Architecture and the Internet: Designing Places in Cyberspace

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Abstract

Cyberspace, as the information space is called, has become accessible in the past decade through the World Wide Web. And although it can only be experienced through the mediation of computers, it is quickly becoming an alternative stage for everyday economic, cultural, and other human activities. As such, there is a potential and a need to design it according to place-like principles.

Making places for human inhabitation is, of course, what architects, landscape architects, town planners, and interior designers have been doing in physical space for thousands of years. It is curious, therefore, that Cyberspace designers have not capitalized on the theories, experiences, and practices that have been guiding physical place-making. Rather, they have adopted the woefully inadequate 'document metaphor': instead of 'web-places' we find 'web-pages.' 3D environments that closely mimic physical space are not much better suited for making Cyber-places: they are, by and large, devoid of essential characteristics that make a 'place' different from a mere 'space,' and only rarely are they sensitive to, and take advantage of, the peculiarities of Cyberspace.

We believe that this state of affairs is temporary, characteristic of early adoption stages of new technologies. As the Web matures, and as it assumes more fully its role as a space rather than as means of communication, there will be a growing need to design it according to place-making principles rather than document-making ones.

By looking at physical architecture as a case study and metaphor for organizing space into meaningful places, this paper explores the possibility of organizing Cyberspace into spatial settings that not only afford social interaction, but, like physical places, also embody and express cultural values. At the same time, because Cyberspace lacks materiality, is free from physical constraints, and because it can only be 'inhabited' by proxy, these 'places' may not necessarily resemble their physical counterparts.

Keywords

Place, Internet, Cyberspace

1   Introduction

Far from affirming William Gibson's prognostication of Cyberspace as a "consensual hallucination experienced daily by billions" of people (Gibson 1984), it is fast becoming an extension of our physical and temporal existence, offering a common stage for everyday economic, cultural, educational, and other activities. Unlike the telephone network, Cyberspace is more that just another means of communication. Rather, it has become a *destination* in an of itself: we shop 'there,' are entertained 'there,' and get educated 'there.' To paraphrase Gertrude Stein, "There *is* a There There" (see Note 1).

Making places for human inhabitation that support such activities is what architects, landscape architects, town planners, and interior designers have been practicing (in physical space) for thousands of years. It is curious, therefore, that the designers of Cyberspace have chosen not to capitalized on the theories and experiences that have guided physical place-making all these years. Rather, they have adopted the woefully inadequate *document* metaphor: instead of 'web-places' we find 'web-pages.' We find 'web-sites' instead of 'web-places.' It is as if all our rich social and cultural physical existences were lived in the pages of glossy magazines; as if the strides made by civilization in developing towns, squares, cathedrals and other structures that sustain and nurture human activities have never been invented! The so-called 3D 'worlds'—which look like physical places, complete with stairs, columns, beams, roofs and windows—present an even poorer environment for human inhabitation of Cyberspace. They fail to recognize the fundamental differences between physical space and Cyberspace, which lacks materiality, is free from physical constraints (like gravity, weather, geographical proximity, temporal continuity, and relative scale), and can only be 'inhabited' by proxy.

It is our contention that this state of affairs is temporary, characteristic of early adoption stages of new technologies. Much like the first automobiles were likened to 'horseless carriages,' and early movies were mere celluloid records of stage-plays, so has the World-Wide-Web borrowed the desktop metaphor of the PC. But, as it matures, and as it assumes more fully its role as an information *space* rather than as a communication *network*, there will be a growing need to design it according to the place-making principles that have contributed so much to our cultural and social evolution.

In this paper we discuss some of the questions related to place-making in general, and in Cyberspace in particular, and attempt to derive some guiding principles for developing both. Our approach differs from other experiments of designing virtual worlds in that it is founded on the principles that have guided architects, landscape architects, and town-planners in their design of physical places for well over 5000 years. By looking at architectural design theories, methods, and processes as case studies and metaphors for organizing space into meaningful places, we hope to engender better designs of Cyberspace that not only can afford communication and social interaction, but also embody and express the cultural values our society has invented and developed to support and enhance these activities.

