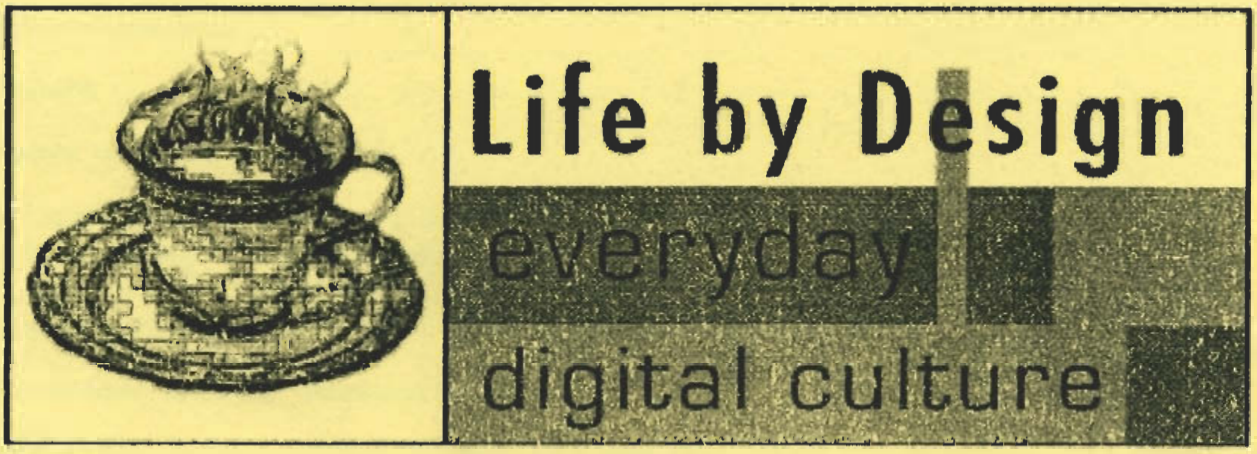

Conference Proceedings
April 10 -12, 2003

University of California, Irvine

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Life By Design - Everyday Digital Culture

An interdisciplinary graduate symposium and Exhibition
University of California, Irvine
April 10 -12, 2003

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Call for Papers

Life By Design: Everyday Digital Culture proposes an interdisciplinary exploration of the everyday impacts of digital culture. Starting with the premise that digital culture is no longer new, but is rather a given, the symposium seeks to open a space for a 'second wave' of analysis, criticism and practice. In emphasizing the word 'culture', the symposium assumes a central role for the interaction between people and technology, rather than placing a spotlight solely on technology itself. While we strongly encourage the cultivation of a critical, and even skeptical, stance towards the technology we engage with on a daily basis, we find it is important to include not just theorists but also practitioners. Therefore the symposium will include, in addition to papers, screenings, demos, an exhibition and a catalogue so that the discussion can take place across a broad range of interdisciplinary platforms.

In light of the societal changes prompted by long lasting technological interventions, what can investigations into design, critical theory and cultural studies tell us about our digitally mediated cultural experiences and realities? Searching for a close reading of the impacts of the digital, technological, mediated and interactive technologies on ordinary daily life, the symposium hopes to foster a generative mix of theorists, practitioners, graduate students, faculty and community involvement. Screenings, demos, artworks and installations will be invited under a related call for proposals, with details forthcoming on the website. Currently, the committee is accepting proposals for papers on the following five topics:

Ubiquity
Is there something about the incursions of digital technology into 'everyday life' which may have been overlooked, but which make for interesting conclusions about culture in general, as well as at this particular digital moment? How does the often barely noticed penetration of the digital into almost every aspect of our world alter everyday life? Privacy, surveillance, mobile devices, wireless communications, tangible and 'invisible computing', education, smart homes, media-convergence, intelligent agents, invasiveness and related topics would all be considered appropriate for 'ubiquity'.

