The Concept of Spatiality and the Childhood Theories:

A General Sociology Forgotten Dimension

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ABSTRACT

The research team GIRAS (1) has undertaken during the last thirty years several projects and PHD thesis in architecture, analyzing “spatiality” as a key dimension, often misunderstood, of both, the general theories of childhood social education and the general architectural and urban planning theories.

In this communication we will intend to make explicit this connection in relation to childhood sociological general theories, and, more specifically, in relation to the sociology of childhood education theories and practices.

First, we will analyze some of the sociological theories that have directed our research, in the past, as Jean Piaget sociological theories (often ignored), Mikhail Bakhtin theoretical dialogical model, and finally some theoreticians on “spatiality” coming from cognitive sciences, philosophy or architectural and urban planning theories.

Second, we will include a brief summary on our research findings in order to explain in which way children’s architecture helps to understand the impact of spatiality upon childhood theories.

The third chapter of our communication will intend to explain the key aspects of the impact of spatiality upon child sociological theories, and the significance of this impact for the physical, the mental and the social healthy development of our children.

In order to understand this key theoretical significance of spatiality upon childhood theories we will start with the Aristotelian hypothesis about a link between education, the “polis” and architectural and urban design. This link, that is, the known “phronesis” and its “architectonic qualities”, has been studied some centuries later by the Russian philosopher Mikhail Bakhtin, who insisted upon the basic role of spatiality in our culture, not as a metaphysical kantian dimension, but as a real practical presence of
space and time structures in our social life. Today the use of computer and the power of internet do not eliminate “spatiality”, on the contrary, a clear new socio-physical “spatiality” is building up very fast and often the theoretical views are slower than the practical changes of these new powers.

In conclusion, and not far from the hypothesis by Plato, Aristotle and Bakhtin about a link between “spatiality” and “social interaction”, we suggest that childhood theories today should not forget that the physical, the mental and the social health of childhood should follow some “spatial” conditions in order to survive. Consequently, urban planning becomes a creative chronotope where each social group designs the chances, the limits and the quality of the life of their own children.

KEYWORDS

Childhood Architecture, Childhood Social Spatial Theories, Spatial Cognition.

(1) See the web GIRAS (International Research Team on architecture and social sciences) www.arquitectonics.com, and the international review Arquitectonics: Mind, Land and Society (ISSN: 1579-4431) (2001-2011) in www.amazon.com. Also the GIRAS group research has a huge archive of the Catalan Urban Form, more than 1000 medieval catalan settings, in the National Archive of Catalonia (Sant Cugat, Barcelona).
First Part – General Childhood theories in Relationships with Spatiality.

Our work in spatiality and childhood started forty years ago in the University of California in Berkeley, with the collaboration of the developmental psychology professor Jonas Langer, still working today (1). Following a personal telephone call between Jean Piaget and Josep Muntañola in ninetieth seventy one, after Jean Piaget indicated that “the children’s conception of Places” was a topic outside the possibilities of his institution at that moment, we started to work in the analysis of the way children conceive places to live in between two years of age and until adolescence, work published in different books and countries (2).

We considered at that time different sociological childhood theories: Kurt Lewin pioneer studies, Lewis Mumford books and advises – he sent to us several letters with excellent information about E. Goffman, Ian Mc Harg, etc. until his death in 1990 (3). However, is the key position of Jean Piaget itself that helps us to follow the research from a psychological dimension towards a sociological dimension. This position has two fundamentals, both very important in the “spatiality” topic. The first fundamental is the interactive and experimental position of Jean Piaget in relation to the role of the context in the development of living species (4), against some theories of sudden DNA changes “by chance”. He argues very strongly about experimental strategies of survival in relation to contextual changes that can arrive to change the ADN of the own biological heritage. Today this position has more support, thanks to Nobel Prize E. Kandel (5) and by the heterochronic theories by Jonas Langer (6). However, at that time, Piaget idees attracted very little attention, (7). The Second fundamental is the sociological ideas (8) by Jean Piaget that we have no place here to define in detail but that can be summarized in the following arguments:

“we should almost to compare the relationships between psychology and sociology with the ones between numbers and space, since just a topological distinction is able to transform into a “space” any “set of numbers”or any algebraic or analytic relation between numbers”.