2   Place-Making

Architecture, above all its other virtues and accomplishments, is the art of *making places*. Places differ from mere 'spaces' in that they embody social and cultural values, in addition to spatial configurations. It is the concept of 'place,' not space, that connects architecture to its context, and makes it responsive to given needs. Places are made of objects and spaces. However, these are only the building blocks of places: necessary, but not sufficient components. To qualify as a *place*, spaces must be defined and ordered in meaningful ways (Ching 1979). Such meaning is not part of the space itself: rather, it is an added quality, acquired through the adaptation and appropriation of the space by its is users, through their actions and conceptions.

People inhabit *places*, not *spaces*: it is a *sense of place*, not space, which makes it appropriate to be naked in the bedroom, but not in the classroom; and to sit at our windows, peering out, but not at other people's windows, peering in (see Note 2). Places frame our actions by providing cues that organize appropriate social behavior in the world:

we rarely sing or dance when presenting conference papers, although conference halls and a theatres share many similar spatial features (lighting, orientation, etc.). Conversely, the same space—with no changes to its organization or layout—may function as a theatre at a different time, when the presentation of a scholarly paper would be considered 'out of place,' but not 'out of space' (Harrison and Dourish 1996).

So what is the significance of 'place-making'? What is a 'place,' anyway? How is it different from 'space'? What would happen to architecture if the space being ordered and defined was not the traditional physical space, but rather the information space of Cyberspace? Can Cyberspace be made into 'places'? What would that mean? How would 'Cyber-places' be different from ordinary web sites, or even 3D 'virtual worlds'? Those are some of the questions this paper sets out to explore.

3   What is a Place?

According to Martin Heidegger (1958), *"Place places man in such a way that it reveals the external bonds of his existence, and at the same time the depth of his freedom and reality."* More conventionally, a 'place' is a setting that affords the entire spectrum of human activities, including physical, economical and cultural activities, while affecting, and being affected by, social and cultural behavior.

Thomas Chastain defines place as follows: "The word *place* is often used to describe the larger territory that we build. The boundaries of this territory are defined by a sense of being inside—inside a region, a town, a neighborhood. The boundary is identified not by a demarcation of its edge but by the feeling of coherence of the spaces and the buildings within it, which give rise to a competence in the way a place is built and inhabited. We value such places for their qualities as extended environments and the support they give to our inhabitation. We value the feeling of being *somewhere* as opposed to just *anywhere*" (Chastain and Elliott 1998).

'Place' is thus as much a *psychological* phenomenon as it is a physical one. It is rooted in human social action and cultural conceptions: a *place* is a *space* activated by social interactions, and invested with culturally-based understandings of behavioral appropriateness. Or, as Bertrand Russell proclaimed (1914): "Indeed the whole notion that one is always in some definite 'place' is due to the fortunate immobility of most of the large objects on the earth's surface. The idea of 'place' is only a rough practical approximation: there is nothing [physical] logically necessary about it, and it cannot be made precise."

If 'placeness' is the consequence of the activities and conceptions of the inhabitants of a space, then 'space,' or the physical attributes that frame those activities, provide a *socially shareable setting* for the activity, in terms of cues that organize and direct appropriate social behavior in that particular place. Figure 1 shows how some objects and spaces, combined with the activities and conceptions of

Figure 1. Dining in the parking lot: group behavior vs. space for one (Smith 2000).

people, transform an ordinary parking lot into a 'place for dining': the retaining wall serves as a table, or a bench to be straddled; the wall serves to lean on. The solitary diner on the left occupies the triangular space defined by a diagonally-parked car and the retaining wall, which together define a relatively enclosed and protected space with the proper dimension for one person engaged in the activities of dining and viewing passers bys.

These 'places' are not imaginary, nor are they a matter of personal interpretation: it is due to the fact that the spatial organization offered by these physical objects, and by the spaces they define, are the same for *all* the actors, that several people can engage in similar activities. They have a *shared* 'sense of place.' This shared understanding helps them to orient themselves with respect to the space they occupy and with respect to each other, and thereby establish social references that direct their behavior in a way that gives meaning to their activities. They form separate groups of diners who interact internally, while projecting separateness externally. They are connected to the street, but detached from it, at the same time (Smith 2000).