Translation
Do the cross-media translations fostered by digital media create a particular opening for issues related to interdisciplinarity and/or intertextuality, or is something else taking place? Are we building a bridge between the 'two cultures', as addressed by C.P. Snow, of the humanities and sciences? Is such a bridge desirable? Papers addressing the 'digitization' of media forms, such as text, video, sound, dance, databases, as well as digitally facilitated interdisciplinarity in general, automatic translation devices, customization, user profiling and cross-platform applications such as porting to different platforms would all be considered appropriate topics for 'translation'.

Performance
How do issues understood in other time-based practices become altered within the digital context? How do issues of identity politics function in new digital contexts? How do issues of embodiment, interface and participation apply within the apparent immateriality of the digital? What do theorists and practitioners have to say to one another? Papers addressing duration, events occurring over time, embodiment, dynamic systems, interactivity, interfaces, improvisation, ephemerality, agents, identity politics and behavior, including behavioral AI and similar topics would all be appropriate for 'performance'.

Imagination

How has the imaginary evolved to include popular culture references to scientific breakthroughs, and what impact has this had on the development of the technology itself? How does science fiction impact the creation of new technologies? Have we become posthuman? What about cyborgs, genetic engineering, nanotechnology and a host of other everyday wonders 'just around the corner'? Papers addressing Artificial Life, futurism, AI, virtual reality, the entertainment industry, games, computer generated imagery (CGI), animatronics and the posthuman would all be relevant for 'imagination'.

History

What does second generation digital practice and criticism have to tell us about digital culture? What critiques of extant theories about digital media should be raised? Could we already be beyond 'second wave' considerations, into even deeper digital history? How should this history be told, and by whom? Papers addressing cyberfeminism, identity politics, the histories of science and engineering, science and technology studies, visual studies and the history of computer representation would all be appropriate for 'history'.

Schedule

Thursday, April 10

4.00 **Registration**
HIB 135
5.15 **Welcome**, Tobey Crockett
HIB 135
5.30 **Keynote**, Celia Pearce
HIB 135
6.15 **Reception**
HIB 137
7.30 **Screening**, Avatars Offline
Remarks by Daniel Liatowitsch
Film and Video Center (HIB 100)
9.00 **End of program**

Friday, April 11

9.00 **Breakfast**
HIB 135
9.30 **Panel.** History, Moderator: Raiford Guins, Presenting: Roberta Buiani, Joel Swanson, Tobey Crockett, OnRamp Artists
HIB 135
11.00 **Break**
11.20 **Panel.** Performance, Moderator : Antoinette LaFarge, Presenting: Laura M. Dennis, Natasa Petresin, Makeda Best, Jeffrey Ridenour
HIB 135
12.50 **Lunch**
2.15 **Panel.** Translation, Moderator: M. A. Greenstein, Presenting: Monica Mak, Heather Schatz, Michael Epstein, Adriana Tavares
HIB 135
3.45 **Break**
5.00 **Dinner**
HIB 137
6 - 8 **Reception** Exhibition
Beall Center

Saturday, April 12

9.00 **Breakfast**
HIB 135
9.30 **Keynote**, Norman Klein
11.00 **Break**
11.20 **Panel.** Ubiquity, Moderator: Cristina Lopes, Presenting: Ana Viseu, Adriana de Souza e Silva, Ulrik Christensen, Heidi Cooley
HIB 135
12.50 **Lunch**
2.00 **Panel.** Imagination, Moderator: Norman Klein, Presenting: Rachel Thompson, Cindy Poremba, Leslie Sharpe, Irene Chien
HIB 135
3.30 **Battle of the Moderators**, Simon Penny
HIB 135
5.00 **Closing remarks,** Anne Friedberg
HIB 135
5.15 **Thank you**
HIB 135
5.20 **End of program**

from MUDs as SPACE to SPACE as a MUD

how cell phones transform public spaces into places

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*MUD = multiuser domain, more specifically, multiuser environment

