory images generated in real-time communication of information processing and programming.

In particular, McLuhan's media studies enhance one's awareness of the cultural formation of spatial biases conditioned by technological environments. During our pre-alphabet (acoustic space) and phonetic alphabet (visual space) traditions, these respective cultures fostered conceptions of architectural space and form grounded in physical or analogue extensions of the human body. With the emergence of an electronic neo-acoustic space, or cyberspace, whereby synaesthesia is mediated digitally at the scale of a global surround, our body image, or

identity tends towards the discorporeal. We are living between dual or hybrid influences of embodied and discarnate acoustic spaces, which foster new conceptions and approaches in architectural design. Architectural conceptions of visual space, acoustic space and neo-acoustic or cyberspace will be explored in this paper.

Introduction: Technology and Cultural Space

The work of Marshal McLuhan provides both an in-depth and comprehensive discussion of the origins and evolution of space conceptions which are of great interest to architects for understanding the conditions shaping architectural form. McLuhan provides a communication theory of cultural transformation, or the evolution of cultural forms, which naturally includes architecture. The following quote from his book, entitled *Laws of Media*, best introduces the co-formal relationship between spatial sensibility, media and cultural formations:

Visual space, as distinct from acoustic space, is an artifact, a side-effect of using a phonetic alphabet. The alphabet acts to intensify the operation of vision and to suppress the operation of the other senses.......The transformation to visual space from acoustic space occurred in ancient Greece. What took several thousand years to complete has taken us several decades to reverse: the West now bathes in the emotions of post literacy.
(McLuhan 1988, 4)

In several of his books, McLuhan offers variations on this theme where he equates the historic period, since the invention of writing, with that of civilization because the eye progressively displaced the ear in terms of being the dominant sensory modality. This altered ratio-of-the-senses first emerged in ancient Greece whereby the eye was abstracted from the interplay with the other senses, due to the highly abstract quality of phonetic literacy, so that "the line became the organizing principle of life" (McLuhan 1967, 44-45) This eye bias fostered man's abstract rational ability, a hallmark of Western sensibilities, in which space, time and consequently form was conceived of as linear, continuous and connected. Since Greek and particularly Roman Antiquity, this homogeneous and static visual space was manifest by means of, for example in architecture, the growing use of analytic geometries and axial organizations, of perpendicular or mutually orthogonal lines and symmetry, which were by-products of an emerging rationalist sensibility. (McLuhan 1968b, 7) In this regard, Siegfried Giedion defines the origins of architecture in terms of the formal conceptions that manifest the mutual perpendicular relationship between a vertical axis and horizontal plane, such as the Ancient Egyptian pyramid and obelisk.

A key concept in McLuhan's work is that any technology or medium is an extension or amplification of human senses, faculties or organs and when given material embodiment tends to create a new environment. McLuhan stresses that a new environment alters our sensory threshold (ratio-of-the-senses) and this in turn changes our outlook and expectations. The automobile extends the foot and requires the support of steel, oil, rubber, highway and other infrastructural services which are synonymous with environmental effects. Similarly, there were infrastructural

environments or worlds of, at first, the alphabet and writing and later the printing press that, respectively, extended the eye; one side-effect of these environmental effects was the subliminal influence of 'visual space' as rationalized intuition. Today, we live in an information environment sustained by an electronic infrastructure, as an extension of the human brain and nervous system, with the significant side-effect in which acoustic space is perceived in terms of the Global Village. Just as the preliterate world lived in an acoustic space of the physical or analogue village, today in the post-literate age we live in the neo-acoustic space of a virtual village sustained by means of instantaneous processing of digital information at a global scale. McLuhan described the information age as follows:

Since electric man lives in a world of simultaneous information, he finds himself increasingly excluded from his traditional (visual) world, in which space and reason seem to be uniform, connected and stable. Instead Western….man now finds himself habitually relating to information structures that are simultaneous, discontinuous and dynamic. Hearing, as such, is a form of all directions at once, a 360 degree sphere, so that 'knowing' itself has been recast or retrieved in acoustic form…
(McLuhan 1988, 102).

