Toward Noosphere[1]: Envisioning Wall-less Studios and Rhizomatic Pedagogy

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> A rhizome has no beginning or end; it is always in the middle, between things, interbeing, intermezzo. The tree is filiation, but the rhizome is alliance, uniquely alliance. The tree imposes the verb to be, but the fabric of the rhizome is the conjunction, and . . . and . . . and . . .
>
> — Gilles Deleuze and Felix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia.*

The system and structure of architectural education is a resultant of two sets of forces. On one side, we have the inherent characteristics and peculiarities of architectural profession that drive its academic component and remain the same at any given point of time. I will call these factors the *intrinsic factors.* On the other side, we have numerous contextual and environmental (cultural, technological, sociopolitical) factors whose essence is change. I will call these the *extrinsic factors.* Technology, and in particular digital technology, is one of those extrinsic factors that I will specifically address in this paper. My effort here is to bringa theoretical basis to understand how digital technology impacts the organization, transmission, dissemination and composition of knowledge that could in turn affect architectural education. Based on Deleuze and Guattari's notions of "*rhizome"* and Jean-François Lyotard's ideas on "*postmodern pedagogy*," I wish to expound pedagogical principles that strive to open the walls of the schools of architecture and the design studios. I call for a move toward *"wall-less studios"* that fuel a "*rhizomatic pedagogy."*

The present educational model that most of the architectural curricula follow is a deeply territorial one. By territorial, I mean a fortified and fiercely guarded terrain. We imagine that the student would enter the walls of the institution and would go through a strict regimen of courses, exercises and simulations of "outside world." In addition, the student would go through a series of steps that are clearly numbered, defined, graded, sequenced and hierarchically organized. At the end of the curriculum, the student is released from the bounds of the walls of the institution into the so-called "real world." This delimitation and distancing while being useful and necessary to a certain extent have become religiously secured fortifications. As Jean-François Lyotard wrote, "if education must not only provide for the reproduction of skills, but also for their progress, then it follows that the transmission of knowledge should not be limited to the transmission of information, but should include training in all of the procedures that can increase ones ability to connect the fields jealously guarded from one another by the traditional organization of knowledge."[2]

THE INTRINSIC FACTORS

Although the expression or appearance of architecture is a variable, there is something about architecture that remains the same all through the ages; architecture is always about the human condition. Architecture is an ultimate barometer of the society: A barometer of society's collective psyche, wealth, health, taste, sophistication, poverty, clarity, understanding, conflicts, mythologies, illusions, vanities, and just about everything that is human. Architecture is a creative barometer and an interpretative barometer — not just a mirror. At its best, architecture is an intelligent, challenging and creative critique that moves us through its thematic, philosophical and political intentions; and at its worst it is an indifferent and crass banality that is nothing more than mere infrastructure.

Architecture is a synthesis of technological, creative, social, psychological and economic disciplines with an ultimate emphasis on the creative faculties. Unlike the exact sciences and engineering disciplines where knowledge is cumulative and problems are clearly defined, architecture springs from a creative and human foundation that is not necessarily cumulative. That is not to discount the technological aspects of architecture. In fact, as I will discuss later, through technology architecture reveals itself. I do contend that the essence of architecture and architectural education is a creative and human foundation. However, like medicine and law, and unlike art and music architecture is a discipline that is "practiced" as a service-oriented profession. Such is the complexity of architectural profession and education. However, most architectural curricula fail to acknowledge the inherent complexity of the discipline and its need for hybrid and innovative curricular strategies that bring out and nourish a student's individual creative potential while developing his or her cumulative technical and all-round knowledge of life. The intrinsic factors are only half the story.

DIGITAL TECHNOLOGY AS A NEW PEDAGOGICAL ENVIRONMENT:

On the one hand, we have the inherent and intrinsic characteristics of architectural education — things that remain the same over time. On the other hand we have the contextual and circumstantial forces that change all the time and require new ways to connect to the environment. Technology is, of course one of the most dominant of those factors.

I will use the word *technology* in the very sense Martin Heidegger does'. He says: "Technology is therefore no mere means. Technology is a way of revealing."[3] He explains how technology is indeed apoetic act: "The word stems from the Greek. *Technikon* means that which belongs to *techne.* We must observe two things with respect to the meaning of this word. One is that techne is the name not only for the activities and skills of the craftsman, but also for the arts of the mind and the fine arts. *Techne* belongs to bringing-forth, to *poiesis;* it is something poetic."

