

Imagining the School of the Future



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Abstract The idea of school has always merged architecture and pedagogy into a unique body, and its existence is characterised by the close relationship between the definition of an appropriate space for those who inhabit the places of education on a daily basis, and a precise educational model suitable for contemporary society and capable of inventing educational spaces for the present and the near future through a consistent transcription of knowledge modes. In school, individuality and universality become one thing and find the balance required for identifying and understanding diversities within the common needs; a community of original *objects turned out by hand*, who are never the same even if they all are human beings. School architecture represents the concrete opportunity to long for shapes capable to reflect a precise teaching model. In this way, it provides an honest interpretation of all the needs at the basis of a multifaceted theme, with all the peculiarities, the individual accents and the controversies that accompany major transformations occurred over a limited of time. Today's definition of school buildings confirms the uncontrolled frailty and the contradictory and fragmented meanings that characterises contemporary architecture as a whole, no matter what the specific function. In this new transition season, we don't see any consistent attempt to reconsider the principles of a branch of knowledge which seems consumed the speed at which figurative possibilities arise. Forty years ago, typological research was abandoned in favour of partial experiments on management and energy issues.

Keywords School · Architecture applied to school · Ciro Cicconcelli · Maria Montessori · One room school · Typological research

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1 Imagining the School of the Future

Perhaps one of the most effective means that can help to achieve correct future projections in the field of school architecture might be to share the numerous interdisciplinary components that contribute to defining the complexity of a civil theme translated into architecture; various features that make the topic to be interpreted as somewhat complex; in our case, education. Herbert Read wrote in 1954: “*In a rational society there is only one priority; and no service, other than those referring to nutrition and the protection of human life, must take priority over education*” (Read 1954). A priority, education, has always solicited a reflection on the architectures dedicated to it. The revolution of the learning space, understood as an evolution of the concept of education in its design meaning, at least in its ideal lines, begins in Italy with *Ciro Cicconcelli*, a Roman architect, winner of the 1949 competition for outdoor schools and nominated in 1958 as director of the Study Centre for school buildings established by the Ministry of Education. This working group—that of the Study Centre—shared by pedagogists architects, doctors, administrators, was created courageously to rewrite the regulations referring to school buildings, firmly guided by Cicconcelli (cf. Fig. 1), with the aim to, above all, reflect on the fundamental passage from the concept of “*instruction-teaching*” to that of “*education*”.

“*The design of a modern school*” writes Cicconcelli “*must arise, above all, from the search for a psychologically and functionally suitable space to deal with educational problems. It is therefore necessary to grasp and create spaces capable of favouring the child’s tendencies while making them effective; it is necessary to create spaces that accompany children in their biological and psychic growth; children must be at the centre of the search for a school space of our time*” (Cicconcelli 1952).

The careful and passionate look at the experience of Darmstadt and at the school model proposed by Hans Scharoun in 1951 creates the background, for the Study Centre and its director, for re-examining the concept of the *classroom*, up until then



Fig. 1 Publications by *Ciro Cicconcelli* for the Study Centre of the Ministry of Education and the *Casabella* issue dedicated to the architecture of the school

habitual, imagining and experimenting the composition of the learning space starting from the capacity for action within the community of children and teachers.

“Classrooms, for there to be an osmosis process that is established not only between teachers and pupils yet also between the pupils themselves, when they meet in a similar pedagogical function, should be in a position to be coupled and easily transformed; organic transformations, even total, using the same furniture made up of separable and transportable materials” (Cicconcelli 1952). These words, still today, seem visionary in the extreme contemporaneity of principles; reflections that have accompanied a slow transformation, often simply left on paper or materialized only in very few virtuous examples.

On a smaller scale, the school classroom, a *space for learning* in the most contemporary interpretation of a concept that is both labile and deeply rooted in the idea of education, brings the discussion back to the original dimension of the problem which actually sees children as its main actors, and their ability to share the idea of community for the first time.

The theme of education, in its architectural translation represented by scholastic institutes *of every type and level*, is one of the central topics of our contemporaneity, both political and civil; up to the present day, architecture for schools has anticipated, followed and has sometimes been chased by social transformations, ministerial reforms, educational proposals and has always only quietly articulated the history of our country. At the same time, the numerous projects for school facilities, from kindergartens to universities, have been able to write important passages in the history of architecture, not just national, revolutionizing established principles in the name of a true idea of teaching, free of any pretextual bonds.