From MUDs as Space to Space as a MUD -- how cell phones transform space into places

Adriana de Souza e Silva

Cell phones transform our experience of space. The emergence of new mobile technology devices such as cell phones, PDAs, laptops, and wireless technologies creates a new manner to connect to the Internet. First, they are responsible for a novel generation of cyberspace nomads - people who are always connected and who connect while moving through physical space. Therefore they transform both concepts of virtual and physical. Moreover it is possible that what we understand by Internet will also change due to the use of these technologies. Consequences can be also observed on social and communication relationships. During the last decade, connection with the Internet was achieved mostly by means of a desktop computer and cables connected to the telephonic network. These interfaces caused virtual space to be considered disconnected from physical space. Today, we identify a hybridization of space since virtual is coming closer to physical.

This paper argues that mobile phones virtualize space by enfolding distant contexts into the present context. Either via voice or Internet connection cell phones change the perception of geographical distances and promote ubiquitous connection while one moves through space. At first this paper discusses how the emergence of a mobile and smaller interface to connect to the Internet is responsible for a hybridization of space, blurring borders between physical and digital. Then, the act of moving through space is compared to the experience of inhabiting a virtual environment, since it is possible to connect to people who are not present but even though change the nearby context. Traditionally multiuser environments have been seen as spaces -- sociability places, which in order to be inhabited needed to be taken apart from physical space. On the other hand, urban space starts to become a multiuser environment when a new mobile interface brings virtual into public space. The isolation of cyberspace in the last decade required users to create avatars in order to represent the body across the screen. Since one could not really be at the other side, it was necessary to design the physical body. Now nomadic technologies bring virtual closer to physical, and people become walking avatars, moving constantly between these both instances.

Finally, art is used as a context to illustrate this passage from virtual to hybrid. Art generally works with imaginary realities, thus pushing technology further, perceiving it in a new way. Specifically for this study, works from Brazilian artists are analyzed. The first piece is a 3D multiuser environment called "Imateriais", presented at the event with the same name promoted by Itaú Cultural in São Paulo (1999). In the second phase, we describe *Wop Art*, developed by artist Giselle Beiguelman, a pioneer artist who works with nomadic technologies and interventions in public spaces. Of all the countries in Latin America, Brazil is leading in cell phone penetration, with an expected 19.8 million cellular subscribers by 2006, accounting for 37% of the almost 54 million cellular subscriptions projected for the region as a whole (source: ICEVED, www.iceved.com). Therefore, Brazil is a very representative country concerning the hybridization of space in Latin America.

-1- Multiuser Environments as Space.

There are many histories of the Internet. The computer network that started to being developed in the late sixties has already been used as a remote access to information, as a faster and more efficient way of sending (electronic) mails, as an information broadcaster, a commercial environment, a space of flows, and also as a social place. It is not the intention of this paper to tell another story of the Internet as a social place. However, its aim is to show how the concept of multiuser environment has been taken from physical space and adapted to cyberspace, transforming the Internet in a gathering place. One decade later, due to the development of nomadic interfaces, this

concept is being brought back to the physical environment. Thus, the relevant question is: what does a multiuser user environment mean nowadays, since it carries elements from both virtual and physical spaces?

These "virtual" spaces - or MUDs (multiuser domains) became popular for allowing many people to connect to the same environment at the same time. Certainly multiple people are able to access the same website simultaneously, but a multiuser environment is defined when these people have the awareness of each other's presence. Therefore issues about presence, activity, and identity have been critical to studies on these places during the last decade (see Turkle (1995), Murray (1999), Rheingold (2000), Donath (1998)).

MUDs are virtual spaces with textual, 2-D graphic or 3-D graphic interfaces in which users (inhabitants) should choose avatars (the body representation in virtual world) in order to interact with other people. Users are sometimes also able to build this environment, which is usually a (literal) representation of the physical world. With the purpose of understanding why MUDs are considered virtual multiuser environments, we should look briefly at the development of the concept of cyberspace.

