

## Cybernetic Space: Bringing the Virtual and Real Together

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### Abstract

With the increasing prevalence of digital tools in our everyday lives, it is often the case that individuals and institutions are simultaneously living in the "real" and the "virtual." This duality of existence can begin to transform both the real and the virtual as they influence each other. Furthermore, those individuals and institutions who are beginning to embrace the virtual existence often find themselves dwelling in a synthetic world made up at the intersection of the real and the virtual. This synthesis produces cybernetic space. The consequences of the growth of cybernetic space, and the way in which it implicates the individual and institutions are the focus of this paper.

### Introduction

The presence of the World Wide Web (web) in our everyday lives has become almost as taken for granted as the presence of electricity and the availability of telephones. Particularly in the developed world and increasingly more so in the developing countries, the availability of the web is considered a part of everyday life. This is reflected in the explosion of websites as individuals to multi-national corporations are willing and able to put up a "home page" on the web. I would argue that the likelihood that we will live with the web is almost certain.

The development, adoption, and penetration of the web have happened in a manner that is not unlike the way in which past technologies have diffused within a culture. The work of Rogers (1983) has demonstrated that the diffusion of innovations follows a specific pattern resulting in well-defined outcomes. Some of the outcomes impact everyday life in a significant way and begin to transform the lived experience of individuals in specific societies. Transformations in the lives of individuals eventually ripple out into society as whole and within a culture. Witness for instance the way in which the automobile has transformed the face of the United States and led to the burgeoning of the suburban sprawl, while thousands of miles away, the technologies of mechanized farming brought about the "green revolution" in the Western state of Punjab in India eventually providing the backdrop for the separatist movement that demanded secession of the state from India (Ballard 1984). In other words, as technologies diffuse into societies they often bring forth a series of predictable changes as well as many unexpected and unpredictable transformations.

The arguments for change can also be applied to the consequences of the diffusion of the web. The impact of the web varies from the use of messenger services for casual flirtation to the threats of global security through deliberate and malicious attacks on the web. Here, however, I focus on what could be considered one of the fundamental components of the influence of the web - the way in which it has transformed our notion of space. I make the argument that the emergence of the web

and the "virtual" space it connotes has pushed us increasingly towards living in a synthetic space where the "virtual" and the "real" synthesize to create a "cybernetic" space that we tend to dwell in. I would argue it is perhaps possible to have an understanding of the influence of the web by considering, 1) how the cybernetic space is produced out of the real and virtual spaces, 2) the characteristics of the cybernetic space, and 3) the significance of the cybernetic space. However, prior to thinking about the virtual and the cybernetic, it is worthwhile revisiting some of the ways in which real spaces have been conceptualized within contemporary culture.

## The spaces we "really" live in

It would not be incorrect to say that in many ways human beings are in some ways "hardwired" to think spatially. The process of acculturation constantly reminds us that we live in real spaces that are tangible and palpable as well as representable and describable. The reality of the spaces that we populate is produced precisely through the senses that constantly remind us that we are flesh and blood beings who are placed in a space which has specific characteristics. For instance, we sense the temperature of the space we are in and we can describe it to be hot or cold, just as we can also represent that feeling precisely by representing the warmth on a temperature scale. In similar ways humans are able to sense, describe, and ultimately provide a measurement of the characteristics of the real spaces we live in. Ultimately, language is used to codify the various sensations associated with specific real spaces and the linguistic symbols we use become descriptors of the real space we occupy. Furthermore, I would suggest that the process of sensing and describing occurs at various levels of our experience of the real space we are in.

First, we are used to experiencing what could be termed the "microscopic spaces." At the microscopic level, one experiences the most immediate surroundings within which one lives. Children are reminded that they have a "room," in a "home" which in turn is placed in a "neighborhood," which could also be the place where they go to "school." The spatiality of our existence is inscribed in us as the terms such as "home," "neighborhood," "school" become a part of our discourse and our existence. Indeed, these spaces and the discourses that represent the spaces becomes sites of struggle as we live in our own neighborhoods and begin to identify with them and begin to develop suspicions of the "other" neighborhoods and learn how the real microscopic spaces and their representations signify pockets of comfort and zones that are avoided. Foucault (1986) has made much of the way in which space and power are related through the process of discourse used to represent space and in many ways discursive representations become key in defining the real spaces. We teach our children of safe spaces and spaces to avoid; we build in our language terms that helps to carve out what we consider our space and what is not ours. For instance, in my work with communities across the United States, I am constantly reminded by members in community focus groups how their cities are "divided" and how the people "on the other side of the track," seem to be ones always favored. This discursive process provides the spatial anchors which help to locate individuals in the microscopic spaces. Eventually, starting with the room we sleep in to the city we call our own, we are taught to develop a sense of belongingness with a tangible place that can be "felt" with our senses. However, the notion of sensing a place transcends the microscopic and extends to a macroscopic level.