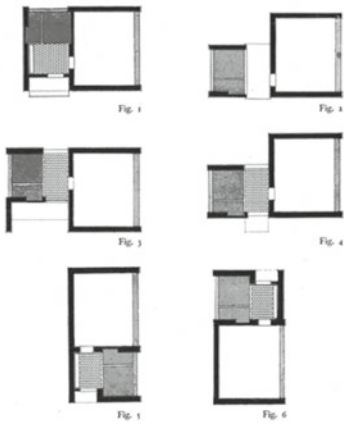
Classrooms and corridors, in the words of Aldo Rossi, rooted in the previous avant-gardes, places for education, where the relationship between collective spaces and singular spaces, the ideal form of teaching places, the most adequate didactic idea, make up the backbone of a possible continuous comparison between the teaching methods and the examples in architecture that best interpreted them, starting from the substantial pedagogical readings of the twentieth century, from Rosa and Carolina Agazzi to Maria Montessori, right up to Loris Malaguzzi and Mario Lodi.

The Italian scenario narrates, for this reason, an original story that we know well. The strong link or in any case the widespread interest, the constant attention to applied research deriving from pedagogical studies, to its teachers, to international awards, enriches the further understanding of the themes specific to the composition of buildings which, in parallel, becomes a search for the value of education and the spaces suitable for it. At the beginning of the last century, Maria Montessori, referring to places of learning, wrote: *“Education is a natural process carried out by the child, and is not acquired through listening to words, but through the child’s experiences in the environment.”* Loris Malaguzzi, many years later highlighted: *“The atelier (...) has produced a subversive irruption, an additional complication and instrumentation, capable of providing riches of combinatorial and creative possibilities among children’s non-verbal languages and intelligences.”* Mario Lodi, as well, wrote in the mid-seventies of the necessity to *“create a community where children feel equal,*

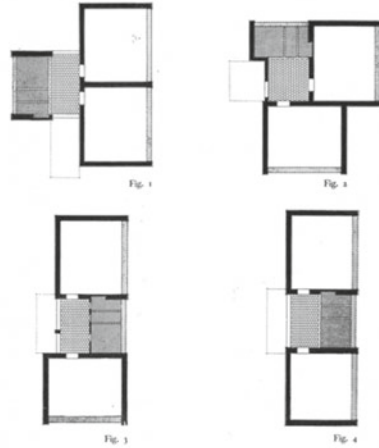
like companions, like brothers.” In architecture the environment, ateliers and communities mark numerous possibilities of research still in progress, physical spaces or figurative forms which, with centrifugal force, are able to generate, from the inside, school buildings in their own complexity.

It is therefore *the classroom*, the minimal module (cf. Fig. 2), in the simplification of the text, that represents this generative force directed towards the exterior, the more domestic and at the same time authentic character of the building for education, the deepest seed of possible change in the way to learn and teach in the future.

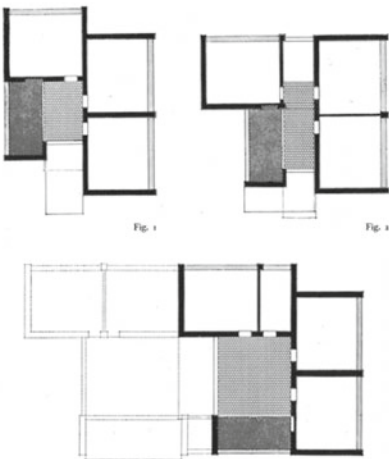
1) — SCHEMI PLANIMETRICI DI EDIFICI AD UN'AULA.



2) — SCHEMI PLANIMETRICI DI EDIFICI A DUE AULE.



3) — SCHEMI PLANIMETRICI DI EDIFICI A TRE AULE.



4) — TIPI DI ALLOGGI MINIMI PER INSEGNANTI.



Fig. 2. **Ciro Cicconcelli**, planimetric studies for schools, 1957

Another ancient example guides us. The American model of the single-class school—*one room school* (cf. Fig. 3)—a model exported to many other countries including Austria, Germany, Australia and Ireland, represents a figurative horizon as opposed to an education goal, a singular suggestion as its uniqueness denounces. These small rural schools were built at the end of the nineteenth century and were surrounded by nature. They were made up of a single space and the few places needed for school life, compressed to their minimum extent: a staircase, an entrance, the teaching room, the bathrooms; a single class for children of different ages, a single teacher to learn to read, write, count, history and geography, a large window to the east to welcome the light. Small buildings with elementary forms that often became the centre of the community in the collective imagination; places that have often represented an idea of a future society, as Abraham Lincoln stated, “*The philosophy of the school in one generation will be the philosophy of the government in the next.*”

