

# The new reality through virtuality

Arturo Montagu, Diana Rodriguez Barros, Lilia Chernobilsky

*"Nobody would dare prove that this century has any primacy over the previous ones,  
this primacy is the one of the networks"*

Jorge Luis Borges 40

*"Designing in the information territory leads to virtual architecture  
and as such to a radical alternative to existing, physical architecture.*

*In this territory, information is the raw material and the only reality is a virtual one."*

[1].G.Schmitt 99

## Keywords

Virtualisation processes, Simulation, Philosophy, Space, Design, Cyberspace

## Abstract

In this paper we want to develop some conceptual reflections of the processes of virtualization procedures with the aim to indicate a series of misfits and mutations as byproducts of the "digital-graphic culture" (DGC) when we are dealing with the perception of the "digital space".

Considering the present situation, a bit chaotic from a pedagogical point of view, we also want to propose a set of "virtual space parameters" in order to organize in a systemic way the teaching procedures of architectural design when using digital technology.

Nowadays there is a great variety of computer graphics applications comprising practically all the fields of "science & technology", "architecture, design & urbanism", "video & film", "sound" and the massive amount of information technology protocols. This fact obliges us to have an overall view about the meaning of "the new reality through virtuality".

The paper is divided in two sections and one appendix. In the first section we recognise the relationships among the sensory apparatus, the cogni-

tive structures of perception and the cultural models involved in the process of understanding the reality.

In the second section, as architects, we use to have "a global set of social and technical responsibilities" to organize the physical space, but now we must also be able to organize the "virtual space" obtained from a multidimensional set of computer simulations.

There are certain features that can be used as "sensory parameters" when we are dealing with architectural design in the "virtual world", taking into consideration the differences between "inmersive virtual reality" and "non immersive virtual reality" [2].Velez Jahn 99 .

In the appendix we present a summary of some conclusions based on a set of pedagogical applications analysing the positive and the negative consequences of working exclusively in a "virtual world".

## Introduction

The vitruvian principles as *-firmitas-*, *-utilitas-* and *-venustas-* have been maintained since de XV cen-

ture given the conceptual and technical support to the architecture and building procedures.

In the present state of globalization of the cultural media the appearance of digital representation technology brought as a consequence an irreversible crisis.

Materiality –firmitas- turning into virtuality and dematerialization, functionality –utilitas- becoming simultaneity and interaction and beauty –venustas- altered and mutating towards new canonic esthetics principles.

The evolution of digital technology towards increasingly sophisticated ways of sensory simulation and their progressive use in different fields of human activities can not be explained just from their merely technological aspects or just local applications.

They must be comprehended within a slow mutation process of contemporary phenomena connected to new ways of relating to our bodies, our peers and our environment, as well as our idea about the world and the perception of the “time-space” relationship.

Although technological advances produce admiration and acceptance, they also generate antagonistic sensations and feelings of perplexity and hesitation.

The new realities created in these digital environments belong to different categories of analysis. One of them is based on the simulation of “copying the reality”, that means representations eventually aiming at the creation of artificial worlds.

These worlds can be in parallel with indistinguishable forms of physical reality; paradoxically, as perfect copies, they adulterate the proper meaning of any representation becoming denaturalised and perfect representations.

There are also categories related to the creation of hybrid realities, where digital simulation and synthesis images are neither a copy, nor an original, nor a model, nor a reflection. They are new realities, mainly made on calculus, which enable us to produce the imaginable as well as the unimaginable.

Within these, it is possible to explore, to experiment and to act in different ways, deploying a great heuristic and creative potential.

*“In VRML models, the boundary between the representation of physical sites and imaginary, virtual sites is vanishing rapidly, resulting in a new reality”.*

[3] Fünfschilling 92

## The sensory apparatus and the WEB

There is a great development of sophisticated technologies to deal with the “virtual world” and we want to recognize the crisis of the “sensory apparatus” due to the lack of precise methodologies for using it.

According what we can see now in the WEB, each author, or each <.edu>, or each <.org>, or each <.gov>, or each <.com> is developing his own domain.