Not only is the idea of home, school, and neighborhood a part of the everyday material practices of most people, it is also the case that in the twenty-first century the idea of real space transcends to a larger scope. Most cultural practices remind us that we live in particular nations, countries, continents and such large global spaces where the identity of an individual becomes linked to the macroscopic spaces where the individual is located. While the idea of nationality is not necessarily new, the way in which it is manifest now is certainly different. Modern technologies of transportation have brought nations closer. It is far easier now, than a hundred years ago, to cross great distances that not only take us away from the microscopic spaces that we live our lives in, but away from the macroscopic spaces that we identify with and depend on to give a sense of stability to identities. Identities become increasingly fractured and schizophrenic as individuals move through many different microscopic and macroscopic spaces precisely because the new technologies are leading to interdependence between places.

Modern transportation thus has not only made the macroscopic real spaces come closer but has also resulted in greater interdependence between such spaces. The inter-dependence has not necessarily always been a positive outcome since the security and the safety of the macroscopic spaces are often dependant on the relationships between those who represent

the macroscopic spaces. The horrendous attack on the World Trade Centers in 2001 is a reminder of the way in which the spaces we inhabit at the microscopic and the macroscopic level have complex relationships with the other macroscopic spaces

While the relationship between the microscopic spaces, such as between neighbors and neighborhoods, are often visible in the way we act in our everyday lives, the relationship between the macroscopic real spaces are however manifest in somewhat different ways. It is not often that one gets to "see" what the "evil" is in the "axis of evil," or what "poverty" is in the "under-developed nations." Yet in our everyday lives, as we live in the microscopic spaces, we make attributions about how we think about the macroscopic spaces. To be sure, such attributions are made primarily on the basis of the representation of the macroscopic which is embedded in the discourses uses to describe the macroscopic. Often such discourses are produced by ideological apparatuses that operate in our microscopic spaces such as schools and religious institutions. It is through the discourses and texts about the other spaces that we begin to form a virtual picture of the real space. Indeed the relationship between the real and virtual begins to appear the moment "representation" takes place, and in a verisimilitude a specific vision of a place appears.

The microscopic and the macroscopic which are fundamentally very real thus begin to take on a discursive element as the representations begin to circulate specific images. However, the images are still experienced within the realm of the microscopic real spaces that we live in. Thus, it is on television that one would see the President of the United States describe some real nations as the "axis of evil;" and it is on television that one would also experience discourse about the human rights violations in Iraq thus finding support for the discourse about the axis of evil. In such ways, the representations seem to grow on each other providing a representation of the real spaces which, however, will never be inhabited or experienced by the ones who are making the attributions based on the mediated discourse. To be sure, it is assumed here that media operates in an ideological fashion and often as a part of the ideological apparatuses that work together to create the images of the microscopic and macroscopic spaces (e.g., Fiske 1989). Thus an ongoing tension between the real and the virtual remain as the real begins to be imaged in discourses, and thus transformed in peculiar ways to produce specific, often ideologically charged, images.

This tension is frequently resolved by the processes of socialization and acculturation that constantly teach us that the microscopic spaces experienced and the macroscopic spaced represented are equally "real," reminding us that the neighborhood we live in is a part of a city, state, and nation thus embedding our loyalties and ideologies not only in the real neighborhood of our everyday lives but the imagined nation within which we live and around which we build our individual and collective identities (Anderson 1983). The nation and country, for instance, get concretized in the national flag, the national anthem and images of national icon which we know exist and are thus real (Dominguez 1993). Consequently, within the regime of the real the loss of the World Trade Centers remains an incredible loss to the American psyche because what was real and tangible was taken away. Things, however, change when the digital enters the realm of the real, and popular cultural practices begin to embrace the most popular form of the digital - the web.