An important idea for understanding the interface between the analogical and digital worlds is that all media and technologies are human extensions. Today our spatial bias is informed by the effects of instantaneous electronic communication, i.e. neo-acoustic space which is characterized by being spherical, resonant and non-linear or de-centred. This in turn fosters an awareness in which the planet is experienced or 'known' as a simultaneous interplay of events (the Global Village). Information structures (wired and wireless connectivity) facilitating instantaneous flows of information feedback, feed-forward and manipulated by software programming transcribes the images we produce of ourselves, individually and collectively, from physical or analogue beings into virtually images of digitized discarnate being; i.e. in terms of Baudrillard's work this is the media grammar of simulacra as the manifestation of the extension of our nervous system. The oral space of pre-literate cultures is sustained by speech exemplifying the natural human scale of acoustic space within the social group (i.e. tribal) as a traditional village. This traditional village and the current manifestation of 'neo-acoustic space' as a 'global village' bracket the Western tradition of a 'visual space' conception and its concomitant architectural and urban forms.

The Western Modern Paradigm and Visual Space
Ancient Greece, from the 8th century BCE and until the time of Pericles (4th century BCE), when the use of the phonetic script was primarily considered in terms of a craft, was essentially an oral and therefore tribal culture. Greece, however, did become increasingly literate, but the acceleration of the visual gradient begins in Ancient Rome. Here the visual bias was evident in the prejudice for linear organization and contained space, as for example, within the military and civil bureaucratization of the Roman Empire in terms of spatial organization and control. The fact
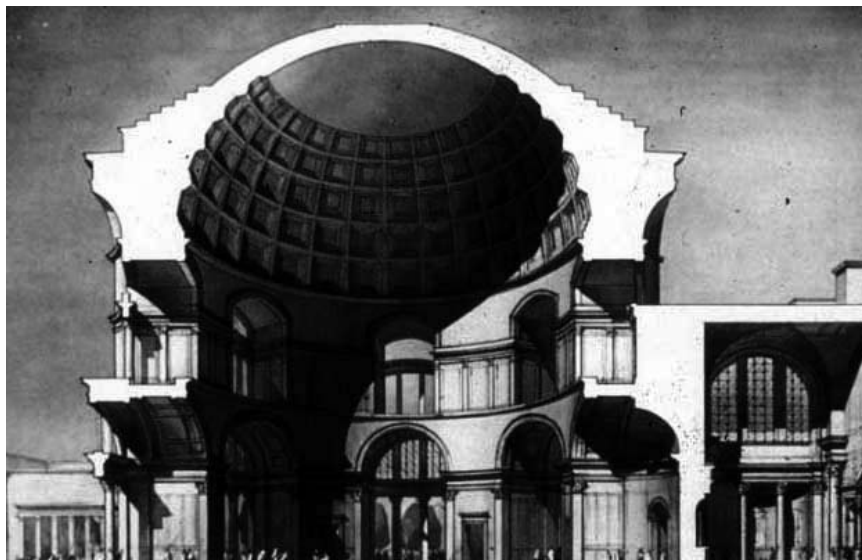
Figure 1
Baths of Caracalla
Section showing large windows defining 'inside' from 'outside'

that 'all roads led to Rome' represents the center-margin linear organization which exemplifies an abstract ability, or rational sensibility, that could manage a city and Empire perceived as a homogeneous contained space. With regard to architecture, the Pantheon best exemplifies the emergence of this visual space conception whereby, the architectural historian Siegfried Giedion wrote that, "from then on, all concepts of architectural space would almost invariably be syn-onymous with the concept of a hollowed out interior." (Giedion 1971, 86) Giedion also claims that the Pantheon and the Roman baths (figure 1) are ancient forms that first manifest the di-chotomy, or rationalization of a homogeneous continuous space, as a distinct inside versus outside space; for example, with the first appearance of large wall openings or windows in the Roman baths as opposed to the predominantly courtyard form, or 'inner' space of traditional buildings operationally defines this dichotomy.