-1.1.- cyberspace = cybernetics + space.

The concept of cyberspace, as it is widely known, was coined by William Gibson in his novel *Neuromancer* (1985). Cyberspace is a hybrid of the words cybernetics and space, and it has promptly become synonymous of the www (World Wide Web) during the last decade. This fact explains why the Internet has been considered a space and, most of all, an immaterial space.

The idea of the Internet as a space points back to the origins of computer games in the seventies. According to Janet Murray (MURRAY, 1999) the spatial feeling that one has when interacting with a computer does not depend on its graphics, but on the capacity to interact and change elements that are "on the other side of the screen". Therefore the computer spatiality precedes in at least 10 years the graphic interface as a desktop metaphor developed at the Xerox Palo Alto Research Center in 1983. As an example she describes Zork, an interactive computer game created at the MIT by Josef Weizenbaum. By giving commands to the computer ("go left", "turn right") the user felt that she could change the virtual space across the screen. With the advent of the Internet and the possibility of connecting not only computers, but also people Roy Trubshaw and Richard Bartle (from the University of Essex, England) created the first MUD in 1978. Even being a text-based game, the original multiuser environment was surely a social place.

Many authors have written about the Internet as an information space, and also as a space of places. According to Felix Stalder, based on Manuel Castells' concept of space of flows, "flows connect, pure and simple. There can be no flow in one place, flows necessarily are between places." (STALDER, 2001) Therefore, still according to him, "the space of flows emerged when it became necessary and possible to integrate entities that are physically far apart into the single units that can work in real time." Once these entities are people, we have a multiuser environment.

Additionally, when graphic interfaces for these places started to being developed, it became obvious that the Internet was considered a space and that multiuser environments were regarded as places. A strong connection with the city landscape could be perceived in almost all of them, although it was common to talk about the virtual city, that is, an immaterial and fluid place. This concept also brought virtual environments into the realm of the imaginary, as long as users could create many different identities and play with several avatars.

During the same period many artists worked with the concept of flows and immateriality of cyberspace. For example, Marcos Novak developed liquid architectures in cyberspace (www.centrifuge.org/marcos) and Char Davies created fluid immersive virtual environments, such as *Osmose* and *Éphémère* (www.immersence.com/).

Nonetheless, apart from Gibson's contribution, cyberspace has been regarded as immaterial also due to the development of the concept of cybernetics. Katherine Hayles in *How we became posthuman?* (HAYLES, 1999) tells the story of cybernetics starting from the Macys Conference (1945) until the era of Artificial Life and Intelligence. One of her main focus along the book aims to figure out how information lost its body. In 1948 Claude Shannon defined information as "a probability function with no dimensions, no materiality, and no necessary connection with

meaning"(p.18). Similarly, Norbert Wiener thought of information as representing a choice among a range of possible messages. In both cases, the concept of information is completely disconnected from the material in which it is (necessarily) inscribed. This point of view influenced information theory and communications studies for the subsequently four decades, and also contributed to the adoption of the word cyberspace to describe **Internet**. According to Gibson, cyberspace is an immaterial space, a data space, which one can inhabit when set free from the weight of the physical body. The Internet was originally a network that allowed information exchange. Some time later it became an information space. And information was, by definition, immaterial. Thus, it became easy to consider the Internet (or cyberspace) an immaterial place. As immaterial is opposed to material and physical, cyberspace turned out to be disconnected from physical space. Moreover, if material corresponded to physical (or real space), immaterial or virtual were regarded as its opposite.

Nevertheless the virtual could never exist outside the scope of the real. With the emergence of multiuser environments and computer simulations often the technological concept of virtual was detached from its origins. The concept of virtual is the Latin translation for the concept of potential as proposed by Aristotle. It was originally created to think about movement. Movement, in this case, is considered as the passage of this potential state to the act itself.

