

FRIDAY, APRIL 12
SESSION 7
16:45 - 17:45

ROOM A - SALA DE PROYECCIONES

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**Dense Cities Compact
Schools - Active learning
spaces and school
democratization**

EXTENDED ILLUSTRATED ABSTRACTS

Dense Cities Compact Schools

Active learning spaces and school democratization

Dense Cities Compact Schools is a doctoral research project investigating the progressive rethinking of architecture for education in Europe's most densely populated cities in response to experiments introduced by the renewed relationship between pedagogical models and spatial structures. The PhD scholarship is funded with investments provided by the National Recovery and Resilience Plan (NRRP) on research lines for Public Administration (M4C1, 4.1) and involves the Schools Technical Area of the Municipality of Milan.

The substantial cultural and social changes in the current historical period make evident the need for updating learning spaces³, which indeed requests for more articulation⁴ than the conventional idea of schooling, breaking down the hierarchies to which we are accustomed but no longer correspond to contemporary ways of learning. Instead of a pattern formed by a sequence of functions ordered along a corridor, new forms of learning prompt confrontation with more complex diagrams that add new experiences to the designed educational spaces and encourage students to experiment, using their bodies and imaginations.

The spatial alternatives that contemporary pedagogy advocates to promote an education understood as an active experience², centered on the student and his or her specificities, find shape in extremely compact school buildings, which spaces assume a relevant and significant role in the city and the community in which they reside. Large spatial programs and the necessary intermingling of different functions, often realized on small plots of land, are now a common challenge for all new school construction projects in dense cities. However, they also represent an opportunity to design spaces whose use can change according to the users. This approach stems from a renewed democratic vision of schools¹ and the necessary redefinition of the links between the forms of learning and the forms of the city.

The research explores the compact school block, in its different configurations, as an architectural and urban element, capable of interpreting and transforming, on a case-by-case approach, programs, pedagogical visions and design limits into challenges that result in original experimentations able to give rise to more experiences. Quoting John Dewey, "there is an intimate and necessary relation between the process of actual experience and education"². The ability of a space to evoke a certain quality of response in individuals significantly influences the design of what the noted American education philosopher would call the 'objective conditions of educational experience,' to which indeed belong the spatial conditions with which the learner is called upon to interact. The definition of such conditions brings with it the need to understand the needs and attitudes of individuals learning at a given time, for whom to design school environments that can be experienced without prejudice, open to individual interpretations and that allow the richness of informality to be investigated. (fig.1)

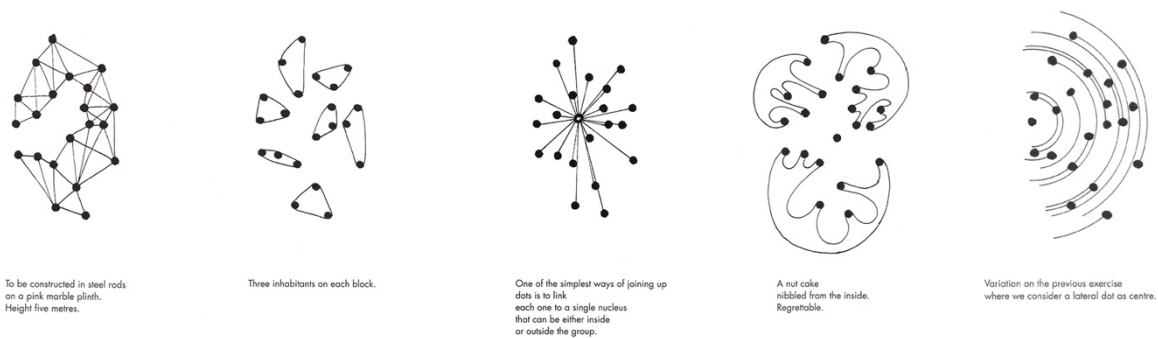


Figure 1: Munari, B. (1992). *Flight of Fancy*. [drawings]. ©1992 Bruno Munari

Munari's game of dots and lines highlights the power of imagination and interpretation: the drawing changes in each case according to context and how it is experienced.

Providing quality experiences is thus the *leitmotif* that binds contemporary and different European experimentations in education. 'Bio-diversity', 'flying-classroom', 'in-movement', 'inside-out' and 'public-space' are five thematic design categories that the present research identifies through the reading of architectural prototypes of compact schools considered exemplary concerning their ability to generate, through original spatial modes, valuable educational experiences. Rather than as mere school buildings, each project is conceived as an *idea* of educational architecture, based on pedagogical-architectural experimentations of active learning and interaction with the neighborhood: a fragment of 'inhabited landscape,' which in the long term will serve as a catalyst for biodiversity - École Primaire des Sciences et de la Biodiversité, Boulogne-Billancourt; a 'flying classroom', floating above a ground floor open to public uses, includes classrooms, group rooms, lounges, rooms and zenithally lit communal lobbies - Schulanlage Freilager, Zurich; a 'school in motion' designed to promote physical activity, encouraging children to be physically active throughout the day - Frederiksbjerg School, Aarhus; an 'outdoor school' for the 21st century, with no corridors or interior stairs, redefining the relationship between classroom and outdoor space by shifting circulation from inside

to outside - Wallrüti Schoolhouse, Winterthur; a 'magic box,' with staggered levels, that everyone can experience or traverse as they choose - Mellopee School, Ghent.