Reflecting on the school of the future is therefore not a slogan rather a re-proposal in the present of those central examples, those peaks of harmony among the disciplines that form part of the last century. It means—still—certain of the critical capacity of confrontation, to believe in a generation of Italian architects that are well aware and capable of facing the issue and allowing the quality of our architecture to progress. Some time ago, for this reason, we invited a group of 12 Italian architects,¹



Fig. 3 The One-Room School: Watson Road School, USA, about 1900

¹Walter Angonese (*Accademia di Architettura*), Riccardo Campagnola (*Politecnico di Milano*) and Maria Grazia Eccheli (*Università di Firenze*), Armando Dal Fabbro (*Università IUAV di Venezia*), Alberto Ferlenga (*Università IUAV di Venezia*), Luigi Franciosini (*Università degli studi Roma Tre*), Stefano Guidarini (*Politecnico di Milano*), Eleonora Mantese (*Università IUAV di Venezia*), Bruno Messina (*Università degli studi di Catania*), Carlo Moccia (*Politecnico di Bari*), Renato Rizzi



Fig. 4 V Triennale di Milano. The entrance to the pavilion dedicated to the school

during an exhibition at the Triennale di Milano (Ferrari 2015). The twelve architects engaged in research, teaching and criticism of our discipline, belonging to the same generation, were encouraged to imagine and represent their idea of a *classroom* for the future; 12 spaces that differ in shape, character, colour, relationship with light or nature, proportions and flexibility, orientation and possibility of different uses, overlapping and decomposing of places which in general compositional principles refer to as ideas of school. A concrete and proactive attempt, in the variety of the proposed projects, is to imagine, through open confrontation, the various suggestions and declinations of a common goal. The criticism that follows the impossibility, in this essay, of referring to punctual and descriptive images, allows the reader—within the story—to hypothesize, starting from the principles highlighted, a personal figurative interpretation of the exhibited projects as in the picture of the pavilion built in 1933 for the Triennale di Milano (Fig. 4).

The ten most realistic solutions (cf. Fig. 5), exclude, due to lesser concreteness, two equally interesting examples characterised by a more abstract reflection on the quality of the place of teaching and the relationship between teacher and student (Renato Rizzi) and on the infinity of the possibilities of linked spaces for teaching (Paolo Zermani); ten effective suggestions to define more constructively the theme of the space for teaching that we consider as a choral and shared contribution for the places of learning of the future.

The great attention towards new technologies is one of the first interests addressed to the innovative space imagined for students; a digital system capable of educating in the contemporary world through total immersion in the planned places. Regular volumes characterized by simultaneous digital projection on three sides of the room

(Università IUAV di Venezia), Andrea Sciascia (Università di Palermo), Paolo Zermani (Università di Firenze).