It seems contradictory that the concept of virtual had been created to think about movement and yet in the era of the Internet it has been used to describe a situation in which the user is generally static. Immersive virtual environments commonly use the Head Mounted Display (HMD) as an interface and the user cannot move freely through physical space while immersed. Also on the Internet the connection is normally achieved by using a large monitor and a keyboard as interfaces, and a computer connected to cables or the telephonic network.

With the intention of discussing the ongoing concept of virtual and its relationship to materiality, Itaú Cultural, a cultural institution in São Paulo, Brazil, developed in 1999 a media arts exhibition called *Imateriais* -- not surprisingly, immaterialities. A virtual multiuser environment with the same name, created by Jesus de Paula Assis is an example of how multiuser environments were considered (virtual) spaces, and how its author challenged some basic issues related to these type of environments.

-1.2.- Imateriais.

Imateriais is a 3D modeled virtual multiuser environment that plays with the relationship between feeling and seeing. 3D virtual environments are visual spaces, around which the user can walk. As long as the main interfaces used to connect to these places are a monitor, a keyboard, a mouse, and sometimes the HMD, there is generally no use of other senses except for the sight. *Imateriais* challenged this statement by creating several interconnected rooms, which had the five senses as themes: taste, touch, smell, hearing, and sight. The goal, according to the authors, would be to study "the impact of simulated sensations on a simulated body." (http://www.itaucultural.org.br/index.cfm?cd_pagina=730)

Imateriais' graphic interface

In order to be immersed in the virtual world, the user had first to walk through the exhibition, whose goal was to strengthen the senses. For instance, there was a room with several smells as different as a dentist's place, or a clean house. There was another room with eatable little balls with unusual tastes, and also a room with holes where one could introduce her hand and feel what was on the other side. After all this sense stimulation, the user finally approached the 3D environment.

Before entering the world, each participant was prompted to take a picture from her own face, which would be used as her avatar's face. Once again, traditional identity issues in virtual worlds were

challenged. Multiuser environments were widely studied as spaces of liberty mainly because there was no need to identify oneself, and the user could choose as many identities as she wished. In *Imateriais* the user could not hide her identity. The context of an exhibition tcreated an even more ironic situation, because one could be visiting the show with a friend (in physical space) and suddenly could meet her (in virtual space). You would know with whom you were talking to, but her face would be no more than a still picture.

There are other issues concerning the experience of *Imateriais*, such as the immersiveness in an interactive realistic virtual environment and questions about what is existence and feeling for an avatar. However, what is most important to be considered here is that the multiuser environment aimed to take physical sensations to the virtual space. One of the creator's goals was to show visitors that the virtual was progressively being assimilated into everyday life. That means, according to them, that "increasingly everyday life events take place in the virtual world"(idem). Four years later, in 2003, the same phrase can be used with an opposed meaning: the virtual is being progressively assimilated into everyday life because virtual merges into physical, enhancing communication and action in physical space. And the main reason for this fact is the development of nomadic technology devices.

-2- Space as a Multiuser Environment.

-2.1.-the cell phone as an interface.

It is not the goal of this paper to fall into a technological determinism, which affirms that social changes are caused by technical development. Rather, it considers that society changes and then technology adapts itself to new necessities. Humans have always been nomads. The act of traveling has always enhanced communication among peoples and helped to map physical space. Since the 19th century, with the development of the train, the automobile, and then the airplane, traveling has become increasable faster. Therefore, communication technologies started to being developed in order to supply mobility needs. As long as the Internet is also one of the main communication technologies at the present, mobile communication devices that allow the connection to the Internet are becoming popular. There are several types of mobile technology devices. This study will take cell phones into consideration, analyzing them as determinant devices that re-transform our space into a multiuser environment.