“the development of logics in the child shows two basic facts: first, that the logical operations are born from actions, and second that the transformation from irreversible actions into reversible logical operations, need always socialization, going from egocentrism towards social cooperation ...”

“If we analyze the social interactions among different people, we can understand that these interactions are actions by themselves, and that the cooperation is a system of logical operations. Then the activities of the subjects upon objects and the activities of subjects upon other subjects can be considered in reality as an unique system, in which the social dimensions and the logical dimensions cannot be isolated ones from the others, neither formally nor in their meanings”.
In relation to architectural theories the impact was concentrated mostly in two very known architects Ch. Norberg-Shulz (8) and Kevin Lynch (9).

Later on we will describe in this same communication the works by Mikhail Bakthin extremely connected with the same interactive theoretical position.

Nevertheless, in order to clarify the theoretical ideas involved in the “spatiality sociological realm” can be usefull an excursion to the philosophical origin of the discussion, in the Khora by Plato, that was the main subject of the first works by Jacques Derrida (10), who later on published the book Khora, (11) and impacted strongly the theories of architecture, specially thanks to the work with Peter Eisenman that ends abruptlty in 1994 (12). Again, we found here the genetic combination between ontogenetic and phylogenetic development as key factor in “spatiality”, both in a psychosocial cognitive dimension and in a bio-psycho-social genetic dimension, and in a direct connexion with the phenomenological discussion about the origin of geometry in E. Husserl, followed by J. Derrida (13), P. Ricoeur (14) or G. Deleuze (15), all of them authors very often used by the theories on architecture today.

In a clear distincion in relation to M. Heidegger known phenomenological text about space, the text by E. Husserl claims an historical and sociological origin of geometry. More specifically: he stated a genetic and phylogenetic crossing point where the maturation of the child to adulthood in the history of men, makes geometry able to exist. This communication between the ontogenetic and the phylogenetic dimensions of geometric awareness, is really consistent with the ideas of Piaget, with the results of children conceptions of places to live in (see next part bellow) and with the theories of Sigfried Giedion (16)

In conclusion, we think that the key aspects of the connection between “spatiality” and the childhood general sociological theories, rely, in our opinion, upon the following points:

1) In the connection between, on the one hand, the ontogenetic and phylogenetic development of men, and, on the other hand, their physical genetic heritage. The different theoretical positions at the two extremes: from an innate radicalist position until a “creative” action, by god or by chance, position, both eliminate the autonomy and responsibility of the architect, since space is then a “mechanic” product of natural, irrational or divine forces.

In between these two extreme positions the hermeneutic, phenomenological theories by Jean Piaget, Sigfried Giedion, Paul Ricoeur or Edmund Husserl, maintain a third possibility of a cultural creative position, where the individual and the collective development interrelated, and “spatiality” is an output of this intersubjective “co-existence”, working simultaneously, in between subjects, in between objects and contexts, and in between the real and the virtual dimensions of the human life. (17)
2) As a consequence of this first key aspect of the sociological spatiality of men, urban planning and the “polis” (the city planning, the city laws, etc.) are the practical side of these sociological theories.

We think that one of the best examples of today is the book by Alberto Magnaghi: The urban Village (18) book published in Italian, in French and in Spanish, where the connections between the cultural pre-existing environment (the heritage at large) and the “chart for a new environment”, rely upon a very different sociological fundamentals than the global urban planning strategies, where the same buildings grow in very different contexts; that is: in a “Thematic Global Park Contextual Spatiality”, without cultural differences, some kind of monological utopian world according to Mikhail Bakhtin (19).

