

## **Sensitive Spaces:** from Montessori pedagogy to school design

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Although significant advances have taken place in the pedagogical field in recent decades, and the attention on children has been growing in our society, school buildings have not seen a real change.

In northern European countries we find some examples of Public school buildings with an innovative design approach, where innovation and cultural diversity are always on focus. Nevertheless, it is still unusual to find schools which try to change the traditional way of learning and seek to propose new interpretations and arrangements of school spaces, in southern countries of Europe. Of course an educational building is a complex process which depends on many factors, nonetheless architects should move towards different pedagogical approaches and express more concerns about the children's perception of their built environment during the design development.

What is really important for children, especially in preschools and primary schools, is learning how to learn, through their surroundings especially. Indeed, psychologists and psychiatrics keep underlining the significant influence environment have on children of school age, and that the first conscious impressions of one's surroundings are decisive for the rest of your life, to develop your sense of quality space and your personality.

Education is all too often seen, as in the past, as a static process, a collection of notions that has to be transmitted to passive children forcibly. But nowadays schools should reflect and adapt to the needs of contemporary society and to a more flexible and more open way of learning.

This research aims to reflect upon educational spaces, in order to underline the benefits that a properly designed environment has on children's learning. In particular, its purpose is to explore the connections between school design and the Montessori pedagogy for primary schools.

*“Montessori method is an educational approach developed by Italian physician and educator Maria Montessori. This education is practiced in an estimated 20,000 schools worldwide, serving children from birth to eighteen years old.”* This pedagogy,

developed a century ago, differs a lot from the traditional methods usually used by public schools. It is built around a new understanding of the children, promotes their natural inclinations and stimulates their independence. The students are invited to explore freely the topics that interest them most and improve their knowledge, both individually and as a group, with the teachers guiding them throughout the process. This freedom also affects architectural design by providing school buildings with greater flexibility and organizational variety. These educational environments should reflect the fluidity of the learning process while stimulating creativity and space appropriation in children.

Classrooms have traditionally been the principal, or only, space dedicated to learning. The traditional school layout shows us a series of “*autonomous spaces separated from each other and reached from often long dull corridors.*” Here, instead, the learning process expands to every corner of the building emphasizing the importance of in-between collective spaces.

Hence, the classroom becomes the “home-base” for the child, a familiar environment to fall back on. “*At the primary school, pupils have a great need for something permanent, (...) a nest from which you take off and to which you keep returning.*” So the classroom provides this familiar surrounding that allows individuals, but also groups, to dedicate themselves to work.

“According to the Montessori method, children generally work individually on self-chosen activities. The necessary concentration differs according to the type of work, not only that, the capacity for concentration in one pupil is not the same as that in another”. Because there will be children doing different tasks of different type of difficulty at the same time, the space should be designed in such a way to prevent students from distract each other excessively. Instead of mono-block spaces, we can think classrooms as L-shaped, articulated spaces. Therefore this form provides to the classroom flexibility and variability for different activities respecting or answering to the specific needs of each child.

“In the classroom, each setting can be organized to support individual, one-to-one, and small group activities. Therefore, pupils study individually on one side of the classroom without distracting the activities occurring in other settings.”

Moreover, classrooms could be brought together in small clusters and when necessary they could be linked, increasing the space and letting students from different ages work

together simultaneously. With different year groups brought together in one room “the children become familiar with learning material originally intended for those in a higher or lower group,” developing a positive attitude to confrontation.

Each class should have one, or more, glazed side, to permit a great relation with the outside space, a good incoming of light and a natural air ventilation.

The *moment* between the classroom and the circulation becomes an important space: a threshold that provides the key to the transition and connection between “areas with divergent territorial claims and a spatial condition for the meeting and dialogue between areas of different orders.” If designed correctly, the threshold could represent the fundamental smooth transition between the private and the public area.

*“The corridor serves no more just as circulation space for accessing and connecting the different functional rooms. This is the notion encountered in old traditional school buildings but also hospitals and office buildings.”* But when designing a school, corridors should be inhabitable as true extensions of the classrooms and at the same time deeply connected with the central areas. The corridor becomes itself an extensive working area.

The outside space should be valorized as well, and become an active part of the school environment, instead of being treated as a residual area. Gardens, courtyards and playgrounds should be designed with the same attention given to the internal spaces. The outside should be brought in, in order to make nature part of the daily learning process of the pupils. The school has to open to the landscape and dialogue with it. The *patios* turn into green frames, open air rooms without any roof, which could filter the environment while lighting the surroundings. Classrooms could be designed with large and transparent door frames which, when necessary, could open allowing these spatial units to expand to the outside area, transforming it into a learning territory too. The school has become a complex system, a juxtaposition of internal and external spaces, deeply connected one to each other, but without losing their own identity. This spatial diversity should provide an articulated environment, rich in suggestion and stimuli, which each student could use in his personal way.

If learning activities are not confined just to the classroom, an important moment of the school is without a doubt the *square*, the ultimate public space where all the pupils, and

also the teachers and the parents can gather and interact socially. Even if every space of the school is designed to be appealing and stimulating for learning, the central hall is conceived as the beating heart of the project, a symbolic center that allows all the school community to learn together and teach children the importance of sharing experiences as a social skill. The *square* has to adjust to different uses easily, thanks to its flexibility, letting it to adapt to different events and performances, as well as work or gathering place for daily interactions.

Other common areas, such as canteen and sport or cultural facilities, as complementary didactic activities, are essential to engage the whole school *organism* with the community life. These volumes are often designed as isolated spaces from the school main body, due mainly to their wider proportions and traditional interpretation of every singular function being an autonomous entity. Nowadays these spaces are interpreted as an opportunity to respond to specific needs and uses while providing great flexibility to adapt to other necessities. It is important to design emphasizing visual connections between these parts of the project and the rest of the environment, preventing them to be marginalized.

Moreover these facilities represent the public areas of the school. Through these spaces the school opens itself to the community. In doing so it becomes not just an educational institution, but a sociocultural complex which can bring together people and be recognized as an aggregation center independently from the school timetable. “The school has to be integrated in the city; therefore social and cultural activities included in the school and school activities spread to the city environment.”

The Nagele school, designed by Aldo Van Eyck, expresses in a clear way how these principles can be translated into architecture.

The entrance courtyard, dynamically open but still protected from the outside, introduces us to the school building. Two porches mark the entrances, while creating a transitional space between the outside and the inside. The service areas are grouped in a thin horizontal volume, which constitute a visual backdrop, a protection for the pupils routine. The six classrooms are divided into two clusters, each one differently orientated. Each group shows a composition in which the three classrooms shift on each other. By doing so the building manages to reach a completely new result: the exterior

corners provide multiple views to each classroom, while the interior corners are transformed into wide in-between spaces.

Any impression of a functional corridor is suppressed, in order to give us the suggestion of a sequence of articulated, but not fragmented, spaces. “Here, a single gesture has simultaneously opened up the view to the outside and to the inside, the one result of the other”. This school design manages to create a dialogue with the surroundings while giving equality to all spaces and opening their use to different activities or venues.

Schools are buildings which should last in time and withhold the great responsibility of welcoming and shaping future generations. Thus, their design could not be accidental or unintentional. Schools should be designed in strict relation with a contextualized and precise pedagogical thinking, paying attention to their natural surroundings. The Montessori pedagogy is an important guide to design an innovative school. It pays attention to the public and private sphere of the educational life, granting space to both while trying to integrate them. It opens the building towards its surroundings, letting the nature in, and brings the school to the community, opening it to the city.