## The spaces we "virtually" live in

There is abundant information in the popular culture that constantly draws attention to the increasing presence of the Internet within the everyday cultural practices of contemporary society. For instance, the traditional media - from billboards to newspapers - constantly remind us that almost all we experience in the "real" world of traditional media has a presence on the Internet. However, not much is necessarily explained about the Internet, other than synonymizing it with the World Wide Web and then attracting the audience to the web. Yet, the differences between the real and the web are significant, and Negroponte (1995) makes the point well in drawing attention to what it means to be digital. Being digital recodes the analog real into intangible electronic signals reducing the entire analog experience to a combination of "on" and "off" switch positions designated by a "1" or "0" respectively. Barring the emerging emphasis on quantum computing, in its traditional form, much of the digital experience is a reductive process of representing the analog regime through the use of binary mathematics (Pavlik 1998). That being the case, the web can be considered to be intangible and non-existent in the "real" sense other than as a set of computer programs, codes, and machine languages distributed on computers all over the World. While this technical fact is somewhat banal, it does point towards a set of characteristics of the Internet and the web that need to be considered

when considering the spatial component of the digital experience. To make matters manageable, the focus here is primarily on the web as opposed to looking at the entire Internet experience with other components such as Usenet groups, Chat rooms, and other computer mediated communication (CMC) applications.

Perhaps one of the most important components of the digital experience is based on the fact that the digital, unlike the analog, is not "tangible." It is usually not possible to "touch" the person on the computer screen or feel the temperature of a snow storm showing on streaming video. Instead, the experience is primarily discursive. A series of texts, pictures, and sounds make up the discourse that is experienced on the web. The source of the discourse often becomes unimportant while the non-linear hyperness of the discourse becomes central. Unlike the focus on the linearity of the analog discursive experience (such as TV) with specific understanding of the locational component of the analog regime, the digital moves the experience to a non-linear and dis-placed level where the discourse becomes central. In its simplest manifestation, the process of "reading" a text in the analog world often means reading from beginning to end with the inherent temporal-spatial metaphor of "beginning" and "end" being central to the reading experience; on the web, however, the experience is often non-linear, and the location of a beginning and an end could be arbitrarily decided, and thus relatively meaningless (Mitra and Cohen 1999).

Yet, the non-linear discourse - made up of texts, sounds, and images - could create a "sense" of place. For example, in the case of virtual reality games, the binary code has become sophisticated enough that using technologies such as head mounted displays it is possible to create a feeling that the user is indeed in a place, albeit, virtually created out of bits and bytes feverishly working together to create images, texts, and sounds which eventually produce a discursive virtual space. Even without fancy technologies such as head mounted displays it is now increasingly possible to create a digital discourse that produces a sense of virtual space on the flat computer screen. Consider for instance the use of 360 degrees rotation of pictures of products that lets you "look" at your object of interest from all angles as if one is in the space where the object is placed. In the realm of the virtual discursive space the possibilities of creating both the "looking opportunities" and the "objects" remain only limited by processing power and the creativity of the computer programmers. In brief, I would argue that the web produces a sense of space that is not only virtual in terms of its intangibility but is simultaneously discursive in terms of what the space is composed of. The "flesh" of the real spaces is replaced by the "texts" of the discursive spaces producing the virtual cyberspace. The very term cyberspace, drawn from the novel *Neuromancer*, pointed at the tension between the real and the virtual by declaring the flesh to be weak in the face of the onslaught of the digital discursive virtual (Gibson 1984).

Perhaps the question to ask is indeed drawn from the fictive claim that the flesh is weak. To extrapolate the assertion in the form of a question it is possible to ask what then is striking about the digital discursive that sets it apart from the real we have experienced for so long? There are several differences that are of relevance in thinking about space.

First, the digital defies boundaries. Within the real spaces boundaries are essential since it offers what we have been taught to believe to be structures. Real space interpellates the subject within a spatial realm reminding one of one's locations, where one ought to be, where one can be, and where one can not be (Althusser 1971). One need only to consider the barriers to travel in the form of visas and entry permits to recognize that real space is bounded and sometimes policed. The very nature of geography, with its natural and artificial boundaries, has the potential to isolate the individual and limits movement. No doubt, modern technologies have made movement in the real much easier, but at the same time, following terrorist attacks on the United States in 2001, it also became evident how important it could be to restrict the movement in real spaces. In the discursive, such boundaries may neither be essential nor necessary. To be sure, in the virtual space it is far more difficult to "police" and "enforce" the boundaries. The digital discourse is amorphous enough to go beyond the essential boundaries that can be used to compartmentalize analog spaces. Through the conduit of the computer terminal or through emerging technologies of immersive digital experience the boundaries of analog space can easily be traversed and users of digital technologies have the open ended potential of "living" in spaces that can mimic traditional real spaces or create imaginary places that can only be conjured up through computer programs. This boundary-free space, however, remains intangible and only experienced through interpretations of discourse.