'Place,' of course, has many more qualities than affording a shared social setting and directing behavior. Place is *unique*: there are no two places that are alike, no matter how similar they may look. Their uniqueness comes from internal characteristics (location), and from external characteristics (situation)—their relatedness to other socio-spatial determinants (economics, geographical, etc.). Although unique, places are not detached: they are *connected*, physically and conceptually, to other places. It is this connectedness that allows us to 'know' how to behave, for example, in a fast food restaurant in Des Moines, Iowa, even if we have never visited that particular establishment before. Places have *history*: past, present, and future. They grow, flourish, and decline, along with the site and the culture in which they are embedded: the 'dining place' in Figure 1 would most likely not have existed if the store next to was not the source of the food consumed by the diners. The solitary diner on the left would most likely feel uncomfortably exposed if the car defining the triangular space moved

away. Most of all, places have *meaning*, which is based on the beliefs people associate with them. It is this meaning that determines the *expectations* of human behavior in a 'place' (which, when violated, is considered to be 'out of place'). These meanings arise over time as practices emerge and are transformed within the cultures that use them. Different cultures may have different understandings of similar places and similar concepts, which contributes to feeling of estrangement when visiting foreign countries, where the same cues have acquired different meanings than back home.

4 What is Place-making?

Places are the product of human intervention: they have to be *created*, through practice and appropriation, and made to fit into the culture of society. Place-making is the conscious process of arranging or appropriating objects and spaces to create an environment that supports desired activities, while conveying the social and cultural conceptions of the actors and their wider communities (Figure 2) (Canter 1977). This is what architects, landscape architects, town planners, and other environmental design professionals have been practicing for centuries.

Designers do not control all aspects of a place: while its *form* is largely (though not exclusively) under their control, its *function* is mostly determined by the users. And the *conception* is typically created by society and the context in which the place is embedded, or by the users themselves: an architect can design a house, but only the family who inhabits it can make it a home.
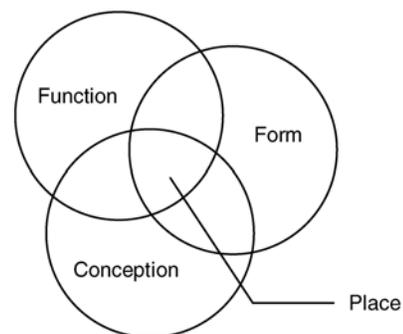

Figure 2. Place-making is the confluence of Function, Form, and Conceptions (adapted from Canter 1977).

Place-making, therefore, is a process of creating conditions that afford, or encourage, the emergence of a particular sense of place. While designers may not be able to create a sense of place directly, the forms they create can help, or hamper, its creation. A closed office door may be a physical arrangement intended to keep out noise, but it also sends the message "no visitors." Locating executives in corner offices may improve their task lighting, but it also broadcasts social cues of status and relative importance.

Appropriately arranged forms can support the creation of a sense of place. By 'appropriate' we mean forms that support the desired *functions* of their users, and match their *conceptions* of such places:

- *Functional appropriateness* is a measure of the fit between the activity and the objects or spaces that support it. For example, Philip Johnson's famous Glass House, in New Canaan, Connecticut, is known for its simple, modern functional interior arrangement. Functional appropriateness is, in many cases, the easiest component to define, because it lends itself to analytical methods. Moreover, it is often defined by the client, if not in complete detail than in the form of key-words (e.g., a house, an office, a factory, a school, a hospital), which are elaborated through additional information: how large a house? How many office workers? What will the factory make? Etc. The process of defining the function of a place has been studied and perfected independently of form-giving, to the point where a profession has been established that painstakingly determines how much square feet every activity requires, and how they ought to be connected, based on ergonomics, case studies, and individual preferences (e.g., by organizations such as BOSTI in Buffalo NY, International Centre for Facilities in Ottawa, Canada, and Facilities Techniques in Oakland, CA).

- *Conceptual appropriateness* is a measure of the fit between the form (or environment), the activities, and our expectations. Such expectations are a matter of social conventions, cultural norms, education, and ethnicity—what we call 'acculturation.' When we are confronted with objects or activities that conflict, or disagree *with* our expectations, we feel 'out of place.' Philip Johnson's Glass House, for all its functional appropriateness, is conceptually *inappropriate*: its all-glass enclosure provides no privacy—a cardinal expectation from a private home. While Johnson may well have intended to create this miss-conception, and has been willing to accept it (aided, no doubt, by the 40 acre wooded estate in which the house is located), he nevertheless designed the guest house, on the same estate, to meet more conventional conceptions by cladding it completely in brick.