In this regard, I move away from Jacques Ellul's functional definition of technology when he says that technology is nothing more than means and the ensemble of means. To me, technology is an integral part of being human and is entwined with human condition, existence and evolution. Technology is what we do to things and how we do those things. I do not think technology is a choice. Rather, I do think that "which technology" to work with and develop is a choice. So the question for me is not "whether" but "which." As Kevin Kelly points out, "The realm of the *born* — all that is nature — and the realm of the *made* — all that is humanly constructedare becoming one. Machines are becoming biological and the biological is becoming engineered."[5]

The first hallmark of technology is its ability to enable *complex interconnections* between any number of points. In ancient times, a message had to be sent through human means — a messenger. A message was synonymous with the messenger traveling in physical space. I will call this the *"body space."* Technology of printed text liberated the message from its bondage to the messenger. Technology of text gave birth to the *"textual space."* The message could travel in its own space independent of the messenger or the sender. Later on, radio and wireless technologies made it possible to get rid of the physical messenger altogether. Themessagecould travel at the speed of light on its own in the space ofelectromagnetic waves. I will call this the *"radio space."* Finally, the message acquired intelligence, dynamism, multi-dimensions and fidelity with the introduction of the digital technology. I will call this the "cyber space."

I once had a conversation with a professor of urban design who said that cyberspace does nothing to determine or affect the urban form and patterns. He was right and wrong at once. Such a perspective ignores the fact that cyberspace eats architecture frominside out as long as we ignore it. The fact is it simply doesn't matter anymore if you are in a metal shed or a Stonehenge if you want to communicate with your friend across the globe and understand the world. The urban form will probably not be affected simply because it does not matter anymore. Cyberspace subverts the very foundation and centrality of physical space.

The second feature of technology is to *liberate* us *from the eternal bondage* to the physical space and time. With your cellular phone, you could be virtually anywhere, anytime and yet be in touch with anyone anywhere anytime. Technology decreases the distance between desire and gratification.

The next hallmark of technology is that it *integrates.* As Jacques Ellul rightly points out, "Technique integrates everything. It avoids shock and sensational events."[6] Technology integrates economic systems, political systems, and eliminates boundaries that were previously thought as fortifications. Our usual approach to integration of computers into architectural curriculum is to "integrate computers into the curriculum." However such an approach does not reflect a proper understanding of the *computer as a new environment.* **Rather than integrating computers** into **the curriculum, as I will illustrate later, we should let the computers integrate disparate elements within the curriculum and beyond the curriculum that have so far remained isolated and forge new connections with the larger world.**

THE RHIZOME

Understanding the impact of technology involves studying its relationship to us and to our institutional structures. Gilles Deleuze and Felix Guattari have provided us with well-articulated metaphors that help us give a structure to such a changing environment around us. I would like to elaborate on Deleuze and Guattari's (D&G) metaphor of "rhizome" and later on, Jean-François Lyotard's narratives about "*postmodern pedagogy"* to establish a theoretical basis for a transformation of architectural pedagogy. D&Gs *rhizome* is a potent and radical model that couldcontribute very effectively to thedevelopment of a more appropriate and empowering architectural curriculum.

Rhizomeis afascinating notion that D&G propose in their brilliant work A *Thousand Plateaus: Capitalism and Schizophrenia.*[7] As Martin Pearce and Maggie Toy observe, "Gilles Deleuze and Felix Guattari proposed a condition where the tap root of ideology has been aborted in favor of the shifting layers and boundless interconnectivities of the rhizome . . . the model provides a useful analogue to architectural education today."[8] D&G propose the rhizome not as a transmuting notion that is anti-establishment or even utopian. Fredric Jameson says: "the schizophrenic ethic they propose was not at all a revolutionary one, but a way of surviving under capitalism, producing fresh desires within the structural limits of the capitalist mode of production as such."[9] D&G call such a strategy "micropolitics." Micropolitics stands in a diametrical relationship to macro or totalitarian political strategies that the human civilizations have known so far. Micropolitics is a strategy that is moregenetic and flows from inside out rather than deterministic that flows from top down. Thedevelopmental strategies of rhizomes give them an evolutionary edge. Viruses are rhizomes and Dinosaurs are not. Dinosaurs perished in the evolutionary game and viruses have thrived. The problem with modernism, modern architecture and modern pedagogy is that they tend to be trees and dinosaurs by refusing to form rhizomes with their environment. They are centered on dissociative, purist and isolationist strategies.

D&G base their proposition of *rhizome* on the following principles:

Principles of connection ***and*** heterogeneity. D&G write: "A rhizome ceaselesslyestablishesconnections between semiotic chains, organizations of power, and circumstances relative to the arts, sciences, and social struggles."[10] Further, they write: "any point of a rhizome can be connected to anything other, and must be. This is very different from the tree or root, which plots a point, fixes an order."[11] Conventional design studios are trees with fairly well defined hierarchies, beginnings and ends with preset learning objectives and quantified evaluations. They are predicated on either isolationist strategies or taproot structures. The instructor is the taproot with thestudents branchingout fromit. Whereas, arhizomatic studio would establish hetararchical connections between all of its points.