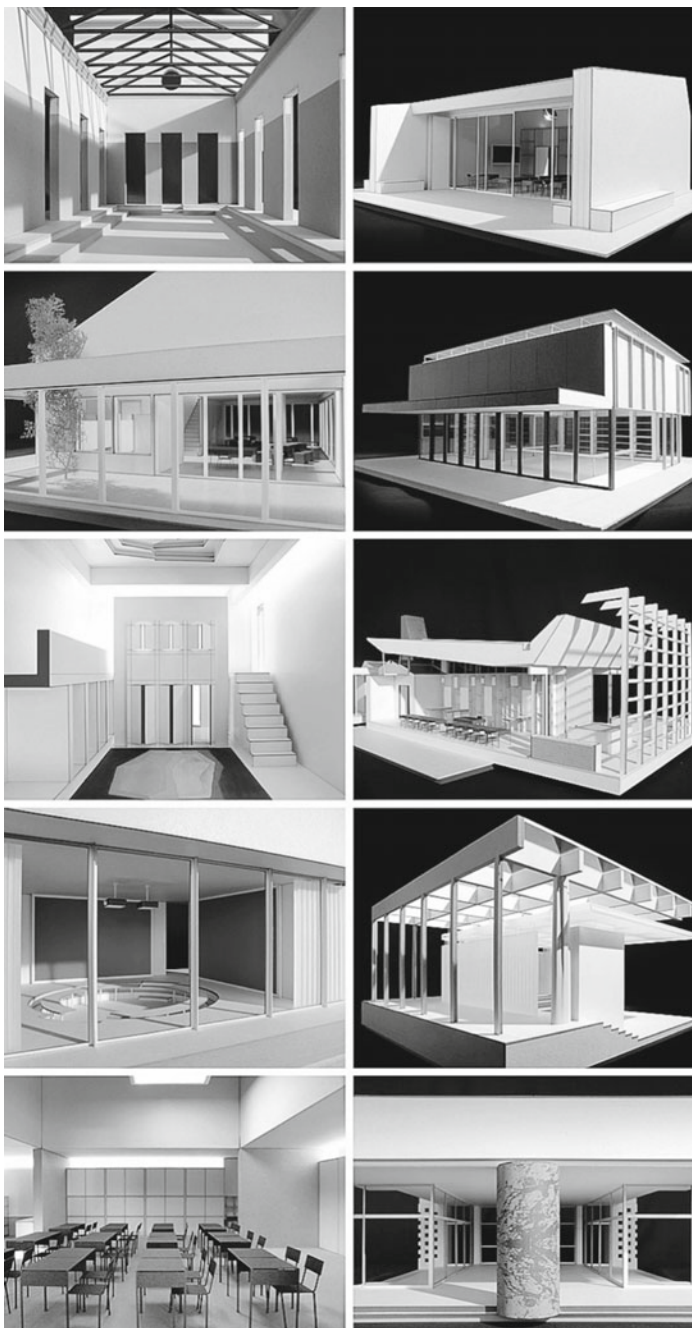


Fig. 5 Ten future class projects (models by BRG studio)

directly facing the outside through the fourth fragment. An agora engraved on the ground where one can concentrate on the complete involvement of the proposed contents; the only hope where to face the external reality (Walter Angonese).

The sum of different spaces for the lives of children, coupled and equipped to obtain semi-independence with respect to the services offered by the school—the kitchen for example—or subdivided into four units starting from a large collective space, coincides with the research of another two different scenarios proposed. The first, in addition to coupling two contiguous sections, bound by a border of books, envisages both external and internal accessory spaces, private for the two sections, yet integrated into a more complex system (Alberto Ferlenga). The second looks to transparency and filtered light at the perimeter, for the greater character of a collective place that can be divided into four parts, defined in the first instance by an evident metallic cover (Armando Dal Fabbro). The theme of natural light once again defines other hypotheses which, in the rarefied illumination to the zenith and in the complete openness and transparency on the ground, find the most convincing answer in the project of a large covered campus where the space for learning exists through a natural development towards a protected exterior (Luigi Franciosini). Simplicity and ease of composition are the distinguishing marks of numerous offered projects which, particularly in one proposal, prove to be effective in defining the uniqueness of the study space. Solid walls, composed in the shape of a court and covered by the evident recognisability of a pitched roof, make both the unity of the minimum module and the domesticity of the recognizable place (Stefano Guidarini). The symbolic re-proposal of historical spaces, recognised as examples for their quality of inhabited life, distinguishes a different direction that does not envisage any distinction between the spaces of learning within the schools regarding “all types and levels”. Only the cultural influence of each level strongly characterizes, in this case, the various identities of the education through the iconicity of furnishings, colours, works of art—created ad hoc for each section—that complete the articulated predefined spaces (Eleonora Mantese).

The theme of one’s territory and of the necessary services distinguishes a further proposal that gathers the place of learning in an exalted centrality and distributes to the surroundings the abundant accessories. The proportion in height of this chosen volume makes the main space recognisable; transferring the vertical light to the ground, even from the outside. A tight chequered composition makes up the school (Bruno Messina). Two examples on a minor scale address the issue of the place of early childhood following different experiences. The nursery school in the recognisability of its elementary forms marks an initial hypothesis which, starting from an inhabited perimeter, where educational spaces are distributed, defines a centre conceived as a collective place in the middle of the planimetric geometry. A place, like a covered courtyard, entrusts to a large pillar/tree the role of supporting the flat roof. A primitive social terrain can be imagined under that tree (Carlo Moccia). The second path concretises the close relationship between the idea of home and a schoolroom similar to that, on a major scale, between school and village. The environment created, set up on two floors under a domestic pitched roof, recalls an idea of iconic continuity with the image of the house in the smallest degrees of learning; regarding

the school, the grouping of individual houses is arranged to form a small urbanity (Andrea Sciascia). Lastly, a research experience was gained following the executive possibility of a realised project, a reflection on the theme which, starting from the need to expand an existing school, translates the reasoning on the relationship between community and singularity of the school space into a regulating principle. The central manifested place, external fulcrum of the original school, becomes, in the proposed project, the effective centre of a community that finds itself in the theatrical space, the focal point of the two connected interventions (Riccardo Campagnola, Mariagrazia Eccheli).