5   How is it done?

In the physical world, places are often designed by 'borrowing' *function*, *form*, and *conception* from precedents, symbols, and metaphors. This 'whole-sale' approach is based on the assumption that a combination that proved to be 'appropriate' in earlier circumstances will, with proper adjustment made to fit the new context, continue to be so again for the same activity/conception. That is one reason that state capitols so often resemble the US Congress building in Washington DC, and why the Greek temple, symbolizing stature and stability, has been used as the form of choice for court houses and banks. Researchers call this approach *designing from Patterns* (Alexander 1977), *Case-Based Design* (Coyne et al 1990), or more recently, *Object-Oriented design*: the instantiation, or judicious adaptation, of a 'source' template, archetype, or precedent to fit the specific needs and circumstances of a 'target' context.

If no appropriate precedent can be found, symbols and metaphors may be used to engender some inherent quality embedded in the 'original,' such as a Santiago Calatrava's *L'Hemisfèric* auditorium in Valencia's City of Arts and Sciences complex, which resembles the opening of an eye. In this case, the 'fit' may be more tenuous, and require some explanation. Alternatively, altogether new forms may be developed that, if found to be functionally and conceptually 'appropriate,' may acquire their own status as precedents (e.g., Post Modernism, Frank O. Gehry's curvilinear forms, etc.).

Both such adaptation and invention often manifest themselves through the *form* that is given to the designed place. In most cases, however, the given form determines not only the shape of the place, but also confers on it certain *conceptions* that are associated with its metaphorical source (power of the court as a 'temple' of justice, etc.).

It is easy to understand, therefore, why Cyberspace has, to a large extent, been given the form of 'pages': the two main metaphors of the Web—as the mother of all publishing houses and as mail-order retail (or e-tail) outlet—have been shaped by the forms and conceptions that worked so well, for so long, in physical space. They were

borrowed from scholarly papers, on one hand, and from product catalogs, which proved so successful in selling mail-order goods for Montgomery Ward, Sears Roebuck, JC Penny, as well as countless other retailers, on the other hand. A similar logic guided Cyber-worlds that purport to support 'meetings,' and have, therefore, borrowed the physical conference room metaphor.

The shortcoming of the 'borrowing' approach, and the most common cause for its failure, is of course assuring that the 'source' and the 'target' are similar enough to justify using similar formal solutions and conceptions. It is questionable, for instance, whether Philip Johnson was justified in borrowing the Chippendale furniture design for crowning his AT&T building in New York City, thereby unleashing Post Modernism. Likewise, one must question whether Cyberspace is similar enough to physical space to justify the 'borrowing' of forms and conceptions, even functions, that were developed explicitly for the 'real' world.

6   Why make Cyber-Places?

With the advent of computer modeling, spatial models are becoming increasingly more popular in the design of all sorts of Web environments. These designs are based on the assumption that, since many aspects of our behavior seem to be organized around spatial elements of the physical world, we can carry over these patterns of behavior to virtual environments by designing them to have the same affordances for action and interaction that the physical world exhibits. We agree with this assumption, though, as we shall argue in the next section, not with its current implementation. What can be gained by adopting place-making principles for the design of Cyberspace? What is the inherent advantage of Cyber-*places*, vs. Cyber-*spaces*?

There are very few, if any, existing Cyber-places that exhibit a sense of environmental quality or socio-cultural significance. Therefore, it is not possible to gauge the effect of Cyber-placeness as of yet. However, there are parallels in the physical world and in digital gaming that may allow us to predict the effect.

In the physical world, the effect of rich, place-like environments can be seen in how people va-

cation and shop. Excluding economic constraints, most people will prefer to spend their limited leisure time in environmentally and culturally rich places like Tuscany or Paris (or even Disneyland), rather than in Peoria Illinois. Likewise, it is not the level of service alone which differentiates a luxury hotel from a cheap road-side motel: environmental, social, and cultural richness, and the sense of place they engender, play a key role in determining the appeal of a hotel.