Principle of multiplicity: A *rhizome* cannot be treated as a *unity;* it could only be a *multiplicity. Unity* would signify acoming together of a number of singular identities with a certain hierarchical order. Further, *unit).*and *multiplicity* are different from *uniformity. Uniformity* denotes elements of equal appearances either conjoined or just simply piled together. D&G observe that the concept of unity appears only when there is a takeover of the multiplicity by one dominant element or idea that establishes a subject/object duality. *A* house of cards is a system where every point depends on every other point to maintain its unity, but every point is not connected to every other point without dependence. So, if you remove any single connection everything else falls down. All that is united must fall apart. All that is united maintains its integrity by top-down hierarchical strategies. In multiplicity, there is no interdependence, but there is adirect interconnection. Arhizomealwaysexists inamultiplicitous mode. A multiplicity may comprise of elements of dissimilar size, shape, length, color, and other external characteristics, but are similar in their genetic constitution. The distinction between multiplicity and uniformity or unity is that in multiplicity, every element is complete in and of itself and is capable of regenerating and regrowing itself. Now, think of the way we normally conduct the design studios: The design studios are treated as self-contained units with a clear beginning, middle and a clear conclusion. Surely, this strategy fits well into the conventional "tree-like pedagogical structures" that require geometrical and hierarchical definitions of what is being taught and who is being trained. The student is thought of as a neophyte who needs to be imparted training and learning so that he or she might become "one of us" — the wise trees. The flows of the conventional studios have clear-cut directions, hierarchies and or-

ders. You disrupt one flow and that severely affects the functionality of the rest.

Principle of *asignifying* rupture: A rhizome may be shattered into multiple pieces, but it always grows again from those pieces, thus resisting any singular signification. If a rhizome is ruptured at any point into two pieces, the two pieces would grow along the lines of rupture and regenerate themselves. If a rhizome is ruptured at a thousand points and shattered into a thousand pieces, all of the pieces would grow along what D&G call, their *lines of flight.* The rupture and the number of ruptures have no significance and do not signify anything in particular. In contrast, if a square is cut diagonally, it breaks down to two triangles. Thus, a rhizome has a genetic mode of being and growing in contradistinction to ageometric mode of being and multiplying. Because of its genetic logic, a rhizome defies complete annihilation despite multiple ruptures and splintering. For those of you who are *Star Trek* buffs, The Borg *Cube* is arhizome that can regenerate itself even if it is shattered into pieces. Thus, it always maintains an edge over *Starship* Enterprise, which is non-rhizomatic in its construction and operation. The implications for an architectural curriculum (or for that matter any curriculum) are many. Our educational system works with "quantification" of training and education imparted through well-quantified and numbered courses. If you take away one course and one quantity from that system everything else dis-integrates. The way nature works is rhizomatic. The way our brains function is rhizomatic. As technology becomes more sophisticated, its functioning becomes more akin to the biological structures as Kevin Kelly so brilliantly explains in his masterly work "Out of control."[12] Pure geometries, tree-like networks, polarized dualisms, strictly delimited territories, are all things of past.

Principle of cartography *and decalcomania*: A cartographic map is a rhizome in the sense that different points on the map form connections with different points of a terrain without a particular beginning or end. A map forms a rhizome with the terrain. In distinction, a tracing (decal) merely establishes a singular reproductive connection with the original — a copy. A map is a rhizome whereas a tracing is not. A map is not a tracing of the terrain. A tracing is not a map of a map. D&G write: "The orchid does not reproduce the tracing of the wasp; it forms a map with the wasp, in a rhizome. What distinguishes the map from the tracing is that it is entirely oriented toward an experimentation in contact with the real. The map does not reproduce an unconscious closed in upon itself; it constructs the unconscious."[13] In case of a map, the relationship is mutually enriching and multivalent without imitation or reproduction. I think that this principle is quite important to architectural pedagogy in the sense that certain curricula and more particularly, certain design studios are modeled as imitations or reproductions of the professional architectural setup of the so-called "real world." The problem with such a model is that it reduces the studio to a mock up and it becomes a tracing of the profession. D&G further elaborate: "Unlike the graphic arts, drawing or photography, unlike tracings, the rhizome pertains to a map that must be produced, constructed, a map that is always detachable, connectable, reversible, modifiable, and has multiple entryways and exits and its own lines of flight."[14] Tracings could be a part of and exist on a map but not the converse. A rhizomatic studio would be a map of the world, but not a tracing or mock up of the world. A rhizomatic studio is complete in and of itself.

As numerous authors have noted in the fields of cultural studies, literary criticism, psychology and philosophy, rhizome is an apt metaphor for the information age.

Rhizomatic pedagogy is necessitated by the opportunities presented by the sweeping cultural transformations being brought about by the information technologies such as the Internet, Virtual Reality, photo-realistic visualization, and database applications. Many of the emerging trends in and scientific disciplines are rhizomatic. From advances in neural networks to fuzzy logic; from chaos theory to systems theory; and from evolutionary computing to artificial intelligence, we are heading toward a rhizomatic future.