Giedion's observations concur with McLuhan's idea that an intuition or sensibility for visual space, as a homogeneous static container, in-formed the development of Western spatial and formal conceptions. Giedion also mentions that the concept of a wide paved street was also invented in Rome. In Ancient Greece streets were narrow and irregular except for stately approaches to public places. For example, in the Roman town of Timgad (in present day Algeria) the Roman predisposition for uncompromising axial alignment (a side-effect of the alphabet) is well expressed in the Cardo and Decumanus, the two most important streets that cross each other at right

angles in the center of Roman towns, slicing the body of the city into four quadrants. The forum, or that 'contained' homogeneous space, as a stage for public interactions, could be found at their intersection. (Giedion 1971, 75).

With the fall of the Roman Empire, which the Canadian Economic Historian Harold Innis believed was due to a shortfall of papyrus from Egypt in the 5th century CE due to rising Egyptian Nationalism, the loss of phonetic literacy was replaced by other means. That is, the Cathedral became the 'text' for a Feudal non-literate age. The implication is that this age veered from the evolving Western visual gradient and recovers some of the preliterate audile-tactile sensibilities associated with more plastic and sculptural forms of communication, as opposed to the more abstract geometric and linear forms of ancient classical architecture (e.g. barrel vaults versus ribbed vaults). The West begins to recover the trace of the visual gradient during the Renaissance as Lewis Mumford acknowledged in his text entitled *Sticks and Stones*:

Victor Hugo said in Notre Dame that the printing press destroyed architecture, which had hitherto been a stored record of mankind. The real misdemeanor of the printing press, however, is not that it took literary values away from architecture, but that it caused architecture to derive its values from literature. With the renaissance the great modern distinction between the literate and illiterate extends even to building; the master mason who knew his workmen and his tools and the tradition of his art gave way to the architect who knew his Palladio and his Vitruvius. (Mumford 1955, 6)

That architecture would, at the beginning of the Modern period "derive its values from literature" is to say that it effectively subscribes to those sensibilities, or spatial and formal prejudices, induced by visual space. The reference above, to Palladio and Vitruvius, indicates a return to a literate world in which the printed texts displaced the cathedrals as modalities of knowledge and con-texts (i.e. dominant media as messages in-forming human sensibilities). However, Mumford critiques the content or figure of the book whereas McLuhan's analysis of the text's effect on architecture is the study of the ground of printing as it alters sense and sensibility which, in turn, informs spatial and formal concepts manifest as architectural events (i.e. the medium is the message). Therefore, for McLuhan, the printing press was a unique phenomenon in its time because it manufactured the first mass produced commodity which was unprecedented; the uniform reproduction of the same text based on repeatable type. The translation of writing into a uniform mass produced commodity requires a process of translation by fragmentation and sequential alignment; the means by which an organic process, i.e. hand writing, is transformed into printed text by a mechanical process (i.e. fragmentation and linear sequence) or machine. The mechanization of writing, which was a handicraft, was the prototype for the mechanical translation of all handicrafts and faculties which foreshadows the birth of the scientific revolution (17th century) and the worldview of a Newtonian clockwork universe ('reason' as a linear logical process) and the Industrial Revolution (18th century) or the factory system as assembly-line of standardized uniform manufacturing. In this regard the architectural critic, Chris Abel, writes:

In The Myth of the Metaphor, Colin Murray Turbayne recounts how early machine technology affected scientists' and philosophers' perceptions alike of both the natural and human world. To Rene Descartes (1596-1650) and Isaac Newton (1642-1727), upon whose work the science of the First Machine Age was constructed, the universe did not simply work like a machine it was a machine, of which gravitational pull and the movement of the planets were amongst the most predictable features.