The physical design of shopping centers is a good case in point: it has changed from merely placing two anchoring department stores on the opposite ends of a long wide corridor, into creating rich place-based environments. Retail-based shopping centers like strip malls, which were popular in the 70s, are now criticized as sterile and place-less environments. Current shopping center design still utilizes the concept of anchors, be they department stores or movie theatres, but puts an intense emphasis on rich place-based environments that borrow the metaphor of the 'village.' The sense and quality of place they create makes people want to be there, and stay there for longer periods of time. In Las Vegas, the Venetian Hotel Shopping Area borrows the theme from its namesake, and creates a place consisting of a strong pathway based on a canal. But it adds both small and large plazas and people-spaces. The same effect is achieved at Universal Studios' CityWalk, in Southern California, although with a more graphic theme.

In the world of digital gaming, the initial constraints of technology led to the design and marketing of games with visually crude graphics and simple 2D environments, like Pac Man and Tetris. But the advent of games like Myst and Riven revolutionized digital gaming. These games have clearly succeeded in creating a sense of place at a variety of scales, at both the larger 'island' scale, as well as the room scale. These environments are familiar, yet futuristic and unique, which makes the game intensely attractive. While the mystery/puzzle plot of the game is quite clever, it would hardly come off without the rich place-based environments that serve as its context. They are able to create places people actually wanted to be in, rather than the environmentally-shallow "dun-

geon" games where the crude nature of the context hinders, rather than enhances, the game.

7   Cyber environments

It is our contention that designing places in Cyberspace can, indeed *must*, be informed by the principles that have been guiding physical place-making for centuries, for environmental, social, and cultural richness sake. We will argue, however, that this is not a matter of emulating physical form in electronic environments: Cyberspace cannot be 'spatialized' by simply appropriating physically-based spatial metaphors (Anders 1999). On one hand, objects and spaces that were functionally and perceptually 'appropriate' in the physical world lose their appropriateness in Cyberspace. On the other hand, the digital realm offers place-making opportunities that do not exist in physical space. But before we develop this argument, let us first look at some typical existing Web environments.

Today, there are perhaps four categories of environmental 'shells' for developing place-like environments in Cyberspace worth discussing:

1. Hyper-reality Cyberspaces
2. Abstracted reality Cyberspaces
3. Hybrid Cyberspaces
4. Virtual spaces

7.1 Hyper Reality

Hyper Reality attempts to mimic the physical world in every detail. The level of quality required to be believable is quite high, and not easily achieved. The test is the inability of the viewer to find 'telltale flaws,' much like analyzing the differences between a photo-realistic painting and a photograph. Technologically, this has been readily achieved using Radiosity in still imagery, but transferring this quality to the web on a massive scale is not possible at this time.

Hyper Reality is defined as much by the completeness of the imagery, as by its attention to solving constraints which revolve around the concept of the 'Laws of Nature': gravity, wind, weather, sunlight, natural materials, touch, smell, dust, dirt, and the aging of materials and surfaces. Many of these issues are yet to be solved before Hyper Reality can be achieved. Perhaps the biggest problems will lie with the modeling of organic objects:

presently, the polygon count required to create one convincing tree far exceeds that of a fairly complex building. Imagine a world with millions of realistic trees!

Hyper Reality environments can be used to re-create historical places that no longer, or have never existed as in Kent Larson's *Hurva Synagogue* (http://architecture.mit.edu/~kll/), and Takehiko Nagakura's *Danteum* or *Place of the Soviets* (http://sap.mit.edu/plan/plan_issues/47/unbuilt/index.html), or places that do not yet exist (e.g., the *Virtual Museum of Arts Al Pais*, which was intended to be a physical building, but whose developers ran out of money—www.diarioelpais.com/muva2/).

In terms of place-making, there are several advantages to Hyper Reality environments, such as richness of experience, familiarity, and comfort. The environment is easy for people to understand and relate to, since it contains such familiar implements as walls, ceilings, stairs, lights, doors, and even simulated materials. But it never rains in Cyberspace, therefore 3D 'worlds' have no use for roofs (although ceilings might help provide a boundary for spaces). There is no gravity, hence no weight in Cyberspace, therefore no need for columns and beams. Even windows lose their role as sources of air and light, and function only as portals. Distances are elastic to the extreme: one can hyper-jump from place to place without having to visit points in between. Hence roads, walkways, and elevators, are silly constructs, unless they assume their alternative meaning as transitional places that afford serendipitous encounters, views, and mid-journey changes of destination. The very physical-likeness of Hyper Reality is misleading, for it captures only the *spatial* qualities of Architecture, without its *place* qualities.