The second component of the virtual space is therefore its discursive nature which suggests that experience of space moves away from the realm of the sensory to an interpretation of texts, images, and sounds. Simply put, it is not possible to "touch"

the virtual but it is only possible to "read" the virtual. Cyberspace, within a modernistic epistemology, does not exist, but can only be interpreted. The quality of the space is not defined by the tangible components of geography but by the textual components of representation and verisimilitude. Meaning of the space is not produced by the physical process of touching and smelling but by the interpretative process of negotiating through the texts that produce the place. Thus the notion of meaning related to space is transformed, and a new literacy is emergent and is being adopted to understand what the virtual space is and how to live in it and negotiate through it. Such literacy is already visible in the generation of children and youth who have grown up with the web and have learnt to consider it as ubiquitous a technology as electricity and the telephone. To people of that generation it is perhaps clear that cyberspace is indeed a space that requires unique forms of interpretation using a new literacy in the digital age that is often very different from the way in which real space is interpreted (Tyner 1998).

There are thus two significant differences between the digital and analog spaces in terms of the boundaries and the way in which the two spaces are interpreted and negotiated. Yet, there remains a paradoxical relation between the digital and the analog that keeps them intertwined and intimately related to each other. The relationship stems from the fact that the digital virtual can not be experienced without being physically grounded in the real. It is not possible to experience the digital without the availability of a real tool that allows entry into cyberspace. To be sure, in spite of the possibilities offered by the virtual, it is the case that the human being still remains rooted in the real and needs tools such as computers to enter the digital. In that reliance on the tool, the digital and the virtual become mutually dependant creating the synthetic space that can be called "cybernetic space" (Mitra and Schwartz 2001).

## Cybernetic space: Its key components

Cybernetic space is produced in the intersection of the real and the virtual, where the experience of the virtual is dependant on location in the real. Yet once the real provides the conduit to the virtual, the user enters this synthetic space where the experience of the virtual is made possible by the opportunities of the real space but the very entrance into the virtual begins to expose the constraints of the real. It is this paradoxical situation the user experiences in the cybernetic space that is necessarily fraught with tensions and contradictions that might not have been as visible if one lived primarily within the real. As pointed out earlier, the real is often structured, and the ideological apparatuses that surround the individual help to produce and sustain the structures. Thus, as long as an individual is not questioning the experience of the real, the existence in the real could have a certain "consistency" that is codified in familiar places and repetitive routines. The virtual is quite the opposite of the structured real because the discursive nature of the virtual makes it precisely in-consistent thus calling into question the idea of familiarity. In the end, the many differences between the real and the virtual thus produce the need to re-think and re-define the tenuous and sometimes neurotic space that could be produced in the intersection of the real and the virtual. There are several characteristics of this space that warrant some attention.

First, cybernetic space typically can not exist without some anchoring in the real. This is not a fictional space or a theoretical fourth or fifth dimension of abstract mathematics or pure physics. The virtual component of cybernetic space requires a real tool that will allow entry into the cybernetic space. With the rapid changes in technology the nature of the tool keeps evolving. What used to be terminal consoles connected to "main frame" computers that allowed access to primitive bulletin boards has now evolved into broadband-enabled digital cell phones that allow access to the web and to a variety of other discourses that make up the virtual space. Yet, the tool is necessary, as is there a need for the real infrastructure required to allow the entry into the digital. Even the most sophisticated cell phone is no more than a fancy paper weight if the user is in a real space where there is no access to a cell phone signal. The dependence on the "real" is particularly important in the case of the computer as the entry point into the virtual and as the tool to produce cybernetic space. Without at least a phone connection, electricity, and a place to put the computer the user can not enter the virtual and thus experience the cybernetic space. The importance of the idea of the cybernetic space becomes particularly apparent when a computer begins to malfunction and even though in real life the user is close to a computer the virtual remains inaccessible and thus the cybernetic space is not produced. Much like many other ubiquitous material experiences of everyday life, the experiencing of the cybernetic is beginning to become particularly "expected" and "natural" which is only noticed when either the real component disappears (for instance, one loses access to a computer) or the virtual is inaccessible (for instance, the web page or Usenet group is not functioning as expected).