Physical space has always had the potential to be multiuser. Public spaces such as squares, bars, and cafeterias are some examples. They are places in which people with similar interests meet, talk and know each other. With the emergence of the Internet, many authors started to describe cyberspace as a place in which new types of sociability would be developed. Hence when the Internet opened the possibility to connect many people to the same "place" the multiuser concept was transferred to the virtual world. However, although there are many multiuser places, urban spaces have become increasable spaces of displacement. Especially after the development of transportation technologies, people circulate progressively faster across the city space, but they do not stop to experience the environment or to communicate to each other.

Nevertheless, somehow nomadic communication technologies are restoring urban space with the multiuser feature. That means that urban space has the potential to become again a place. In order to affirm that, it is critical to define what a multiuser environment has become after the cyberspace era. In a summary, MUDs: are social places (spaces used for communication); are places that allow the communication among people who are not in the same physical place; are places which allow people to meet in virtual spaces; and are places that let people inhabit the same (virtual) space even if they are not actually talking to each other.

In a historical perspective, communication has mostly happened in physical space when the speed of traveling and/or circulation was lower and people were able to meet each other while on the move. With the arise of the Internet, communication moved partially to virtual spaces, in which one could experience instantaneous time while staring in front of the computer. After the emergence of nomadic technology devices, the multiuser environment takes place in a hybrid space. That means that it is possible to communicate with people who are not physically present while moving through space, which is also inhabited by other people. Consequently, it is exactly

the enfolding of contexts that creates the multiuser experience.

There are basically two ways in which cell phones could transform (urban circulation) spaces again into (social) places: one is enhancing communication between people who are close in physical space (referring back to the original meaning of a multiuser environment). The second one is increasing communication in the hybrid space, thus changing people's perception of space itself. By bringing distant people into the nearby context, it is critical to question now what does it mean to be present? If presence in cyberspace was related to avatars, is it today more connected to voice? Of course the wired telephone proportioned already the feeling of voice-related presence. However, it is just the mobility that creates the hybrid space.

When connecting to the Internet in the traditional way, there are also two different contexts, but they do not fold within each other. The first experience of enfolding contexts while moving through space was perceived with the walkman in the eighties (HOSOKAWA, 1997), but these folded contexts were not connected to communication. Hence the hybrid multiuser space only appears when there is mobility and communication involved.

-2.2.- cell phones and folded contexts.

One of the main characteristics of the use of cell phones is exactly enfolding distant contexts into the present context. According to Katherine Hayles, "context is becoming enfolded, so that it is no longer a homogeneous context for a given spatial area, but rather pockets of different contexts in it."(interview to the author, 11/02) For example, someone talking on a cell phone is part of the context of people who share the same spatial area, but they are also part of a distant context, because she is talking to someone who is spatially remote from her area. So there is a context that is created by the spatial proximity of people and inside it another context is created by the cell phone. This might be a feature of other media as well, such as the TV or wired telephones. The difference here, however, is precisely the act of moving through space.

Each new folded context reconfigures the real and the social relationships that take place within one specific area. Also each mobile device carries a whole potential of new contexts, ready to fold reality again. Enfolding contexts makes the physical world itself as the virtual/physical space in which communication takes place. Consequently the redefinition of the concept of presence becomes critical. As Rheingold (2002) points out, teenagers consider being on the phone enough to show that they were present, for instance, in a party.

This enfolding of contexts reconfigures the way we experience public space. They are sometimes not welcomed by people who are against the "privatization of public space". However, in many cities in the world people are learning how to live with the "always-on" situation. For example, in Europe there are silent compartments in trains. On the other hand, people become more tolerant with virtual interruptions or no longer consider an incoming call as an interruption - it is part of the context.

Also regarding the relationship virtual/physical, Rheingold exemplifies many acts of cooperation in virtual worlds that develop in actions in the physical world. For instance, people in Manila who overthrew the presidency of President Estrada in 2001, by forwarding text messages via cell phones.