7.2 Abstracted Reality

Abstracted reality obeys enough laws of nature to engender believability, but does not attempt to create a 'perfect' reality. Objects and textures are abstracted, not perfectly rendered, but there is an attempt to avoid disorientation or the unfamiliar. For example, one could not walk through walls, and one needs to 'ride' an 'elevator' or ascend a flight of stairs to go from floor to floor. Stylistically, the imagery might be 'cartoon-like,' or im-

age-processed (e.g. run through a watercolor filter). Video games like Myst and Riven are examples of digital Abstracted Realities, much like Disneyland in the physical world. There is quite a bit more artistic freedom in Abstracted Reality than in Hyper Reality, which allows for stretching, or accentuating, place-making qualities such as scale and time (e.g., the buildings on Disneyland's *Main Street America* are 2/3 scale, to make children feel bigger).

Abstracted Reality can be used to create places that are too expensive to construct in the physical world, but buildable in a virtual one. Most Cyber environments fall into this category by default. Yet, presently the environmental quality of almost all sites is poor.

3D-MUDs (Multi-User Domains) are probably the best example of Abstracted Reality Cyberplaces. They employ a strong spatial analogy, with the explicit intent to facilitate multi-user (i.e., social) interaction. Like textual MUDs, they typically use 'rooms' as partitioning mechanisms, to restrict the visitor's attention to activities in one room at a time. To move one's attention, the user must 'change rooms': in some systems users can jump from one room to another, whereas in others they must 'walk' to their destination, passing through points in between.

The Virtual Campus of the University of Sydney (www.arch.usyd.edu.au:7778), for example, employs an architectural, campus-like MUD. Visitors must 'enter' the 'conference building,' go 'up' the 'elevator' to their selected conference 'room,' where they find a conference 'table' flanked by 'chairs.'

It is, however, a strange sense of place which MUDs like this one engender: they have topology (connectedness) but no orientation: there is no real notion of up and down when 'riding' the elevator. Like most MUDs, there is no notion of 'place' within a room: a visitor cannot get closer to one character than another, sit on one of the available chairs, or put his notes on the table. The space can accommodate many more participants than can be assumed from its size. Yet, if someone decides to leave the 'room' in the middle of a presentation, no one will notice, let alone be disturbed.

So, in fact, MUDs, like most other Abstract Realities, do not really exhibit the spatially-based 'placeness' that they purport to engender, and which is often appealed to by their developers. The spatial metaphor is actually of much less value in facilitating interaction and engagement than has been intended. And as the spatial metaphor of the MUD breaks down, only the space remains. But, as argued earlier, it is our *sense of place* which determines the cultural or communally-held appropriateness of behavior and interaction, not the spatial metaphor itself.

7.3 Hybrid Cyberspace
Hybrid Cyberspace freely mixes 'real' and 'virtual' experiences. It does not need to obey the Laws of Nature. One could, for example, move through walls, or fly. The range of artistic expression is quite limitless, and could easily become surreal, by the nature of unusual juxtapositions. Many elements of the site may be unbuildable in the physical world. One could assume, for example, the form of a blue caterpillar, and sit on top of a mushroom the size of a car, smoking a long hookah (see Note 3). Fellow participants could appear in the form of realistic or unrealistic avatars, even in symbolic representation, such as talking chess pieces or playing cards. Objects could behave in unusual ways, changing size, texture and form over time. The challenge for the designer is to strike the right balance between the real and the unreal, wherein the experience is aesthetically rich, yet not so disorienting or sterile as to destroy the sense of place. Movement through this type of environment could be very direct, instead of 'natural,' allowing instantaneous changes of venue or time. Movement could also become very three dimensional, beginning to disregard 'the ground plane.' Disorientation always remains an issue: the surrealism of Carroll's *Alice's Adventures in Wonderland* adds much to the story, but Alice's experiences are often disorienting and somewhat inhospitable.