While it is the case that the production of cybernetic space requires both the real and the virtual, and it is somewhat obvious that the virtual can not exist without the real anchors, it can also be argued that in some ways the real is increasingly being influenced by the existence of the virtual. This dependence of the real on the virtual produces the second key characteristic of cybernetic space. With the evolution of technology and its penetration, at least in the developed countries, individuals and institutions are increasingly being encouraged and required to live in the cybernetic since their real experience is shaped by the assumption that they will spend a significant time in the virtual. From this perspective, the idea of cybernetic space takes on a tangible characteristic that is usually associated with the real and analog space. Witness for instance, how the convergence of technologies is producing a personalized display system that can be worn like a pair of sophisticated eyeglasses but that will allow the user to experience the virtual in an immersive way (available at: <http://ezzon.com/high-tech/eyeglasses.htm>). Unlike the TV which was the "electronic hearth," these technologies are personal tools that push the human closer to being the cyborg, or cybernetic organism, which by definition lives in cybernetic space since the cyborg is a product of the analog and the digital technologies that operates best in the cybernetic space produced at the intersection of the real and virtual (Heim 1993). Much like the way in which a fictional cyborg would negotiate, experience and shape the real we too continue to redefine the real to make it virtual-friendly thus producing the tangible component of cybernetic space. The very design and nature of our living spaces are being transformed to make them cybernetic spaces where wired networks carry the virtual at high speed to every computer in every room; wireless access points located in strategic spaces in homes bring the virtual to the laptop and handheld computer where the experience of sitting on the deck becomes a cybernetic experience as one remains wirelessly connected to the virtual.

These are not fictional characteristics as is the case of cyborgs; indeed, these are conditions that are constantly producing the cybernetic space. As a matter of fact, many of our real life experiences are constantly inserting the individual into cybernetic space and creating ontological tensions that call into question the very nature of our being as individuals and collectives that populate the cybernetic space. It is thus useful to consider some of the implications of living in this cybernetic space.

## The individual in cybernetic space

As I have pointed out earlier, life in cybernetic space is produced by the way in which the user is willing and able to negotiate the intersection of the real and the virtual. There are several mundane and practical consequences of living in cybernetic space such as those of dependence on computers to access the web and the need to be able to remain connected at all times on one hand, or the "luddite" reaction of rejecting the virtual altogether and remaining disconnected from the virtual. Independent of the way in which the idea of cybernetic space is either embraced or rejected, I would argue that a fundamental transformation is underway with respect to how individuals and institutions would be required to re-think the notion of "real" space to which we have been used to through every stage of evolution and conceptualize the emerging virtual frontier.

A specific component of real space that is called into question by cybernetic space is the notion of distance between spaces and places. In real space, the idea of travel has some well-known components that involve a physical movement from one place to another. Often such movements are accompanied by significant changes for individuals. In cyberspace, however, it is becoming clear that the notion of distance can not be measured in the way in which it is done in real space. The individual moving through cybernetic space is often required to think of "travel" in a different way. To be sure, the experience of travel is being transformed as individuals are becoming comfortable in cybernetic space. Consider, for instance, the case of people who have voluntarily or involuntarily been made to move away from a familiar place of origin to a new place of residence. This phenomenon has become particularly significant in the past decade as movement of people has become frequent and convenient. Immigrants, refugees, migrant workers, and other such categories of people have often been made to move from distant places and live in unfamiliar surroundings. Similarly, with rapid globalization individuals are often required to travel often and the permanence of a place of origin or residence is increasingly called into question (e.g., [http://www.russellsage.org/publications/titles/pdf\\_files/hirsch-intro.pdf](http://www.russellsage.org/publications/titles/pdf_files/hirsch-intro.pdf)).

This process is, however, fraught with ontological tensions as individuals are required to adapt and learn about new places. However, access to cyberspace can transform the real place of temporary or permanent resident into a cybernetic space

where the individual can remain in a specific, albeit constantly changing, real space but continue to gain access to permanent virtual spaces populated by similar people who perhaps share the same geographic affiliations. Thus the increasing popularity of Usenet groups, web based communities, and the idea of cybercommunity can be examined using the construct of cybernetic space because all such Internet resources offer the possibility of living in cybernetic space where a sense "familiarity" can be achieved even if the real space appears "unfamiliar" (Mitra 2000).