(Abel 2004, 61)

As mentioned above McLuhan stresses that a new media environment alters our sensory threshold and this in turn changes our outlook and expectations. With a significant change in culture, or paradigm shift due to infrastructural development, human perception and expectations are fundamentally altered. In this paper the shift from the modern industrial worldview towards the views, or consciousness, of the emerging postmodern electronic culture will be elaborated upon by means of architectural examples that reveal concomitant developments in conceptions of space and time. The concepts of absolute space and time, and gravitational pull, were implicit to the phonetic-mechanical cultural ground that conceived of the clockwork universe. This conception presumed that space was a void; a neutral container or reified vacuum in which space and its contents were objects. The example of vanishing point perspective and the Cartesian grid exemplify this neutrality and the absolute mathematical quality of a space in which there exists no co-creative co-formative interaction between a user and building or between the observer and the observed; such as in the space of vanishing point perspective.

Towards a Postmodern Paradigm and Acoustic Space
With the introduction of the telegraph in the 1830's a new paradigm began to appear on the cultural horizon. And by the early 20th century an emergent electronic culture was beginning to significantly deconstruct the visual bias of absolute space and time. The concept of relativity in physics and what the architectural historians Slutzky and Rowe refer to as transparency in architecture and art began to inform the aesthetic sensibilities of the post-industrial paradigm. (Rowe 1997). The experience of 'relativity' and 'transparency' refer to the phenomena of a space-time continuum in which the user/observer interprets or participates in the meaningful production of space and form. For example, cubism and collage displaced vanishing point perspective and the Cartesian container, or what F.L. Wright criticized as the neutral 'box' in architecture, in terms of a new and more dynamic aesthetic of space. Rather than providing a single vanishing point view of an object on a canvas surface, a cubist painting provides multiple vanishing point perspectives, on a single surface, in the manner of collage. Whereas, vanishing point perspective is a rigorous linear mathematical construct that sustains the dichotomy between the observer and the observed (as a picture produced by a camera lens) cubism is constructed by a juxtaposition of views of multiple vanishing points. (Giedion 1967, 436-437) Therefore, the cubist fragments are ordered in terms of the interval or gaps among the views, which the viewer configures and reconfigures by means of scanning the surface in time; i.e. a change in sensibility exemplified by a shift in space conceptions from absolute space and time to relative

space-time. This paradigm shift from industrial to post-industrial cultures involves a significant change both in terms of aesthetics as from visual space to an acoustic space sensibility and the transformation of the user or viewer of an artifact, from spectator to participant or interpreter.

In this regard McLuhan also argues, "It was visual space in its aspect as container that was reflected in thinking of an 'inside' or 'outside' world." (McLuhan 1988, 59) By contrast, McLuhan states, "With the return of [neo-]acoustic space through the ground of electric technology, the visual forms of detachment and separation of inside and outside were dissolved" (McLuhan 1988, 59) and, transparency or space-time in architecture exemplifies this dissolution. Slutzky and Rowe elaborate upon both a literal and phenomenological transparency. The latter represents the effect of juxtaposed surfaces with various degrees of physical transparency in Modern architecture, whereby material transparency facilitates viewing multiple perspectives while moving through a building. Hence, what Siegfried Giedeon referred to as a 'layering of planes', (Giedion 1967, 434-443) or a collage of degrees of transparent surfaces, Slutzky and Rowe refer to as literal transparency which they claim was the definitive aesthetic of Modern architecture. An 'prototypical example would be Mies van de Rohe's Barcelona Pavilion, 1928-9.

By contrast, phenomenological transparency also engages the user in an interpretive or psychological as well as a sensorial construction of the space. However, this aesthetic of the built-work is in-formed by cultural expectations, or perceptual prejudices (i.e. 'inner' perspectives), which constitute a subliminal cultural intersubjective bias. Phenomenological transparency bypasses visual space and also the residue of visual space intrinsic to literal transparency (i.e. of an 'inside' and 'outside' world associated with the perspectival quality of each of the multiple perspectival views) for the construction of a meaningful representation of the 'inner life' of the user or for what Heidegger means by 'dwelling'. Acoustic space as a resonate field or collage of juxtaposed surfaces (literal transparency), or as an architectural conception of the 'inner' space or life-world of the user (phenomenological transparency) represents the deconstruction of visual space in the early 20th century due to the paradigm shift from industrial to post-industrial cultures and this will be elaborated upon in what follows.