The enfolding of contexts is not only related to voice though. With 3G cell phones that have always-on Internet connection, capacity to record and send video and still pictures, send text messages, equipped with GPS systems, and the ability to download all types of contents, there is the possibility to import almost any type of information and inject it into any situation. Therefore, cell phones also expand what the Internet can be. According to Rheingold, even what we understand by Internet today can become completely different due to mobile technology. This is already happening in Japan where cell phones are sometimes the first Internet connection devices for young people. These kids, when using cell phones to download karaoke or to buy a soda in the vending machine, do not even realize that they are "using the Internet".

-2.3.- cell phones and places.

Helsinki and Tokyo can be analyzed as paradigmatic cities regarding the use of cell phones. Nowhere else in the world the mobile phone is so integrated into the everyday life. Consequently they are good examples

when it comes to describe how cell phones change sociability also when people share the same physical space. First, cell phones in Japan are used in a completely different way from the rest of the world. The i-mode has become a fever, and cell phones became fashion items, and identity objects. They come in different colors and have special accessories, called straps. Cell phone straps are dangled on the mobile device. They ring and change color every time one receives a call. Obviously enough, these devices are meant to be shown and personalize the cell phone, therefore becoming an important socializing objects.

Also common in Japan are interpersonal awareness devices, like the Lovegety. Originally they were not connected to cell phones. Lovegety is a device released in 1998, in which one could input some information about herself, such as personal preferences and hobbies. While walking on the streets, if another Lovegety were close by, the device would beep. If another Lovegety with similar characteristics were close by, it would beep differently and change color. Likewise, ImaHima is a location-specific application for the Japanese i-mode standard and WAP technology, which makes the principle of newsgroups mobile and displays to the user people with the same interests and friends nearby on his mobile phone. Working like a mobile ICQ, each person must give permission before someone else can know automatically where he or she is. There is also the possibility to contact a stranger whose profile matches your request and who is nearby. ImaHima won the Prix Ars Electronica in the category Net Vision / Net Excellence in 2001.

Similarly, cell phones enabled with GPS (Global Positioning System) are responsible for the development of location based mobile games. It's Alive, a Swedish mobile game developer, created the world's first location-based mobile game, *BotFighthers*. The game takes advantage of mobile positioning and let the users play against others in their vicinity by using a standard GSM phone. Each person creates a "bot" in a website, name it, and arm it with guns and shields, what is really similar to a traditional Role Playing Game (and consequently the original MUDs). When their mobile phones are on, the players receive SMS messages about the geographic distance of other players. When they are close enough, they can fight and kill each other remotely, depending on who has more guns and skills. The same company has lauched also *X-Fire* and *Supafly*, the first location-base soap opera. Location based mobile games are an amazing example of how multiuser games formerly played in virtual space can be now take part in physical space, taking advantage of the real mobility of users.

In Finland, Rheingold describes a situation in which one teenager shows his cell phone screen to his friend, indicating that cell phones also produce content about which people can talk and interact in the same place. He affirms that "a new mode of social communication, enabled by a new technology, has already diffused into the norms of Finnish society." (p. XVI)

It is not possible to compare yet the development of cell phones in Brazil to countries as Japan and Finland, because social, cultural, and economic differences among these countries are huge. However, Brazil becomes an interesting case study when thinking about Latin America. Of all the countries in Latin America, Brazil is leading in cell phone penetration, with an expected 19.8 million cellular subscribers by 2006, accounting for 37% of the almost 54 million cellular subscriptions projected for the region as a whole (source: ICEVED). In Brazil, Rio de Janeiro is today the major marketing for cell phones in the whole country, with 3,3 million users (source: ACRJ magazine). Therefore, Rio is a very representative city concerning the hybridization of space in Latin America.

2.5 G cell phones are already on the market since last year, with features like packet switching data transmission, high speed Internet connection, sending and receiving e-mails and SMS. Nevertheless these devices are still based on the WAP standard and (especially when color display is involved) are still very expensive.