To mobile individuals in a globalized world, cybernetic space can be something that becomes essential for the production of a good life where individuals can live out a life that offers a sense of permanence. Thus, individuals can be located at many different real places at different moments in time but yet sense the permanence of cybernetic space the moment they can make the real and virtual come together through a networked device that allows entry into the virtual from any real location. Many generations of evolution has made the idea of "permanence" extremely important to human existence. Yet, the new technologies of travel and transformations in global relations have threatened the fundamental notion of permanence of place, and cybernetic space is able to step in and re-produce that essential sense of permanence. In many ways, the growth of mobile computing has implicated this process just as a possible desire to live in the cybernetic could well have encouraged the use of mobile devices. Using facilities ranging from third-generation web-enabled phones to cyber cafés in remote parts of developing countries, individuals are accustomed to dwelling in the cybernetic space and are constantly learning how to be a dweller in this space. This process of learning is worthy of consideration because, I would argue, that by becoming citizens of cybernetic space there could be a transformation of the very notion of identity of the individuals and his/her relationship to both the real and the virtual spaces.

Living in cybernetic space eventually can lead to re-considering the fundamental tenets of relationship among individuals and between individuals and the institutions that populate cybernetic space. I argue that an important component of relationship that is changing is the way in which individuals begin to transact the idea of trust in cybernetic space. The issue of trust becomes critical because anyone with access to the Internet, and with a little technological savvy, is able to create a presence on the Internet. In a way these spaces, created through texts and discourses, become the spaces where individuals seek and find familiarity. To be sure, it is the voices of the people who populate the "familiar" cyberspaces that provide the sense of belongingness to the uprooted individual where his/her "real" location does not offer the familiarity related to voices of people who perhaps share a common place of origin. Therefore, within the "free for all" discursive cyberspace, it is important to be able to constantly judge which voice is trustworthy and what must be treated with a degree of caution. Frequently such decisions about the virtual presence in cyberspace are predicated upon the location of the speaker in real space. Thus for an individual making a decision on the trustworthiness of a discourse, it can well be that the real-world status of the speaker becomes more important. Thus for an American located in the cybernetic space produced by the intersection of the real and the virtual in a cyber café in New Delhi the CNN web page could appear more trustworthy than the web page of an Indian newspaper. Similarly the situation is reversed for a Japanese person in England who resides in the cybernetic world of broadband Internet access in a London apartment. For such a citizen of cybernetic space, the Japanese language web sites could well be more trustworthy than the BBC web pages given the relationships between the real world and trust that the individual brings to cybernetic space and life.

While the question of trust remains critical when living in cybernetic space, it is also important to consider the tension between discourses that can be trusted and voices that are authentic. It can be argued that a virtual discourse would be considered authentic when the speaker(s) can claim to have an experience that offers them the history and credibility to speak about an issue. In other words, it can be argued that an Afghan woman speaking of her experiences under the Taliban rule could be more authentic than a Western female reporter writing about Afghan women. In cybernetic space, where many voices contend to be heard, some can claim to have a greater legitimacy to speak about something because of their unique history and background precisely because there is a congruence between the "real" history of the speaker and the reader both located in the cybernetic space but perhaps removed by thousands of miles from each other in real space. In many ways it is such identification between different speakers that help to create the cyber communities where individuals congregate (Mitra and Watts 2003). However, it is also the questions of trust and authenticity that underlie the way in which institutions adapt themselves for cybernetic space and how individuals relate to institutions in cybernetic space.

## Institutions in cybernetic space

Traditionally institutions ranging from government to manufacturing companies have tended to root themselves in real spaces around "brick and mortar" existences where the institution can build its image around and in specific places. Thus lower Manhattan in New York becomes the location for the financial hub of the World while spaces such as Shanghai in China and Mumbai in India are beginning to present themselves as spaces that are populated by institutions recognizable by their real life edifices and power. However, the development of the digital and the emergence of cyberspace began to pose a challenge to institutions where it was not enough to exist only in real spaces but institutions needed to find an existence in cyberspace as well. The race to enter cyberspace became particularly critical when traditional institutions began to feel threatened by the appearance in cyberspace of new institutions that appeared to exist only in cyberspace without any tangible existence in the real. For instance, book stores that operated in the American shopping malls were suddenly faced with the challenge of competing with "online" book stores that became wildly popular among consumers. Thus there emerged several companies that offered "online only" services partially leading to the creation, and eventually disappearance, of the economic "dotcom bubble." This history, however, can be interpreted from the perspective of cybernetic space by arguing that, much like individuals who are rooted both in the real and the virtual, institutions also need to exist in cybernetic space and not in either real or cyberspace only.