7.4 Hyper Virtuality
Hyper Virtuality drops all relationship to the physical world and the Laws of Nature. It gener-

ally avoids the familiar. In fact, the uniqueness and innovativeness of the experience, to the intentional exclusion of the familiar, is of primary importance. Each site creates its own set of rules, which could challenge our sense of reality, materiality, time, and enclosure of space. Common building elements such as walls, doors, windows, or floors have no meaning here. An example would be the space travel sequence towards the end of Kubrick's 1968 movie *2001: A Space Odyssey*, or Char Davies' *Éphémère* (see Note 4).

Of the four types of cyberspace, Hyper Virtuality seems the most fertile relative to opportunities offered by the digital medium. There is the potential to expand the realm of sensory experiences by taking advantage of the computer's ability to organize time, data, and space, completely unbounded by the Laws of Nature. However, by completely discarding the physical spatial metaphor, Hyper Virtuality also loses any sense of familiarity, along with the social cues that derive from it. The unlimited freedom offered by Hyper Virtuality, along with its complete rejection of place-making principles, threatens to marginalize this type of Cyberspace to a form of place-less art.

8   Criteria for Cyber-Placemaking

We contend that the need for place-making in the digital world is critical to creating a lively and socio-culturally progressive environment. But all four types of digital environments listed above fall short of doing so: they are all deficient to some extent or another. Like the first generation of digital games, these early attempts to create Cyber-places have often been too realistic, too virtual, too literal, or too surreal in their imagery. They do not enhance the cultural experience, nor do they facilitate a social interaction. What would it take to make 'good' Cyber-places?

We offer the following criteria of place-making, adapted from physical place-making, to help guide the creation of place-like, web-based environments:

1. Places are settings for complex and rich *events*: they provide a *reason* and a *purpose* for being there. In digital games the purpose may be to slay the enemy, to concur territory, or to ascend to 'higher' levels of the game. In physical space, the 'event' may be to shop, to be edu-

cated or entertained, to conduct business, or simply to meet other people.

2. Places involve some kind of *engagement* with objects or with people. Thus they require **presence**. Presence can be participatory, as in a game or in a MUD, or remote, as in voyeurism. Either way, it exposes the actor to social norms, cultural customs, and scrutiny (see Note 5).

3. Places provide **relative location**: they let you know where you are, where you came from, and where you might be going in the future, spatially, temporally, and socially. This provides places with a sense of *uniqueness* and a *character* of their own that helps to differentiate one place from another. Location creates a *context* for the activity, a sense of 'outside' relative to some 'inside,' in much the same way that one sees the world through the living room window. Perhaps one sees the front lawn and the road, but that road also implies a connection to other roads, to highways, to a city center, located in a certain state and country. It provides not only a geographical location, but also a socio-cultural one.

4. Presence and location promote a sense of **authenticity**: it allows the actor to know s/he participates in a 'real' event, rather than viewing a previously recorded one. It is the sense one gets by actually *being* at a ball game or a concert, rather than viewing them on TV. The telltale signs of an authentic place are *change* and *serendipity*: the traces of other people's presence, and the chance of seeing something no one else has seen before.

5. A place must be **adaptable**, so as to allow *appropriation* to the specific needs of the user, and to foster an ability to make a place *personal*. Well designed places foster a sense of ownership and a sense of control, and at the same time a shared responsibility and access. It is such adaptability by others, who leaves their mark on a place, that makes a place authentic. Adaptability could be through the placement of personal objects, or symbols, both personal and communal, by re-arranging the objects, or by adding/subtracting them.

6. Digital places, unlike their physical counterparts, afford a **variety of experiences**: they can provide multiple different *points of view*, different *scales*, different levels of *abstraction*, even different *temporal* perspectives. These experiences can be simultaneous, or they can evolve autonomously or interactively (see Note 6).

7. The choice and control over **transitions** in Cyberspace from place to place offers much greater richness than physical space affords: one can hyper-jump, or use the journey as an event in and of itself.

8. Finally, well designed places are inherently **memorable**: they are places you want to be in, to stay at, and to come back to. They are visually and emotionally rich, inviting spaces that can create a sense of belonging, safety, and acceptance, or, conversely, a sense of adventure and danger. This could be based partially on a degree of enclosure and definition of the space, as well as on a textural and environmental richness.