Nonetheless an important indicative that technology is becoming ubiquitous happens when art starts to deal with these devices and push its limits further.

-2.4.- Wop Art.

Artist Giselle Beiguelman is a pioneer working with mobile technologies and remote Internet interventions in public spaces. Her piece *Wop Art* (2001) connects WAP technology and Op Art. "How to deal with an art form conceived to be experienced in between, while

doing other things?" is what the user reads on the project home page. The artist's aim was to create a paradoxical situation, since the image in Optical Art only acquires meaning depending on the viewer degree of concentration and introspection.

According to the Giselle, the situation was paradoxical not because of the precarious state of the medium back in 2001, but rather due to the incompatibility between what was being offered to read, and the reading context itself. Generally images conceived for mobile devices do not allow contemplation; they are produced to be seen in transit, while moving.

screensavers for the cell phone: streets, difference and exit

Another interesting aspect of the piece is also related to movement. Op Art was interested in the idea of creating movement on a two-dimensional surface by tricking the eye with a series of optical illusions. Therefore, Beiguelman creates movement on the screen of a mobile device. The work consisted in a series of eight screensavers that could be downloaded to the cell phone. Each one had a different theme: sea, streets, exit/noexit, crowd, difference, egotrip, wysiwyg or x/z=n, and 2beiCode39. Wop Art is a simple example of how cultural content can be disseminated by the use of nomadic technology.

In Japan, this fact is already banal. There are whole magazines dedicated to the i-mode culture, through which users can choose and download screensavers, games and pictures.

At this point it is interesting to think about some problems and issues that the wide use of cell phones, as well as other nomadic technology devices might bring. In the cyberspace era, issues about presence, identity and activity were major problems when designing virtual worlds. In a summary, problems were related to how represent space and the body on the other side of the screen.

Now, what does it mean to be present?

Another issue is related to imaginary spaces. According to Margareth Wertheim (1999), cyberspace (MUDs as an example) was already the last attempt to preserve a space of liberty and imagination. Historically, imaginary is connected to travel and movement. The traveler was the one who walked through unknown and distant places, bringing tales about what he saw and what he could have seen. As long as physical space has been completely mapped, it is pertinent to question: where is the place for the imaginary now, when everything is known? Science fiction shows us that this projection of the imaginary has been transferred to either the exceptionally big or to the extremely small. Nano sciences are also a folded context inside a larger context.

Nevertheless, if we do consider our physical space as a multiuser environment, cell phone users (that is, only the ones who possess the right interface) can be viewed as living in an imaginary space. Consequently we could believe that mobile phones withdraw us from physical space, projecting us in the completely imaginary. According to Norman Klein (interview to the author, 11/02) "there is no longer need of the screen, because the real world around us has become the screen." Therefore when people talk to each other while moving, they just walk through space, but they are not actually there. They become walking avatars. This perspective "generates a culture of tremendous paranoia and isolation. The more we promote an invasion of privacy, the more we make ourselves isolated from the world around us." (idem)

Other questions are related to cell phones as interrupters of social connections, instead of promoting it. The artwork *Social Mobiles* (Crispin Jones and IDEO, 2002), award winner at the Japan Media Arts Festival this year, is a critic of this point of view.

Every time a new technology arises, fears and new imaginaries are born together. Stories about the fear of traveling in trains come along with the development of the railroad. Also common are questions about the good or bad influences of each new technology.

However, some real issues with which content providers should start dealing with are:

- How to adapt content for a embedded media, or a media that is used "in between"?

- We should not take for granted that cell phones enhance social communication, developing modes of cooperation and not isolation.

I believe that some clues on how new mobile technologies are going to evolve will come straight from the Arts. The role of the artist has always been to push further the limits of technology, dealing with imaginary spaces, and anticipating future. ■

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