**Second Part: The children’s conception of Places to life in.**

As we said before, we have analysed the way children conceive place to live in different countries (USA, Mexico, Spain, etc.) and during thirty years. Main ideas and results are in diagrams I to X, that we will describe very briefly.

Diagrams I, II, III and IV describe, respectively the developmental conditions, of children in a “wild situation” (20) (diagram I), in a virtual extreme context (21) (diagram II), the effects of very aggressive physical environments (diagram III) and, finally, the general epistemological development in childhood without these extreme pathologies (diagram IV).

More over the diagrams V, VI, VII, VIII, and IX describe one of these research project developed three years ago in Barcelona, in middle class social groups, already shown in several international congresses (22).

Finally, diagram X shows ten urban quality indicators defined by us for UNICEF, Child Friendly Cities Program, in Spain, but that can impact thousands of cities in the world.

Very briefly all this work points out to the following conclusions:

1) “Spatiality” in the child develops simultaneously at a social and physical level, by a progressive complexity of a space and time mental capability. Children represent the ideal socio-physical interaction where they have been educated. Space, and its geometry, “represents” the specif best co-existence where the living conditions are considered the best too. The concordance with the bio-psycho-social theories by Jean Piaget are, then, confirmed, at a general way. The heterochronic theory by Langer is also confirmed since these cities built by a “social” group of children, show the articulation in a single form (spatiality) of the synthesis between: time, space, gender differences, generational roles, static and dynamic activities, the best place for each
activity etc. Other living species beyond men (apes, etc) cannot arrive to this social, mental and cultural “constructs”.

2) The monological versus dialogical structural space and time differences between cities are striking. We will discuss this point in a more specific way in the third part of this communication, but it is very clear that the different kind of social interaction affects the co-existent dimensions of the children’s conception of places to live in. This interaction is influenced by scientific, aesthetic and political-ethic circumstances of the school curricula, that explain the impact of theatre, music festivals, environmental activities and inter-generation activities (festivals, rituals, social encounters, etc.) upon the children’s conceptions of places to live in.

That confirms that the model of radical interactive role of “extreme competitive” behaviours, implies, at the end, either excesses in anarchic individualistic behaviours or dictatorship and lack of collaboration. The dialogical collaborative behaviour between genders, ages, cultural differences etc. demands a controlled competitive profile and a ability for collaborative non-aggressive experimental strategies.

3) And last point. The impact of virtual tools and global internet dimensions of the social interaction, can be positive, leading to new collaborative invention and innovation with new initiatives, or can lead to a decrease power of social communication and space and time new models. Of collaboration these new tools can increase both, the social new strategies for dialogical social strategies, and the construction monological places too. Again theories are very important, since each theory has an “spatiality” of his own and is very easy to manipulate children in one way or other (f. e. the Tea Party in USA).

This is one of the role of the ten indicators in diagram X, just to remind that survival today has some limits and, either the local or the global planning strategies, needs to accept some basic rights, but this opens other ethical and political questions that we want to analyse now.

**Third Part: Spatiality and Childhood Theoretical Sociological Ideas.**

At this point, cannot be strange that we go back and forth in between social history and the child development, since we are closely following the advises of Plato in Timaeus when he claimed that in relation to “spatiality” —and placeness- the written text needs: “go to the beginning in order to uncover the end...”,(23).

And also E. Husserl establish in relation to geometry and inter-subjectivity the “questioning backwards”, a very strange way of asking questions indeed, but fundamental in relation to our subject today.
So we go back to Aristotle and his “phronesis” or “practical wisdom” (see diagram XI) needed in order to act in education, legislation (laws of the polis-) and architecture (- and planning-). With a very subtle and difficult difference between the “phronesis” of a student and the wisdom of the educator, the “phronesis” of the builder and the wisdom of architect, and, finally, the “phronesis” of a politician and the phronesis of a legislator (see diagram XI).