JEAN- FRANÇOIS LYOTARD AND POSTMODERN PEDAGOGY:

Jean-François Lyotards *The Postmodern* Condition: A Report on Knowledge is a seminal work on the status of knowledge in the information age. Lyotard produced his report at the request of *Conseil desUniversites* of the Government of Quebec. Lyotard writes: "Our working hypothesis is that the status of knowledge is altered as societies enter what is known as the postindustrial age and cultures enter what is known as the postmodern age."[15] He argues that in the last fifty years, sciences and technologies have been concerned mainly with language and epistemological strategies: theories of linguistics, problems of communication and cybernetics, computers and their languages, problems of information storage, etc. As Lyotard says, "it is common knowledge that the miniaturization and commercialization of machines is already changing the way in which learning is acquired, classified, made available, and exploited."[16] Lyotard cautions that anything in the constituted body of knowledge that does not allow translation and transformation will be simply abandoned. We could interpret that statement in Deleuzean terms: anything that doesn't form a rhizome with the computerized global information environment will simply be left out and slowly perish. He concludes that "The old principle that the acquisition of knowledge is indissociable from the training (*Bildung*) of minds, or even of individuals, is becoming obsolete and will become ever more so."[17] D&Gs poststructural notions of rhizome and the postmodern epistemological propositions of Jean-François Lyotard interact in ways that lead us to novel pedagogical paradigms. A rhizomatic curriculum would be predicated not on "training," but on establishing new and multiplicitous connections with the world, bodies of knowledge, people and things.

Another dimension of Lyotard's argument has to do with the problem of fragmentation and "delegitimation of knowledge." In traditional societies, legitimation of cultural, social, political and technologicai spheres was bestowed by what he calls "grand narratives" and the power structures built around those grand narratives such as *The* Holy Bible for the Christian world, and *Mahabharata* and *Ramayana* for the Hindu world. The knowledge contained in these sacred books dictated the right, the wrong and the meaning of life. In the past two centuries, science and scientific modes of thinking have become discourses of legitimacy in themselves and are struggling to usurp the central position once held by the grand narratives of various societies. The result, Lyotard points out, is that we now have two distinct realms of knowledge. One is scientific or *technical* knowledge and the other is narrative knowledge. Thus, we now have the apes of Darwin pitted against Adam and Eve. The only problem is that scientific/technical knowledgedoes not represent the totality of human knowledge and thus cannot offer total legitimacy to the way we live and the way we understand our world. So instead of becoming trees in themselves, scientific knowledge and narrative knowledge could form rhizomes with the world and grow together.

Lyotards exposition is ultimately geared toward understanding the impact of epistemological issues on pedagogical realities. He notes: "If we accept the notion that there is an established body of knowledge, the question of its transmission, from a pragmatic point of view, can be subdividedinto aseries ofquestions: Who transmits learning? What is transmitted? To whom? Through what medium? In what form? With what effect'? A university policy is formed by a coherent set of answers to these questions."[18] Lyotard notes, much in the same vein as Michael Foucault, that "knowledge and power are simply two sides of the same question: who decides what knowledge is, and who knows what needs to be decided?"[19] The conventional power structures, which are based on traditional or modern organization of knowledge, will undergo radical shake-