It is quite obvious that these criteria are neither exhaustive nor independent of each other. They blend principles learned from making places in the physical world, and from the new affordances offered by the digital world. These added affordances may enhance the place-making experience, but could also easily detract from it by overwhelming the viewer with disorienting imagery. A judicial and careful blend is needed.

9 Conclusions

As Cyberspace becomes more 'common-place' (pun intended), there will be a growing need to design it like a 'place' rather than as a document or even a 'space.' Environmental quality and 'sense of place' matter as much in Cyberspace as they do in physical space. They can have the same beneficial, as well as detrimental, effects on visitors of Cyberspace that a physical environment has on its users.

The difficulty in making Cyber-places is that there are currently very few metaphors and precedents to guide their development, and few, if any examples to gauge the effect of richer environmental quality and placeness on users.

Nonetheless, making 'places' in Cyberspace can borrow from the principles that were developed by architects, landscape architects, and town-planners over the last few thousand years. At the same time, it must adopt the abilities offered by the new technology, which allows Cyber-place designers to exercise more freedom in placemaking than physical places afford. The challenge is to blend these two opposite needs: not to stifle Cyber-places by making them too Hyper Realistic, while at the same time not to make them too Hyper Virtual, to the point of renouncing all sense of place.

By looking at physical architecture as a case study and as a metaphor for organizing space into meaningful places, designers of Cyber-places could develop spatial settings that are not only visually rich, but, like physical places, afford social interaction and express cultural values.

It is dangerous to confuse the notions *space* and *place*. Places, in the physical world, are filled not only with artifacts, tools and representations of our work, but also with other people and the signs of their activities. The sense of other people's presence and the ongoing awareness of their activity allows us to structure our own activities, and to seamlessly integrate them with those of others. They give *meaning* to our own actions and behaviors. That is why we choose to go to live concerts, where we must put up with uncomfortable seating and the coughing and rustling of the audience, rather than stay at home and listen to perfect recordings of the same performances. That is why we still like to browse for books in physical bookstores, even though we can buy all that we need at Amazon.com. That is why we visit physical museums, even though we can visit them on the Web. That is why we go out to dine in real restaurants, rather than heat frozen meals in the comfort of our homes. That is why we go to football games, even though we can see the action better on TV. And that is why we go to conferences, even though we can read the proceedings at home.

As we begin to shift a greater number of our social, cultural, economic, and other activities to Cyberspace, we must work to make it socially- and culturally-appropriate, so that it can support our rich, place-based 'real world' behaviors. Our designs of Cyber-places must support, not undermine, the very things that make places work— their activities, uniqueness, the shared understandings of their appropriate use, and the interpretation of social and cultural cues in the physical environment. Without them, we stand to lose all the social and behavioral skills we spend a lifetime to learn, and which contribute so much to enriching our culture. We must not confuse 'place-ness' with common spatial metaphors.

Notes

1) In Everybody's Autobiography, the 1937 sequel to her famous biography of Alice B. Toklas, Gertrude Stein wrote: "There is no there there," to express her dismay at not finding her childhood home on her visit to Oakland, CA.

2) A sense of place is defined by Steven Moore (2001) as the "intersubjective construction of conditions experienced [by the inhabitants of a particular locale, through] intersubjective realities that give a place … its 'character' or 'quality of life.'"

3) As described by Lewis Carroll in his classic stories *Alice's Adventures in Wonderland* and *Through the Looking Glass* (1862-64).

4) Éphémère (1998) (*http://www.immersence.com/ immersence_home.htm*)is an interactive, fully-immersive, visual/aural virtual artwork, where archetypal, metaphorical elements of 'root,' 'rock,' and 'stream' recur in a dreamlike 'landscape,' extended to include body organs such as 'blood vessels' and 'bones,' suggesting a symbolic correspondence between the presences of the interior of the body and the subterranean earth.

5) Consider, for instance, "flaming" in on-line chat rooms (*Wired* Magazine, April 2001, pp. 66).

6) In Char Davies *Éphémère*, for example, a 20 second gaze onto a 'rock' reveals an unfolding image of a swirling universe of stars within that 'rock.'

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