
Critical Pedagogies and The Design Methods in Architecture and Planning: Their Retroactive Research Impacts on the Social and Natural Sciences Jointed Evolution

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Synopsis

There is a holistic scientific evolution in our times. The Social Science, Cognitive Science and Physical sciences work together in order to build a better future for the humanity. The climate change is a good example, but there are other situations. The architectural research group GIRAS has been working in the last twenty years, to analyze how architecture and urban research produce retroactive research impacts.

Key words: Critical pedagogies», «Education in Architectural», «Architecture, social science and children»

Critical Pedagogies and the Design Methods in Architecture and Planning

Following pioneers in this interactive field such as Lewis Mumford (1995), Paul Ricoeur (2003), Bill Hillier (1995) and Rainer E. Zimmermann (2017), GIRAS has published hundreds of books, PhD Dissertations and articles related to interdisciplinary ways from three different and interconnected scenarios: The educative classroom, the professional production in studios and the

participatory urban planning processes. Since 1990 international conferences and an interrupted series of books have analyzed these developments. Here we will point out to the state of art in one of these scenarios, the educative one (Muntañola J. 1973, 2012).

From the view point of retroactive research, the links between the recent work by the mathematician and philosopher Rainer E. Zimmermann and the work by the known Swiss psychologist Jean Piaget are significant. Space and more precisely the evolution of the spatial competences of the human beings, is what makes the scientific advances in mathematics, in social sciences and in mental sciences, new and innovative. Theoretical recent developments on the mathematic systems of categories in »Cognitive Metatheory in Architectural Design« and »Topos of Virtuality: From the Neumann-Nave Topos to the Explication of Social Space« (Zimmermann, 2008), explain the topological physical and social systems of our human life in a new surprising way, where the architectural design processes are the kernel of it.

However the work on children spatial competences analyzed by our group GIRAS (Muntañola J. 2012) and the important advances by Bill Hillier (1995), are the core of a better understanding of why space is a key dimension of socialization itself, just as professor Silke Steet (2016) defines quoting the sociologist PL Berger and Th. Luckmann: »The individual is socialized to be a designated person and to inhabit a designated world« (PL Berger and Th. Luckmann 1966).

Diagrams I and II show the development of the spatial competences of children that summarizes the retroactive impact of architectural research on the social, the physical and the mental research is based upon. The objective of the researches is to understand how physical space impacts our social life, in relation to how time

follows a narrative. It is significant that Emmanuel Kant intended to solve this same problem with his last book written in the last fifteen years of his life. When he died in 1805 the book was a mess of pages, was unfinished. *Opus Postumum* (Silvia de Bianchi 2010) was published almost one hundred fifty years later and never fully understood. The aim of this last work was meant to be the «Philosophical Transition» from metaphysics to the physical world, with also material objects, as buildings, cities and the rest of urban settings.

Thus the retroactive impact of architecture and urban design research comes from the fact that in space, the social and the physical qualities of life are simultaneous and synchronic in real space and time and not only in more or less virtual space and time textual structures. Of course the understanding of the temporal narrative of the writer and the spatial narrative of the architect are dimensions of the same human life, in a holistic or generalist way, but the role of each narrative it is not the same, as diagram III by Ricoeur (2000) shows.

However, for this retroactive power of architecture and urban design to work, some conditions need to be satisfied. First, that architecture should be both social and physical. Second, the architect is not only a scientific or a technician but also an artist and a politician in the way Aristotle forecasted it, that is, with the possibility of acting with or without practical wisdom. And the third condition, is to analyze the act of design (to project) in all its complexity, and not only as a biogenetic or a sociological act. The design processes link the biogenetic and the sociogenic dimensions of human life together in such a way, that the specific and useful retroactive aspects of architecture and planning can be rooted. When this link disappears, the retroactive power of architecture and planning in research processes disappears too.

Taking into account the late definitions of Kant about «Space, as a system of forces of any kind that you want to define it, it is always a possibility of experience, and nothing more than that, Zimmermann claims that: «Systems, multivariate, parametric or other can never go farther than to say something about the reality, they will never be the reality. So the aesthetic and political dimensions of these systems, as the act of design shows, are intimately cofounders of architecture and planning, and they retroactively help social, mental and natural sciences to provide the key role of space. Some spatial dimensions such as their synchronic powers, the impact of scales of representation and so on, familiar to architects, can have a retroactive impact in other sciences and help them understand human behaviors. Only when the act of design is analyzed in a fully and holistic way, and not as a product of a-priori sociological, psychological or mathematical system, it can play this important role.

In all, in the act of design (or project) architects and planners recover their full human powers, in science in art and in ethics and politics. Then, their retroactive powers will increase. But if this act is just a media scenario, or a oriented act only to business, or to a pragmatic free act without any ethic content on it, their retroactive powers become inexistent and limited. The success or the failure of cities and buildings hide, not only a message for architects in new buildings, or cities. They teach social scientists, mathematicians and experts on natural sciences, in order to understand the mental, physical and social behaviour of individuals. As Zimmermann (R. E. Zimmermann 2015) defines it, all the human systems have a spatial foundation.