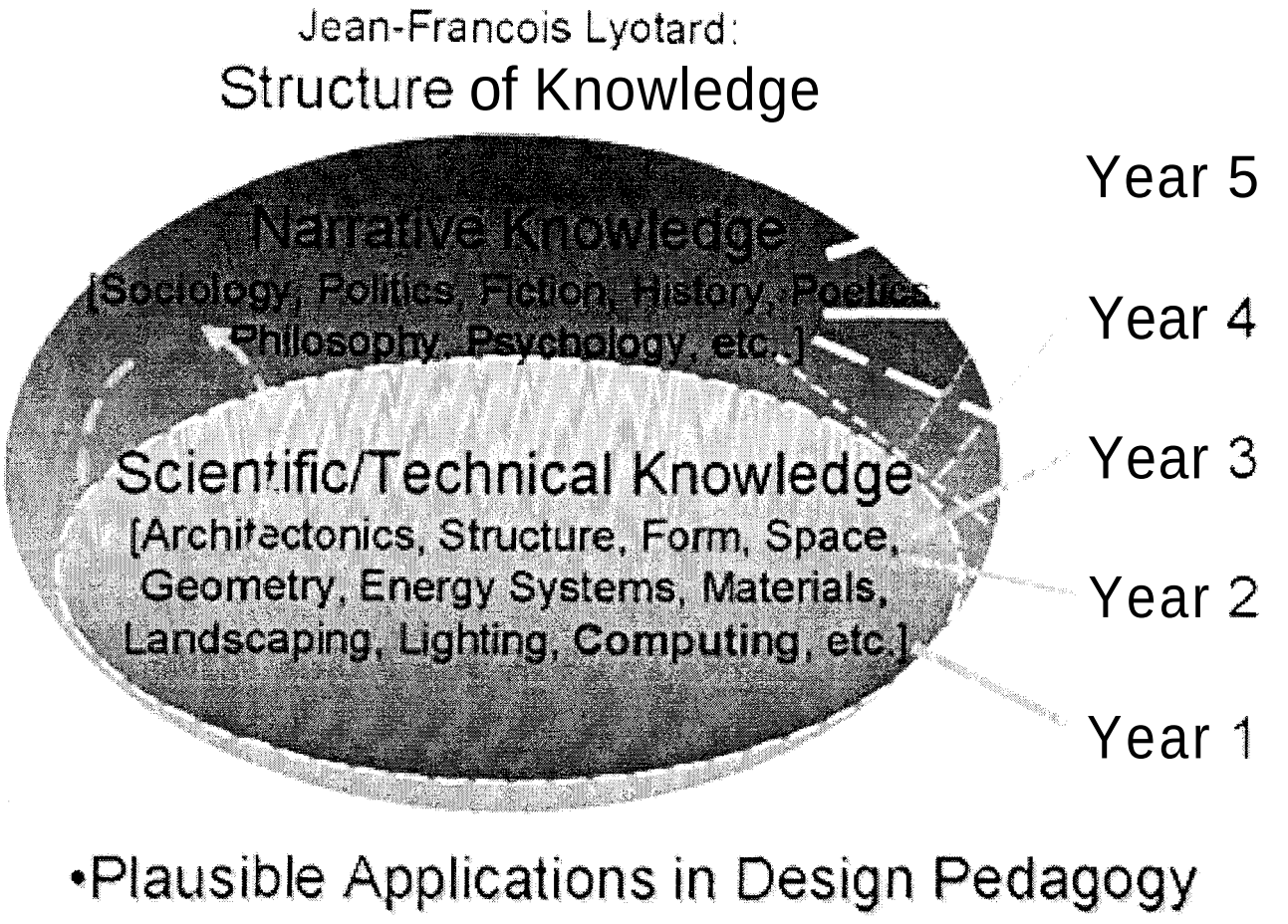

Fig. 1. Pedagogical model based on Lyotards exposition of postmodern condition.

ups. In a rhizomatic world, knowledge flows in a number of ways and often in a hetararchical manner. Schools, as the main sources of learning, and the teacher as the fountainhead of knowledge will be outmoded as long as they maintain isolationist and tree-like strategies.

Lyotard's model of knowledge in postindustrial societies offers a good structure for an architectural pedagogy. This is precisely because architectural education needs to bring together technical and liberal knowledge into a creative relationship. As a part of experimental "digital technology integration" at a university where I chaired the respective taskforce, we made an effort to adapt this model represented in the diagram (Fig. 1). We made an effort to address the cumulative nature of technological and technical knowledge and the non-cumulative nature of creative skills in a curricular model that becomes a rhizome. The model was patterned more like a map with tracings on it. These efforts were seeds of a rhizomatic pedagogy.

PRELUDE TO A WALL-LESS STUDIO

The idea of *wall-less studio* emerged from the lessons learned from teaching a "(digital) design studio" in 1995 (fig 2). More than the technical problems that surrounded the studio, what truly disconcerted me at that time were the ideological and pedagogical questions. Despite the fact that there was already a book published on electronic design studios,[20] and despite the fact that numerous papers were presented about electronic design studios in various forums such as ACADIA, the philosophical questions and meta-technological dilemmas remained unanswered. How do we use the new medium of design, visualization, communication and transmission? At what level do we address the digital medium? What would be the structure of instruction and learning in the studio? To what extent would the Internet and computer-produced work be used in the student evaluation? Should the discourse of the studio be constantly made available to the world through the Web? How would the interaction between the students, their work and people from around the world be facilitated? All these and more questions lingered for a long time beyond the end of the studio.

A project entitled "*The Reality Center*" was chosen to address the studios concerns at many levels. Here are a few excerpts from the project statement:

> The purpose of digital design studio is twofold.
> 1. To learn/invent the techniques of computer applications and Internetworking in the context of architectural and urban design. This learning begins with the understanding that computers are more than mere tools and are gateways to an entirely different realm of space-time: The Computer is NOT a tool as a pencil is; it is an environment of new methods and possibilities.
> 2. To understand — through design investigation — the nature of the new medium-environment of cyberspace and virtual reality, and their impact on various urban/architectural processes.