Institutions that had prior existence in real life are increasingly recognizing the importance of cybernetic space by simply porting some component of the institution's activities in cyberspace while retaining its very fundamental existence in real spaces. Numerous examples of this can be seen in the way in which institutions at least offer its face in cyberspace to showcase its real life existence. Thus academic institutions now provide web pages that duplicate the paper-based brochures just as small corporations can begin to "project" a professional image by strategic and intelligent use of the web to advertise themselves (Hyde and Mitra 2000). Similarly, institutions that appeared in cyberspace and expected to sustain themselves only in cyberspace are increasingly collaborating with real life institutions to gain a presence in real life. Yet, I would argue, such strategies of either creating a home page or collaborating with a real life institution are not sufficient for organizations to reside in cybernetic space because there always appears to be a disconnect between the cyber-face of the institution and its manifestation in real life calling into question the issues of trust and authenticity. On the other hand, a more apt existence of an institution in cybernetic space is one where the operations that happen in the real space of the institution are duplicated or supplemented in cyber space.

In the case of online banking, for instance, the traditionally real life activities such as writing a check are being replaced by the cyber-space activity of digital billing and payment. This is not to say that the real bank ceases to exist, nor is it to suggest that there is no tangible bank but just a digital presence, but instead, the process of online banking stresses the importance of existence in cybernetic space where the institution is able to create the convergence between the real and the virtual much like the individual in cybernetic space is able to find the "ideal" space where the synthesis of the real and the virtual produces the most comfortable dwelling place. An individual accustomed to living in cybernetic space is perhaps eventually more comfortable interacting with an institution that is able to mobilize the real, the virtual, and its combination to produce an institution that demonstrates trustworthiness and authenticity in the cybernetic space. To be sure, this is a challenging task since, for an institution, it requires the ability to deploy all the different strategies that require the creation of trustworthiness in real and cyberspaces, and often, those strategies could be different.

While institutions have learned how to appear trustworthy in real life through the actions and practices of its people, in cybernetic space, those practices need to be supplemented by a crucial discursive process where the institution can create discourses that present the trustworthy face in cybernetic space. Consequently, porting a real life organization to cyberspace and thus creating an institution that now exists in cybernetic space becomes more complex an act than developing a web site. It is a rhetorical and discursive process that needs to consider carefully what the institution did in real space that can be augmented in cybernetic space to make the institution appear attractive to its customers. As many victims of the economic downturn in the information technology (IT) industry across the globe have realized at the end of the twentieth century, it is not sufficient to exist in cyberspace alone but it really is important to exist in cybernetic space since the customers of most institutions represent individuals who are increasingly dwelling in cybernetic space and neither in cyberspace alone not just in real spaces.

I would argue that the outcome of successful existence in cybernetic space would ultimately lead to a transformation of the



institution in real life and its presence in cyberspace. The increasing ubiquitousness of cybernetic space is bound to transform individuals, institutions and the relation between them. A new form of "survival of the fittest," could evolve within the regime of cybernetic space resulting in some institutions ultimately standing out as the successful strategists and rhetors that can negotiate cybernetic space.

## Conclusion

In the end, there is enough evidence to suggest that cybernetic space could be a way to think about the way in which the Internet is implicating popular culture. There is much discussion about the "influence" of the Internet as it claims to transform everything from how we entertain ourselves to how we educate our children. I would argue that the discussions of the transformations are the "surface" manifestations of a very fundamental shift in the way we are beginning to "organize" our everyday life. There is a precedence to this process in the way television led to a re-thinking of what it is to be human. With the rapid penetration of television across the globe, the technology has transformed many different aspects of everyday life including bringing forth significant political and developmental changes across the globe. In a similar way the Internet has the potential to alter the global popular landscape and it is important to bring forth some explanatory arguments and theories that provide a way to think about the transformations being produced by the Internet. The way in which individuals and institutions are increasingly living in a synthetic space produced by the intersection of the real and the virtual makes it important to suggest a name for such a place and consider some of implications of living in that space. The notion of cybernetic space offers that opportunity by calling into question what, in our existence, is on line when we go online.

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