The cultural bias for acoustic space expressed in architectural and urban conceptions is evident in the work of Frank Lloyd Wright. Chris Able in an essay entitled, Prime Objects, (Abel 1997, 182-183) which provides a short history of the evolution of the high-rise in the 20th century, contrasts Wright's Larkin building with the Bradbury building in Los Angeles (figure 2); both were designed around the first modern atrium spaces. The latter expresses a visual bias in terms of a clear distinction between inside and outside spaces, whereby the offices are contained as boxed-in rooms around an enclosed atrium which functions solely to provide circulation by means of mezzanines, elevators and stairs. This building conception embodies the industrial or mechanical worldview designed as fragmented Functionalist form accommodating specialized needs within contained or visual spaces.

In the Larkin building the spatial qualities are distinctly different. The atrium acts as a communal arena whereby individuals engage with each other over time to spatial transparency which, for the user, constitutes a multi-perspectival environment. This building is also a model or simulation, as the architectural historian William Curtis states, of a street in the Industrial city of Chicago. (Curtis 1996, 126-127) That is, the Larkin atrium (figure 3) is bracketed by a pair of Chicago high-rise facades, as open skeletal frameworks, and lit from above by a grid of skylights. Wright created a world of work in which there is a sense of community in a space resonating with an industrial culture of common values and common sense i.e. the emerging 20th century bias for literal transparency.

By contrast, Wright's Johnson Wax building (figure 4) provides a dramatic alternative of phenomenological transparency. Although this building appears to be a boxed-in, or a contained visual space, with its absence of windows and a glass ceiling providing artificial illumination from above, in effect, it epitomizes the attempt by Wright to create a paradigm of the world of work. That is, as a community of shared sense and sensibilities, but without reference to an outer space such as the streets of Chicago. This lack of symbolic reference to an outer space induces the users to rely on their own 'inner' resources, of values, intentions and expectations (as a kind of kinship group), to generate a meaningful space of work. Also, the plasticity of the room with its curved surfaces and the sculptural qualities of the mushroom or lily-pad columns, under the rather dramatic lighting, fosters a sense of space as a stage for work as a co-performative event. Therefore, in contrast with the Larkin building's linear formal organization the sculptural and plastic dimensions of the Johnson Wax building evoke a sense of tactility, which is more involving aesthetically than visual transparency. In this way, the Johnson Wax building exemplifies an architectural concept not of visual but of phenomenological transparency, or a neo-acoustic space representing the lifeworld of a culture. This building as a microcosm of culture, and viewed in terms of McLuhan's work, expresses an increasing gradient of acoustic sensibilities because, unlike the Larkin Building, it is less a product of the mechanical age and more a consequence of its own period of electronic communications; i.e. the radio age.

Another interesting example of Wrights work is his design for the community of Broadacre; (figure 5) an urban plan which also represents the paradigm shift between Industrial and the emergent electric cultures. The railway epitomizes the urban form of the center-margin industrialized metropolis. However, in Broadacre, Wright excludes the railway and explicitly designs in terms of infrastructures based upon the automobile, telephone and electricity which foster a decentered environmental form (Curtis 1996, 316). In this regard, Broadacre can be perceived as a collage in the manner of a decentered, discontinuous distribution of functions, or a field of interplay among diverse activities, which exemplifies acoustic space as opposed to the visual form of the railway metropolis. It is interesting to note that driving a car engages one aesthetically in the event of cubist or literal space-time. Driving requires not just looking out of the front windshield but necessitates integrating multiple views provided by the rear-view mirror, side-mirrors, side views as well as front views in an ongoing dynamic integration of multiple perspectives.

Figure 2
Bradbury Building, Los Angeles
View of atrium

Figure 3
Larkin Building
View of the Atrium.

Figure 4
Johnson Wax Building
Interior view.

Figure 5
F. L. Wright: Usonian vision of Broadacre

Hence, Broadacre incorporates the emerging sensibility, conditioned by the automobile culture as a tacit or subliminal influence, but expressed as a new conception of an emerging individual and cultural consciousness by means of Wrights design for Broadacre.