The project was formulated to enable a multi-level discourse about the computers and architecture. Paul Virilio's ideas served as the essential intellectual impetus for the project:

> The true problem with virtual reality is that orientation is no longer possible. We have lost our points of reference to orient ourselves. The de-realized man is a disoriented man... I

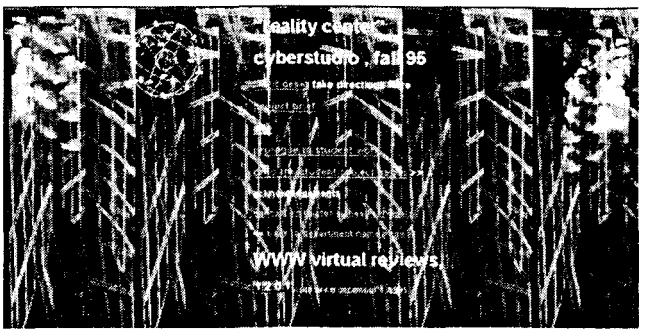

Fig. 2. Reality Center web site. Opening page

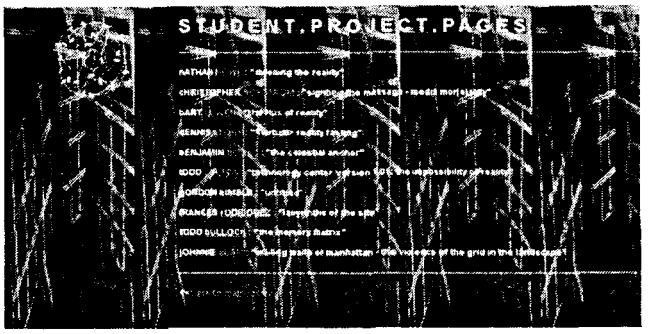

Fig. 3. Student project pages.

> conclude by pointing at a recent Americandiscovery, the GPS (Global Positioning System) which is the second watch. The first watch tells you what time it is, the second one tells you where you are. If I had a GPS, I could know where this table stands in relation to the whole world, with an amazing precision, thanks to satellites. This is extraordinary: in the Fifteenth century, we invented the first watch, and now we have invented the GPS to know where we are.
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> — Paul Virilio, Cyberwar, "God and Television: An interview with Paul Virilio," CTHEORY, http://www.ctheory.com/a-cyberwar_god.html

The premise of the studio was that what we take for granted and hold sacred about architecture today will become questionable and uncertain in a future dominated by virtual reality technology. Our ontological and epistemological ground will give way to a quicksand of bits:

> Virtual reality (VR) is the elimination of the medium by bringing a human fabrication of reality into direct sensual contact. In such a condition, which bypasses the traditional devices of metaphors, metonyms, signs and symbols, VR blurs the distinction between reality as we have known it so far and the illusion created by the computer. Dream, awakening and virtual reality merge into one seamless state of existence where one can no longer distinguish between them. Memory — traditionally stored in monuments, texts, photographs and hard drives — now ceases to be memory by entering the present moment as a "lived-remembrance" which could then be manipulated and brought into the present. There will be no memory. Nor will there be a need for memory. The past will be dead and so will be the future; they coalesce into one flow of experiences. In VR, you dont *read* the memory; instead, you *live* the memory and manipulate it according to your wish.
>
> All cultural and geographic references will be either erased or overwritten or blurred. The growth of the physical cities will become chaotic and anarchic where human beings will be able to traverse multiple levels of reality quite without an orienting and locating reference. At thatjuncture, places such as "Reality Center" will be necessitated in order to emphatically define what is real, when is real and to act as spatio-temporal and mytho-historical anchors in the ocean of floating experiences.

The students were challenged to come up with well-considered and debated responses and architectural strategies to address such a scenario. The studio was networked to the Worldwide Web and the students were encouraged to reach out and make new connections with respected personalities in related fields. Students did take advantage of the new environment of the Internet and made contacts with numerous stalwarts in allied fields. This kind of access to information, people and resources was unprecedented. The new epistemological environment is much larger than any of us could imagine and its impact is also larger than any of us could imagine.

A web site was created for the studio with links to student pages and project resources. The final reviews were conducted on the World Wide Web. Over 3,000 people around the world visited the web site and some of them responded enthusiastically to the project and the student work displayed on the web (Fig. 3). The comments were distributed to the students and the experimental evaluations were sent to the instructor (Fig. 4).

The studio served as a valuable exercise in understanding the new medium, new societal environment and the new cultural context. The studio helped me formulate important questions that led to the idea of the wall-less studio as a new pedagogical model.

ENVISIONING WALL-LESS STUDIOS

Here we need to make a clear distinction between the notion of *wall-less studios* and some experiments carried out at Columbia University, MIT and elsewhere. These *paperless studios, electronic design studios* and *virtual design studios* are significant strides toward coming to grips with the changing environment and context of architectural education. However, those experiments also portray how difficult it is to break free from the bounds of the past models of studios and to find apt theoretical and philosophical narratives and metaphors to advance new pedagogical models. For instance, *paperless studios* are centered on a pedagogical discourse about the use of the medium of design within the studio boundaries. Such a studio may question the traditional modes of design but not necessarily the traditional pedagogical modes of conducting a design studio. The framework of those studios is defined and maintained by the instructors and students with the discourse contained within the walls of the studio. As in a traditional studio, the projects might have gotten critiqued by a handful of chosen reviewers. I myself have encountered all of these difficulties and therefore can understand the struggle for innovation. These difficulties remind me of the early days of cinema when people could not escape the theatrical modes of presenting a story. The real revolution in cinema occurred when people realized how time and space could be edited, cut, spliced and montaged at will.