The educator, the legislator and the architect needs “phronesis”, of course, but they need an “architectural wisdom”, that is, a surplus of awareness in order to be able, not only to act by themselves, but to teach others the best way to act too.

And following Aristotle:

“In order to know if one is aware of the quality of his (or her) actions, the best way is to see if one is able to teach them to others. We cannot teach – with architectonic wisdom- an action that we evaluate as good action, if we do not know why it is a good one” (24).

Why this is important for the “spatiality” impact upon sociology of childhood? Because Aristotle, with these philosophical efforts, intends to articulate architecture, with education, with politics –and the laws- and architecture, (the space and time organisation of the city). In this sense, the good planner, the good legislator and the good educator, share the same “theoretical architectural wisdom”, since one cannot forecast for others what he does not know why it is a good, or a wrong, or a stupid way of life. And one cannot transmit wisdom that one cannot accept for oneself.

In a similar way, Paul Ricoeur stated that an action obtains its full meaning only if is included in a cultural dimension or frame (text, city, music, etc.) (25).

And, finally, Mikhail Bakhtin defined the “creative chronotope” as a fundamental space and time sociophysical cultural structure, and then: (26).

“An artistic work unity in relationship to an actual reality is defined by its chronotope”.

“We are impressed by the representational importance of the chronotope. And this is so thanks precisely to the special increase in density and in concreteness of time markers- the time of human life, the time of historical time- that occurs within well-delineated spatial areas”
Then, we arrive to the end. Sociological Childhood Theories have often forgotten “spatiality” and, is doing so, have forgotten the integrative role of body awareness, and the impact of city planning and architecture upon the social interaction of people inhabit them.

In relation to the first point cognitive sciences today are making an extraordinary effort to overcome this limitation. We are thinking upon the distributive, the extended or the embodied knowledge (27). However, in relation to the second point cognitive anthropology, and the studies quoted above about the environmental impact upon healthy child development, are very important, since knowledge about the connections between the physical, the social and the mental impact is more and more crucial for survival today. (See in diagram XII that this basic link between architecture, legislation and education was alive in the XX century A. C.)

As we have intend to understand, “spatiality” implies a childhood theory where the heterochronic development of the child needs a lot of attention, and this heterochronic development needs an interactive dialogical social component, defined by Bakhtin as a “chronotopic creative structure”, in a way very familiar to the “experimental behaviour” of an organism in relation to contextual changes by Jean Piaget, that we have defined at the beginning of this text.

“Spatiality”, then, shows its special power in the position pointed out by M. Bakhtin: (28).

“The work and the world represented in it, enter the real world and enrich it, and the real world enters the work and its world as part of its subsequent life, in a continual renewing of the work through the creative perception of users, listeners and readers. Of course, this process of exchange is itself chronotopic: it occurs first and foremost in the historically developing social world, but without ever losing contact with changing historical space. We might even speak of special creative chronotope inside which this exchange between work and life occurs, and which constitutes the distinctive life of the work”.

In diagram XIII we finally describe metaphorically this power, that is, the power of the “creative chronotope”, in the three different dialogical dimensions of the space and time sociophysical structure of architectural spatiality.

We can think that this power of “spatiality” is weak, and irrelevant. Aristotle, on the contrary, though it was very “high”, and Lewis Mumford (29) insisted upon the strong relation between “spatiality” and survival. Today we have forgotten this link, behind the strong medical and technological progress. Some recent events as the financial crisis, or climate changes, can lead to different conclusions, perhaps the ecological
crises hide other more fundamental social spatial crisis, and perhaps we are building our own tomb.