Postmodernism and Neo-Acoustic Space

In the next phase of Western cultural development, with the emergence of electronic and digital technologies, we see the intensification of a feature of the new neo-acoustic sensibility; i.e. regarding the recovery of group or collective behavior in terms of ecological responsibility in the postmodern tribal age. The move towards a more explicitly tribal or feudal society is exemplified in both analogue and digital terms. The latter is expressed by means of discarnate being in the cyberspace of the global village, while the former is represented, for example, in the next generation of atrium office buildings exemplifying emergent corporate or kinship values. As mentioned above, atriums have evolved as small-scale urban spaces that are a microcosm or paradigm of the indigenous culture. Today, the culture is increasingly shifting from industrial values of detachment and fragmentation and individualist orientation towards an attitude embracing inclusive and responsive sensibilities regarding the physical and cultural contexts. There is now emerging an ecological sensibility for green sustainable architecture and also for a deeper ecology which incorporates a more metaphysical concern for social and psychological sustainability. This deep ecology is a concept emerging within the conditioning framework of the cyberspacial infrastructure of instant communications because increasingly, privacy is eroded due to the simultaneity and instantaneity of information retrieval and distribution in the global village.

In this context, Abel and McLuhan recognize what is essentially at stake in the global village. That is, an environment sustained by instant connectivity and digital technologies such as computers, television (meaning far-seeing) and the telephone (meaning far-hearing) 'transcribes' the physical or analogue body into 'virtual' visual and acoustic images in cyberspace. This happens in order to facilitate movement at the speed-of-light, which in a virtual global village of instantaneous communications fosters the recovery of feudal/tribal social patterns. The message of instant communication media therefore, is not what is said or written, but the fact that the sender and receiver are sent, as virtual images in respective technological sensory modalities, so that they can commune in cyberspace. Abel, in his text entitled Cyberspace in Mind, quotes from the work of the author Michael Heim who wrote, "At the computer interface, the spirit migrates from the body to a world of total representation. Information and images float through the platonic mind without grounding in bodily experience. You can lose your humanity at the throw of the dice." (Abel 2004, 6-47) McLuhan refers to an emerging identity crisis which results when the physical or analogue body and world are obsolesced by the cybernetic environment (McLuhan 1998, 67). Consequently, the challenge for architecture is to reconcile our analogical and digital experiences by means of hybridizing the superhuman discarnate experience with the increasingly deconstructed human scale by means of a deep ecology or sense of embodied dwelling. In this regard Abel writes:

What actually happens when anyone uses the net…… is that we 'inhabit' cyberspace pretty much as we 'inhabit' any physical realm, by metaphorical extension of ourselves. We assimilate the 'non-spatial' realm of cyberspace into a spatial world we already know. In doing so we humanize what might otherwise appear a lot stranger than it already is. That may also be an illusion, but it is one that confirms and enhances – not threatens – our special way of being.
(Abel 2004, 57)

Above, in Wright's work, we saw acoustic space represented in terms of spatial and formal conceptions influenced by a dominantly electric environment in the expressions of Broadacre and the Johnson Wax building. In a recent issue of the Economist, there is a supplement entitled A Special Report on Mobility, with a particular emphasis on the changing architecture in a currently emerging nomadic society sustained by an environment of wireless connectivity and mobile digital technologies. The article notes that architects such as William Mitchell at MIT (author of e-topia) claim that the biggest change in architecture today is with respect to the fact that "20th century architecture was about specialized structures-offices for working, cafeterias for eating-and that people are no longer tied to specific places." Mitchell claims that there is "a huge drop in demand for traditional, private, enclosed space". (Kluth 2008, 8) In this regard this article argues that Frank Gehry's design for the Stata Centre in MIT (figure 6) provides an 'inner' space or cultural milieu for an emerging nomadic society, grounded fundamentally upon wireless connectivity with minimum hardware requirements (e.g. iphone or Blackberry or laptop) so that direct Wi-Fi access to internet is provided by this architecture as digital 'oasis'. The oasis is a flexible ad-hoc interactive forum characterized as a complex dynamic space of multi-functional human associations; i.e. a layering of social, psychological as well as material needs, which is referred to as a new kind of "hybrid space" which in this building is a "student street" described as:

…an interior passage that twists and meanders through the complex and is open to the public 24 hours a day. It is dotted with nooks and crannies. Cafes and lounges are interspersed with work desks and white boards, and there is free Wi-Fi everywhere. Students, teachers and visitors are cramming for exams, flirting, napping, instant-messaging, reading and discussing. No part of the student street is physically specialized for any of these activities. Instead, every bit of it can instantaneously become the venue for a seminar, a snack or romance.
(Kluth 2008, 8)

The end of the Western architectural paradigm, exemplified by visual space, is now being displaced by a neo-acoustic resonant space of diverse simultaneous human associations and constantly in flux, in the manner of phenomenological transparency. This now involves the interplay of sustainable requirements that are sociological, psychological, and ecological as well as the traditional functionalist requirements for physiological comfort and shelter, a prime feature of Functionalist Modern architecture. If the defining aesthetic of Modern architecture, according to Giedion, was a cubist 'layering of planes', or the literal transparency of physical acoustic space, then might not the defining aesthetic of a postmodern architecture in the digital neo-acoustic

Figure 6
Stata Building, MIT
Interior view.

Figure 7
Commerzebank, Frankfurt
View of one the skycourts.

Figure 8
National Commercial Bank, Jeddah
View of Perched courtyard.

age be a conception incorporating a 'layering of sustainabilities', which are sociological, psychological, and ecological. Hence, today the built-work as analogical form would be informed or shaped by, and in sympathy with, the sensibilities for a deep ecology (i.e. layering of sustainabilities) in the digital environment. This reconciliation is evident, for example in Foster's Commerzbank in Frankfurt, Germany. (figure 7)

As an atrium building this work responds to the cultural needs of the contemporary society by providing this 'layering of sustainabilities'. Digital technologies were used in the design, construction and now the maintenance of its building systems, but the interesting feature is that it is responsive to its cultural and physical context for socializing the space by the use of passive energy systems as well as multiple-level garden courtyards. These courtyards humanize the scale of the building while providing 'user friendly' spaces. In this way, the building's multi-layered responsiveness makes this a responsible building design, and this ethical approach, or ecology of mind, is an essential qualifying feature of the emerging sensibility of the global village. That is, by maintaining an ethical stance we maintain a connection, as McLuhan claims, with natural law, which is derived from the existential conditions of the analogical or physical body and the natural world. As mentioned above, in cyberspace the body and the world are discarnate, and consequently, the ground for ethical behavior is dissolved creating the postmodern anxieties inherent to this identity crisis; a crisis due to the difficulty of reconciling the natural/analogue and the discarnate/digital states of being and worldviews.

Conclusion: Responsive/Responsible Design

An important approach towards realizing this necessary reconciliation is in terms of responsible design which integrates a 'layering of sustainabilities' with sensitivity to local conditions in the global village. It is interesting to note that Foster adapted the skycourts in his building from a design of the National Commercial Bank (figure 8) in Jeddah, Saudi Arabia. (Abel 1997, 85-86) There, the architect Gordon Bunshaft adapted the middle-eastern concept for the courtyard house, the vernacular of this desert environment which is an effective passive energy space as well as a social space for the family or kinship group. Foster's use of this form reveals a significant aspect of the dynamics of the information age. That is, in the Modern period architectural influences radiated from the West in the manner of a centre-margin organization. In the postmodern age, information is networked and knowledge is distributed instantaneously in the resonant space of the global village. Therefore, in Bunshaft's work, the vernacular informed a global architecture which in this way represents the reconciliation of the analogue/local with the digital/global worlds of architectural awareness. That is, a responsible design would achieve a reconciliation that attunes human sensibility to the fact that we must live both locally and globally. That is in a 'glocalized' space architectural conceptions incorporate both corporeal and discarnate images of us and the world by means of a 'layering of sustainabilities' and understood in terms of both analogue and digital human identities. This implies understanding technologies in terms of a pragmatic aesthetic ability; i.e. applying an architectural imagination, or a phenomenological rather than an abstract analytic, for perceiving the scale and pace of our lives imposed by rela-