2 Research in Progress

The need to start from what in the last 100 years has been done, and in particular has been built, with regard to Italian school construction, is a must today for several reasons, including the high number of school buildings distributed more or less homogeneously in our country and above all because the Italian reality requires particular attention to the recovery, restoration and consolidation of existing buildings. In this sense, the recent presentation by the Scholastic Building Registry, after 20 years from its establishment, is undoubtedly a fundamental tool for any advancement in study and knowledge, as well as design, regarding the architecture of the school.

The presence, by the will of the Ministry, of an operational tool that manages to monitor and classify all the Italian heritage related to the theme of school construction is a positive sign, while the research project aims to increase and improve this instrument by comparing it with other interpretative parameters more properly referable to

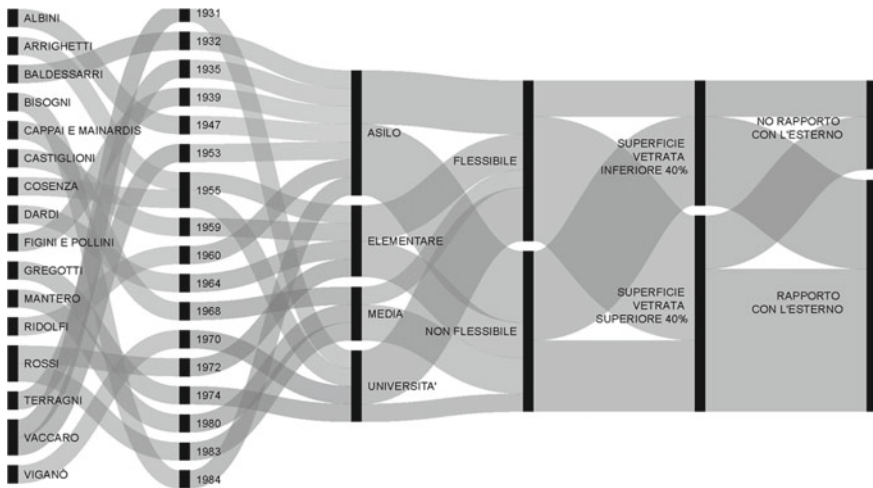


Fig. 6 Research data processing 100 years of schools in Italy (in progress)

the architectural discipline and to the search for the quality of living, which up until now have not been considered. Only a comparative study of the different typologies (in their historical-pedagogical evolution), of the coherence between project and realisation of the form-construction-technology relationship can give back the panorama of the Italian school building research; which today should operate towards integration, recovery and its extension. On the one hand, therefore, the research in progress is aimed at the study and analysis according to a necessary categorization of those remarkable examples that in the twentieth century marked the history of the architecture of the school regarding “every type and level” as is apparent from the infographic above (Fig. 6). On the other hand, the primary objective is unquestionably the design verification of new compositional possibilities which, through the virtuous examples that preceded us, are capable of accommodating the present needs that are dictated by both pedagogical research and by the character of the contemporary city and social demands.

Starting from the experience in 1949 regarding the Study Centre of the Ministry of Education with *Ciro Cicconcelli*, and, in particular, from the competition announced by the Ministry in which architects were asked to propose their idea of a school without taking into account the then current legislation in order to try to translate from the projects presented the new rules that were actually more effective, there is an evident need for architecture itself to concretely verify the possibilities of giving content as well as shape to a new idea of school, while looking for the most adequate answers to a typological theme, so rich in feasible interpretations.

The research is based on the fundamental interdisciplinary feature, implicit in the theme in question. It is, in fact, impossible to contain the research on school buildings within the architectural discipline alone. The various worlds that gravitate around this topic, which is very central to today's society, require a close dialogue aimed at the concrete verification of a balance between the planning of educational sites and research in the pedagogical field.

At the same time, this interdisciplinary feature does not only concern the relationship between design and pedagogy, it also opens up, from time to time, to new aspects that cannot be considered corollary, rather a base from which to start again in facing the complexity of the problem.

New spaces for teaching, starting from recent experiences that have tried to compare different architectural sensitivities on the subject of educating space, have started a reflection that still needs a concrete verification through the realisation of one or more prototypes of the minimum teaching unit to be carried out on a full-scale (1:1) basis, developing the concrete synergy between quality of space and new learning methods. This experience could start an actual synergy between industry, companies and universities in identifying materials, technologies and spaces suitable for teaching. At the same time, the theme of consolidating and adapting existing buildings can launch virtuous relations between the construction industry, specialized and unspecialized in the specific sector of restoration work, and the world of research that has already been strongly carried out on other typologies.

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