There are billions of bits (as intangible facts) under an apparent “non-visible type of control” to be taken into account, considering some analogies as the “Panopticon (Bentham), the Big Brother (Orwell) and the Labyrinth” in relation with the WEB [4] Maldonado 98, as metaphors of early methods of “actions and controls” over the human behaviour.

These analogies have had coercitive consequences in the way the “physical space” was recognised and controlled, using a heavy set of restrictions of individual and collective freedom.

## Physical space versus virtual space (proposal of a set of virtual space parameters)

In the second section, as architects, we use to have “a global set of social and technical responsibilities”

to organize the physical space, but now we must also be able to organize the “virtual space” derived from a multidimensional set of computer simulations.

From the point of view of operative procedures It is possible to consider that “virtual space” as opposed to “physical space”, has four main parameters: computer process, computer organisation, computer normalisation and differents standards of computer distribution.

This “virtual space” has also been emancipated from the natural restrictions imposed by the human body, since that “virtual space” is organised by the capacity of technical factors and also by the cost of using it. [5] Bauman 98

Regarding the perception of the “virtual space” it is possible to consider another three parameters: immateriality, sensoriality and multimediality [6] Puglisi 99 . As an example and according to Puglisi (op.cit), the first building in modern architecture that represents these parameters is probably the Barcelona Pavillion by Ludwig mies Van der Rohe in the 30’s. In the 70’s, the Pompidou Center in Paris (by R. Piano and R. Rogers) also reflected the influence of the mentioned parameters and can be considered as the first building of the electronic era.

In present times the design methodology used by Peter Eisenman is and excelent example how the virtual space parameters can be used in architectural design. [7] Galofaro 99.



Figure 1:  
The digitals proyectual process. Arq. Arturo Montagu. 1999. CAO FADU UBA. Museum of Modern Art. Teather Gral. San Martín. Buenos Aires. Argentina. Digitals Images. Story Board : Path/ Volumen composition. M. Mainzer- J. Ramos. Students

*“Architecture, unlike any other discipline, concretized vision. The hierarchy inherent in all architectural space begins as a structure for the mind’s eye. The interiority of architecture more than any other discourse defined a hierarchy of vision articulated by inside and outside”.*

(Peter Eisenman in Galofaro 99)

## Inmersive an not immersive virtual reality procedures

Finally and due to the limitations of this short paper, we want to mention some comments about the “immersive and non immersive VR procedures”. The first one has a heavy use of expensive and sophisticated gadgets, providing a limited perception of the architectural space. Nevertheless there are certain possibilities using a combination of analog procedures combined with low cost immersive VR equipment that trace an interesting possibility [8] R. García Alvarado et. alt. 99

On the contrary, the second one, the “non immersive virtual reality” (VRML + Java) combined with “streaming video” and “surfing in the WEB” gives us the possibility of developing a slow mutation process of this contemporary phenomena, as has already been mentioned in the introduction.

## Conclusions

The set of seven parameters mentioned before can contribute to establish certain minimal order, considering the design of virtual spaces in the architectural domain. Each of these parameters has different meanings regarding the great diversity and variety of cultural environments affected by the “Digital-Graphic-Culture” (DGC).

Our focus is mainly the pedagogical approach in the architectural field because we must provide to the students a conceptual and technical frame to

deal with design methodology procedures using digital tools.

## Appendix

Fig. 1 shows a combination of several images belonging to a design experiment that has been developed at the CAO Center of the University of Buenos Aires.

The students produced the solution (museum of modern art in downtown Buenos Aires) working entirely in a virtual environment combining their own ideas with architectural references obtained from the “Datarq” (data base of modern and contemporary architecture:

<http://www.datarq.fadu.uba.ar>).

We also explain the concept of “abstract computer modelling” [9] Jakymowicz 99 to show how intuition can be induced to design in a 3D abstract space based on models of experimental abstract art, proposed by K. Malevich, W. Kandinsky and L. Moholy Nagy.

An additional examples for the students was the media workshop and spatial manipulation between the analog and the digital domain [10] J. Bermudez, B. Neiman 98

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*Arturo Montagu, Diana Rodriguez Barros,  
Lilia Chernobilsky  
University of Buenos Aires  
amontagu@fadu.uba.ar*