In any case, if the three dialogical dimensions of creative diagram XIII are correlated by chronotopic structures, we cannot take the chance of ignore them and ignore simultaneously the way they are building up an interplay between our laws, our education and our cities. A lot of effort should be invested upon this link between urban planning and social interaction along all the children development from birth towards adolescence, and beyond. A healthy interplay between the physical, the social and the mental children development is always needed either at a local or at a more global scale, and in relation to each social or cultural group. A developmental childhood theory should take into account these facts and claim for a better environment. Moreover, the recent possibility of an overall solidarity among this three levels of life: physical, social and mental, and some experiences of “reversal” where a new healthy global child rehabilitation is possible, (30) open the doors of a new “spatiality” able to increase chances of survival and health. For all these reasons we are asking for new childhood theoretical sociological paradigms able to link “spatiality” to the childhood survival and health.

Barcelona, Sant Jordi’s Day, 23 April 2012.
Diagram I: Wild children pathologies.

The pathologies of wild children keenly defined by Linnaeus in the XVIIIth century were:

a) They do not recognize their images in the mirror.
b) They cannot follow the rhythm of day and night. They have a distorted sleeping pace.
c) They have not developed linguistic, geometric, mathematic, etc. ways of intersubjective communication.
d) They have bad postures in walking, moving, etc.
e) They show emotional disequilibrium and lack of control in social encounters.
f) They do not have sexual identity.

The rehabilitation of these children depends upon at which age and for how long they have lived alone or with other animals. If it is a long time and from birth it is almost impossible to be "normal" again.

Diagram II: Virtual Pathological Children and Aggressed Children.

| Basic Studies | -Turning Gold into lead. Vincent J. Felitti Kaiser Institution (San Diego).
|               | -Dumedin Study. (New Zeland).
|               | -Bruce Mc. Ewn. Rockefeller University.
|               | -Frances Champagne. Columbia University.
|               | -Jack. P. Shonkoff (Harvard Medical School)

| ACE           | - Divorce of parents and familiar breakdown.
|               | -Physical abuse.
|               | -Lack of emotional support and affection.
|               | -Sexual abuse and gender violence.
|               | -Alcoholism and drug addiction in relatives.
|               | -Isolation, marginalization, discrimination and social violence. |
Diagram III: Effects of very aggressive physical environments

Effects adulthood

- Diseases
- Addictions
- Anxiety
- etc.

Diagram IV: The general epistemological development in childhood’s conceptions of places to live in.
**Diagrama V: Monological Cities.**

![Diagrama V](image1)

**Diagrama VI: Structure monological cities.**

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>01</td>
</tr>
<tr>
<td>S2</td>
<td>02</td>
</tr>
<tr>
<td>S3</td>
<td>03</td>
</tr>
</tbody>
</table>

*Points of view and "voices" are independent of each other.*

*There is no configuration between subjects and objects.*

- Physical space & time, and "social" space & time, only relate at the individual level. The objects' relations and the subjects' relations do not correlate.
- Norms for objects are independent from norms for subjects.
- Objects and Subjects are context free.
Diagram VII: Dialogical Cities.

Diagram VIII: Structure dialogical cities.

<table>
<thead>
<tr>
<th>Dialogic cities</th>
<th>Subjects</th>
<th>Objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td></td>
<td>01</td>
</tr>
<tr>
<td>S2</td>
<td></td>
<td>02</td>
</tr>
<tr>
<td>S3</td>
<td></td>
<td>03</td>
</tr>
</tbody>
</table>

*Points of view and “voices” interrelated.*

There is a configuration between subjects and objects.