Besides the benefit gained in terms of spatial qualities, a fundamental aspect emerges from the comparative analysis of compact school blocks to which this research intends to devote significant attention: the need for architecture for education to assume a central role in cities. The optimization of the overall building area, joined with all case studies, is followed by an increase of the open space area available and allows generous urban solutions that, through the design of outdoor spaces articulated on different levels and accessible at all times of the day, make the school a community space firmly anchored in the neighborhood⁵. The terraces and roofs of the buildings, designed to accommodate open spaces that integrate, in addition to the educational activities that take place outdoors during school hours, sports fields, spaces for play and areas for relaxation, enhance the multifunctional and flexible attitude of the buildings.

The critical reading of these identity school architectures, aware of their context but at the same time contemporary and experimental, is, therefore, a fundamental tool through which to extrapolate and synthesize spatial themes and qualities, measuring and comparing the impact that the adoption of innovative typological models of compact schools has on architectural, qualitative and quantitative aspects.

On the other hand, through the involvement of the public administration, recognizing and assuming that architecture for education in Milan will be characterized, in the coming years, by the progressive replacement of part of the built heritage with pre-packaged techniques that involve the use of prefabricated elements and the care of existing schools led to the definition of more specific objectives, such as the need to identify macro-strategies of intervention based on samples of schools: recovery, preservation and enhancement; demolition and replacement; expansion of the existing and architectural grafting.

By questioning conventions in school construction, the research thus aims to show that it is possible to break new ground at the content and pedagogical levels, highlighting how the challenges of limited space and contained budgets, energy efficiency and ecological transition can be transformed into opportunities to experiment with new solutions outside the usual standards. The goal is to formulate non-uniformed strategies, i.e., strategies that are not pre-packaged but convey a logic, to address changes related to goals, methods, and knowledge transfer tools that have significantly modified educational buildings' spatial requirements and architectural standards.

The expected outcome is the definition of an abacus of design approaches outlined by applying the non-uniformed strategies previously identified to sample buildings of the Milanese school heritage. By interweaving the strategic themes and macro-strategies of intervention and introducing physical, psychological, sociological, cultural, historical, economic and ecological factors, the research aims to formulate generalized strategies to apply to the design of compact school buildings that are wholly unique in the position that a given school building takes in a specific context. Both schools and parts of cities. Buildings in tune with their landscapes and spaces designed to foster human relationships.

1. De Carlo, G. (2018) *La piramide rovesciata. Architettura oltre il '68*. Macerata: Quodlibet.
2. Dewey, J. (1938) *Experience and education*. New York: Collier Books.
3. Fondazione Giovanni Agnelli, *Rapporto sull'edilizia scolastica*. Laterza, Bari, 2019
4. Hertzberger, H. (2008) *Space and learning: Lessons in architecture 3*. Rotterdam: 010 Publishers
5. Hofmeister, S. (Ed.). (2020) *School Buildings - Spaces for Learning and the Community*. München: Detail Business Information GmbH.
6. Munari, B. (1992) *Viaggio nella fantasia*. Mantova: Maurizio Corraini.

REFLECTION ON THE CONFERENCE TOPIC

The *Dense Cities Compact Schools* research project aims to investigate the progressive rethinking of architecture for schools through the possible declinations that the compact school block design takes from different perspectives. Given the nature of the doctoral grant - funded with investments provided by the National Recovery and Resilience Plan (NRRP) on research lines for Public Administration - the goal is to narrow the huge gap between academia, architectural practice and the reality of municipal administrations.

In this sense, the research becomes experimentation, the attempt of which is to generate a design tool, in written and diagrammatic form, the application of which can strike a balance and act as a bridge between the different realities that shape the project and ensure its architectural quality, from the earliest stages of conception to realization. To draft this tool, the research places the design at the center, breaks it down and investigates the stages through which it is conceived, developed and implemented and then proposes innovative strategies to re-introduce them.

The study of historical sources and contemporary approaches, investigated and reworked in academia, drawing from both the architectural and pedagogical disciplines, are actualized by the precious interviews with architectural firms, which research the topic of the compact school block and create innovative learning spaces based on contemporary pedagogical approaches. The collaboration with the public administration makes it possible to connect the tool to reality by developing critical thinking related to the normative, technical-economic and bureaucratic aspects accompanying projects from feasibility study to realization.