In contradistinction, a wall-less studio is NOT about digital technology albeit it harnesses digital technology. A *"Wall-less studio"* is a rhizome. *"Wall-less studio"* is a concept that ventures beyond the walls of the studio and strives to establish rhizomatic connections with the profession, academia, people, resources and knowledge from around the world, and aims to let those connections profoundly influence the process and workings of the design studio. A wall-less studio does not *copy, trace* or *reproduce* the professional setup. Rather, it seeks to connect to the profession and *map* and transform both ends of the connection. Wall-less studio is about establishingconnections between people, texts, machines, resources, and discourses both inside and outside the studio walls as opposed to the traditional modes of conducting a studio, namely "training" and "problem solving."

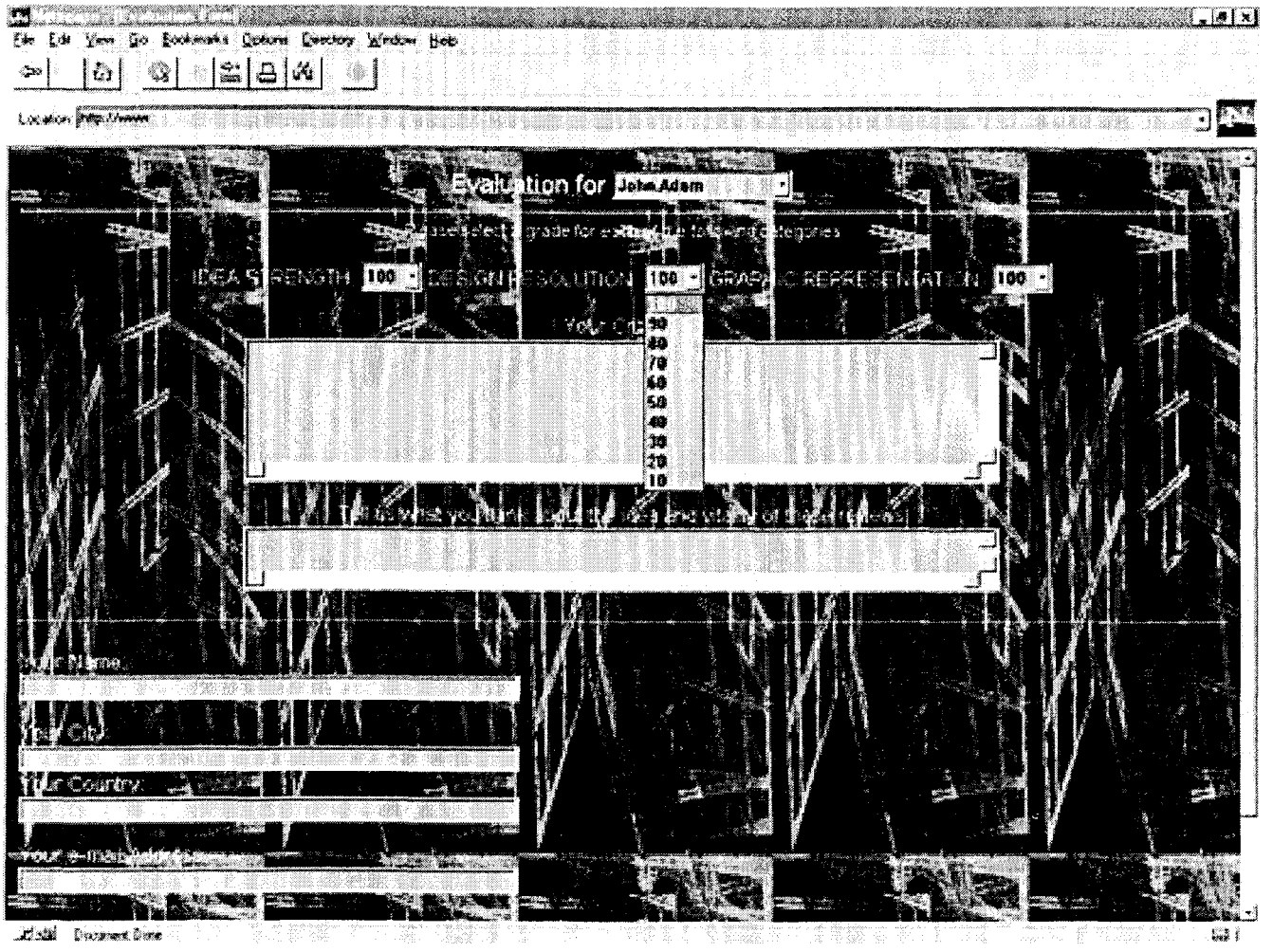

Fig. 4. Evaluation page.