- Physical and social space and time are interrelated chronotopically.
- Norms for objects are interdependent of the subjects' norms.
- Objects and subjects configure a context.
### Diagram IX: Analysis of the social interaction in the child’s conceptions of places to live in.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Group</th>
<th>Definition</th>
<th>Limits &amp; actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-1 Noise levels</td>
<td>A</td>
<td>Environmental noise harmful to children</td>
<td>Measure noise that impedes human conversation (40 dB)</td>
</tr>
<tr>
<td>I-2 Pollution</td>
<td>A</td>
<td>Pollution of air, water, earth and materials within a populated area</td>
<td>Normal environmental controls, e.g. prohibition of asbestos, arsenic, polluted water, etc.</td>
</tr>
<tr>
<td>I-3 Electromagnetic radiation</td>
<td>A</td>
<td>Harmful installation of aerials, high voltage lines, etc.</td>
<td>Min. distances: High tension: Aerials: 200 meters</td>
</tr>
<tr>
<td>I-4 Safe play areas</td>
<td>B</td>
<td>Play areas near housing centres</td>
<td>Max. distances: Sq.m. per dwelling, Max. size</td>
</tr>
<tr>
<td>I-5 Safe routes main community areas</td>
<td>B</td>
<td>Importance to community of daily routes</td>
<td>Max. 15 mins. on foot or 2 km. or well-planned school transport</td>
</tr>
<tr>
<td>I-6 The school as dynamic centre</td>
<td>B</td>
<td>School open to community use and as social capacitator</td>
<td>List of major activities at or around schools</td>
</tr>
<tr>
<td>I-7 Public facilities for all age groups adapted for children’s use and supervised</td>
<td>B</td>
<td>Promote use of facilities by different age groups</td>
<td>Public facilities within walking distance</td>
</tr>
<tr>
<td>I-8 Child-friendly public services</td>
<td>C</td>
<td>Adapt services for all age groups</td>
<td>Facilities for the youngest age groups, adequate supervision, Specific information/communication</td>
</tr>
<tr>
<td>Indicator</td>
<td>Group</td>
<td>Definition</td>
<td>Limits &amp; actions</td>
</tr>
<tr>
<td>-----------</td>
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<td>------------</td>
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</tr>
<tr>
<td>1-10 I - Juxtaposition of built-up areas and countryside</td>
<td>C</td>
<td>Ensure optimum spacing between built-up areas and countryside</td>
<td>Min. distances to wooded areas or non-asphalted areas. Normal access to countryside</td>
</tr>
</tbody>
</table>

**Diagram X: Urban quality indicators Child Friendly Cities Program.**

<table>
<thead>
<tr>
<th>Collaboration Modalities (in %)</th>
<th>School A</th>
<th>School B</th>
<th></th>
<th></th>
<th></th>
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<tbody>
<tr>
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<tr>
<td>Planning Action</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Building</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passing Blocks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Question</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Comments</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Total Duration</td>
<td></td>
<td></td>
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</tbody>
</table>

**Diagram XI: The Architectonic Wisdom by Aristotle.**
Diagram XII: Planners, cities and schools in the XX Century A.C.

<table>
<thead>
<tr>
<th>Plans</th>
<th>Planners</th>
<th>Schools and pedagogies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edinburg Civic Tower</td>
<td>Patrick Geddes (1932 +)</td>
<td>University of Montpellier</td>
</tr>
<tr>
<td>“Out Look Tower” Montpellier Gardens Bombay Plan Tel –A-viv plan (1925)</td>
<td></td>
<td>University of Bombay R. Tagore (1941 +) M. Montessori (1952 +) J. Dewey (1952 +)</td>
</tr>
<tr>
<td>Junta Cívica de Barcelona (Museu Civic) (Ciutat Jardí)</td>
<td>(1913) Meet Geddes in Cebrià de Montoliu (1924 +)</td>
<td>Escola del Mar Escola del Bosc (M. Montessori in Barcelona 1933) (J.Piaget in Barcelona 1933)</td>
</tr>
</tbody>
</table>

Diagram XIII: The three dialogical dimension of the creative chronotope.
Notes:


(9) Norberg Schulz Ch. The genius of place.

Lynch K. A. The image of the city, 1960.


(13) Opus cit. Note 10.


(15) Deleuze, G. Le mil Plateaux (1980).


(23) Plato Timaeus.

(24) Aristotle. Ethics to Nicodemus


(29) Opus cit. Note 3.

(30) Child in the City Congress Zagreb, 2012. Child Friendly Cities and the Integrative Healthy Childhood well been. (The Urban Quality Indicators in the CFC Program in Spain).