tively distinct technological environments (acoustic and neo-acoustic space) for the purpose of maintaining a sustainable balance of material, social and psychological needs. Ironically, the effective use of the instantaneous and global retrieval of knowledge and information by digital technologies is an important means of in-forming this phenomenological attitude, in the aid of conceptualizing architectural form with regard to the necessary reconciliation of our digital and analogical bodies as well as worldviews.

References

Abel, Chris. *Architecture and Identity.* Oxford: Architectural Press, 1997.

Abel, Chris. *Sky High: Vertical Architecture.* London: Royal Academy of Arts, 2003.

Abel, Chris. *Architecture, Technology in Process.* London: Architectural Press, 2004.

Bently, Ian. et al. *Responsive Environments.* Oxford: The Architectural Press, 1996.

Colquhoun, Alan. *Modern Architecture.* Oxford: Oxford University Press, 2002.

Baudrillard, Jean. *Simulacra and Simulation,* Ann Arbor: The University of Michigan Press, 1994.

Curtis, William. (1996). *Modern Architecture Since 1900,* London: Phaidon Press Ltd.

Giedion, Sigfried. *Space, Time and Architecture* (fifth ed.). Cambridge, Massachusetts: Harvard University Press, 1967.

Giedion, Sigfried. *Architecture and the Phenomena of Transition,* Cambridge, Massachusetts: Harvard University Press, 1971.

Innis, Harold A. *Empire and Communications.* Toronto: University of Toronto Press, 1972.

Innis, Harold A. *The Bias of Communications.* Toronto: University of Toronto Press, 1973.

Kluth, Andreas."The New Oases." *The Economist,* April 12th-18th, 2008.

McLuhan, Marshall. *The Gutenberg Galaxy: the making of typographic man.* Toronto: University of Toronto Press, 1962.

McLuhan, Marshall. *Understanding Media: The Extensions of Man.* London: Routledge & Kegan Paul Ltd., 1964.

McLuhan, Marshall and Quentin Fiore. *The Medium is the Massage.* Toronto: Bantam Books, 1967.

McLuhan, Marshall and Harley Parker. *Through the Vanishing Point: Space in Poetry and Painting.* New York: Harper & Row, 1968a.

McLuhan, Marshall and Quentin Fiore. *War and Peace in the Global Village,* Toronto: Bantam Books, 1968b.

McLuhan, Marshall. Laws of Media: The New Science, Toronto: University of Toronto Press, 1988.

McLuhan, Marshall. "The Brain and the Media: The "Western" Hemisphere." *Journal of Communication,* Autumn (1998): 76.

Mitchell, William J. *e-topia,* Cambridge, Massachusetts: MIT Press, 1999.

Mumford, Lewis. *Sticks and Stones,* NY,NY: Dover Publications, 1955.

Perez-Gomez, Alberto. *Architecture and the Crisis of Modern Science.* Cambridge, Massachusetts: The MIT Press, 1985.

Rowe, Colin and Slutzky, Robert. *Transparency,* Basel: Birkhauser, 1997.

Picture Credits

FIG 1: Section, Baths of Caracalla. intranet.arc.miami.edu

FIG 2: Bradbury building. davemblog.blogspot.com

FIG 3: The Larkin Building of 1903. solohq.solopassion.com

FIG 4: Johnson Wax Building. homepages.ihug.co.nz

FIG 5: Broadacre, Wright, Frank Lloyd. www.dkolb.org

FIG 6: Gehry's Stata Center at M.I.T. www.nytimes.com

FIG 7: nature in buildings | commerzbank ... web.mit.edu

FIG 8: The National Commercial Bank, www.pritzkerprize.com