SUBJECTS**OBJECTS**

S1 ————— O1

S2 ————— O2

S3 ————— O3

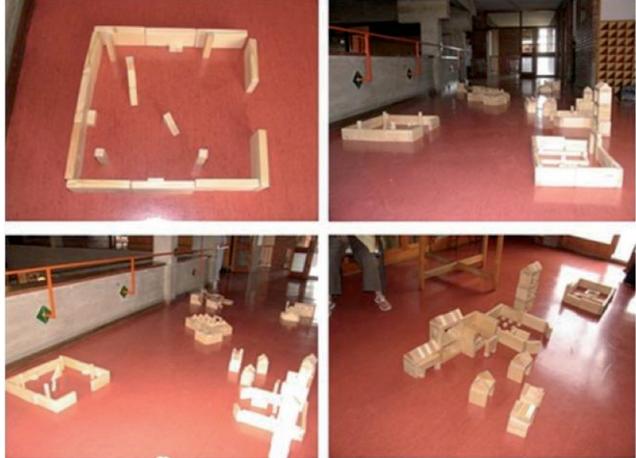
Views and voices are independent

Configuration subjects-objects doesn't exist

The physical space and time, and social space an time, are only related at individual level.

No correlation between subject and object relations. The rules of objects and subjects are not interdependent

Objects and subjects are context-free

**Diagram I.** *Monological Cities.***SUBJECTS****OBJECTS**

S1 ———— O1

S2 ———— O2

S3 ———— O3

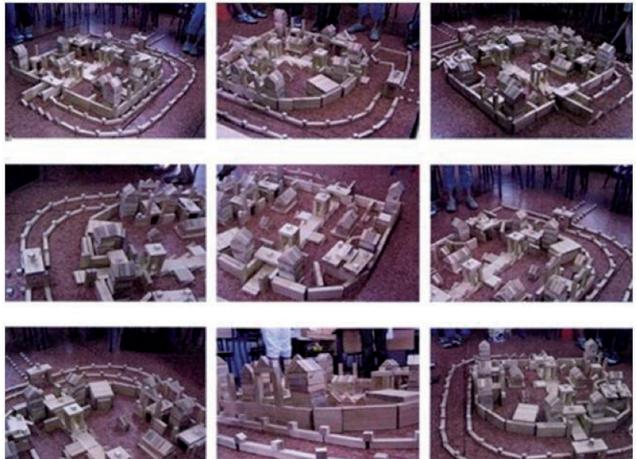
Views and voices related

Configuration exists between subjects / objects

Physical-Social space chronotopically related with time

The rules of objects and subjects are interdependent

Subject and object form a context

**Diagram II.** *Dialogical Cities.*

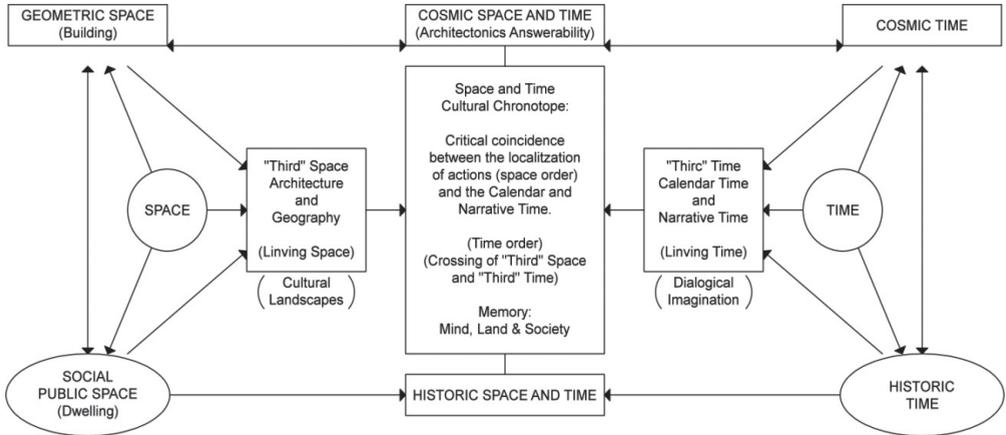


Diagram III. Architecture and writing (according Paul Ricoeur).

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Biography

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Doctor Architect since 1968 by the School of Architecture of Barcelona

Doctor Honoris Causa since 2005 by the Lusiana University of Lisbon

Academic number of the Reial Acadèmia Catalana de Belles Arts of Sant Jordi since 2002.

President of the international association of space semiotics between 1995 and 2004

President of the international association of space anthropology between 1998 and 2005.

Director of the ETSAB (Barcelona) between 1980 and 1984.

Director of the Design Department of the School of Architecture of Barcelona between 1985 and 1990, 1994 and 2000, and 2004 and 2010

Director of the international magazine *Arquitectonics* (Mind, Land and Society) published by the Polytechnic University since 2001 at a rate of two annual volumes (indexed in Ulrich, PROQUEST, Avery, Francis, DICE, LATININDEX, ISOC, ANVUR (Italy), etc.