The design studio instructor would become a facilitatorand moderator and a major resource in a wall-less studio as opposed to the conventional models of "guru" and "master-apprentice." Ina wall-less studio, the discourse of the studio crosses the boundaries of the studio. It is not a simulation of the "outside world" or "real world," but makes significant connections with the "larger world" by eliminating the "outside-inside" and "real-simulated" dualities of the traditional pedagogical models. A wall-less studio is about breaking the barriers of disciplines through the use of technology. A wall-less studio is not necessarily a digital design studio as the question of medium of design is only one of the concerns of the studio. *A wall-less studio is more a political and pedagogical than a technological move.* Thus, a wall-less studio seeks to achieve a real integration of people, students, teachers, resources, technologies and discourses.

Articulating their notions about a *book-rhizome*, D&G write: "There is no longer a tripartite division between a field of reality (the world) and a field of representation (the book) and a field of subjectivity (the author)."[1] Analogously, in a wall-less studio, there would be no four-way division between the instructor, the student, students work and the so-called "real world." The work produced in the studio is not a simulation of the "real thing." Neither is the instructor the commander-in-chief of the studio, nor is a student a half-baked professional striving for perfection. Instead, the work, the student, the instructor and the world (the entire world: its people. professionals, resources, texts, things, relationships, memories . . .) form a rhizome and a multiplicity. Together, the quartet forms a rhizome and grows.

Wall-less studios could very well be architectural pedagogy's significant first step toward entering the unfolding rhizomatic noosphere. Jean-Franois Lyotards postmodern pedagogical and epistemological ideas coupled with Deleuze and Guattari's rhizomatic writings pave way for us to understand the direction and destiny of our technological culture. I hope that the ideas that are brought together and discussed in this paper would frame important questions and scenarios for an architectural pedagogy that responds to the context it is in. The issues confronted here are too large to be coherently, cogently and rigorously addressed in a brief paper. I hope that these ideas will become basis for further pedagogical and scholarly rhizomes to grow. I will conclude with Deleuze and Guattari who write with a flamboyant French flair:

> Were tired of trees. We should stop believing in trees, roots, and radicals. They've made us suffer too much. All of arborescent culture is founded on them, from biology to linguistics."

NOTES:

[1] French anthropologist Teilhard de Chardin coined the now famous term *Noosphere* as an evolutionary destination of humankind. A Creek term, Noosphere simply means human-sphere. Teilhard's anthropological proposition is that human evolution will lead to a sphere of interconnected individuals that form a layer around the globe akin to neurons that form a brain. He predicts that the deployment of noosphere will happen at a point in the future, which he calls the *Omega Point.* See Pierre Teilhard

de Chardin, *The Phenomenon of Man* (New York: Harper Torch books, 1965).

[2] Jean-François Lyotard, *The Posttnodern Condition: A Report on Knowledge* (Minneapolis: University of Minnesota Press, 1993), p. 52.

[3] See, Martin Heidegger, *The Question Concerning Technology* (New York: Harper Torch books, 1977).

[4] Ibid., p. 12.

[5] Ibid., p. 1.

[6] Ibid., p. 6.

[7] Deleuze and Guattari build upon Gregory Batesons ideas of Plateau. They write: A plateau is always in the middle, not at the beginning or the end. A rhizome is made of plateaus. Gregory Bateson used the work plateau to designate something very special: a continuous, self-vibrating region of intensities whose development avoids any orientation toward a culmination point or external end. Gilles Deleuze and Felix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* (Minneapolis: University of Minnesota Press, 1994).

[8] Martin Pearce and Maggie Toy, Introduction, *Educating Architects* (London: Academy Editions, 1995), p. 7.

[9] See Fredric Jameson, Foreword, *The Postmodern Condition: A Report on Knowledge* (Minneapolis: University of Minnesota Press, 1993), p. xviii.

[10] Ibid., p.7.

[11] Ibid.

[12] See Kevin Kelly, *Out of Control* (Reading, MA: Addison Wesley Publishing Company, 1994).

[13] Ibid., p. **12.**

[14] Deleuze and Guattari, *A Thousand Plateaus,* op. cit., p. 21.

[15] Jean-François Lyotard, *The Postmodern Condition: A Report on Knowledge,* op. cit., p.3.

[16] Ibid., p. 4.

[17] Ibid.

[18] Ibid., p. 48.

[19] Ibid., pp. 8-9.

[20] See Malcolm McCullough, William J. Mitchell, and Patrick Purcell, (ed.) *The Electronic Design Studio: Architectural Knowledge and Media in the Computer Era* (Cambridge, Mass.: MIT Press, 1990).

[21] Deleuze and Guattari, *A Thousand Plateaus,* op. cit., p. 23.

[21] Ibid., p. 15.