From Enclosure to Partition

Defining School Design on a Pedagogical Basis

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Master of Philosophy in Architecture and Urban Design Degree

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Abstract

The dissertation examines the relationships between spatial agencies and pedagogy in schools. Current policies and research reduce the discussion of school design to well-performing buildings in terms of environmental comfort, and to efficient plan layouts. School buildings, resultant of such discussions limit the ways in which schools operate socially and pedagogically. The dissertation aims first to analyse the spatial and pedagogical implications of such quantitative arguments, and later, to rethink the school typologies and the spatial elements of schools with respect to pedagogical statements through an analytical and design dissertation, opening ways for challenging the policies.

While pedagogies statements make explicit the social ideals, they cannot prescribe the patterns of behaviour without being materialised. School buildings, with their formal, organisational, and material systems order these patterns. The quantitative arguments, thus, crystallise into equal-sized classroom and double-loaded corridor configurations, which restates the education only as a classroom-based practice without recognising other forms of learning and teaching. The dissertation, analysing the elements that construct the school typologies in pedagogical terms, proposes the partitioning and creation of clusters as a strategy, instead of classroom and corridor that could recognise different teaching and learning methods identified, and at the same time form a coherent whole providing a sense of community in the schools. In addition to the building scale, the dissertation argues the urban scales, in which such quantitative arguments constrain the school projects at most. The dissertation proposes extending the strategy of partitioning to urban scales, and investigates the extent and the ways in which the schools can organise their surroundings and how in return, the pedagogies and the schools can be shaped. The dissertation, therefore, opens up a possibility to challenge the policies and regulations governing school designs, by redefining the enclosures, divisions, connections, densities, and proximities in the form of the classroom, in the form of the schools, and in the form of the city by basing them in pedagogical arguments.

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Introduction
Defining the Quantitative and Qualitative

In 2003, the Department of Education and Skills of England announced Building Schools for the Future, a comprehensive capital investment programme to build, rebuild and refurbish all secondary schools, and later primary schools. The initiative invited architects, non-governmental organisations, and pedagogues to think the schools of the 21st century, aiming at educating every child "in a 21st-century environment within 15 years".[1] After long debates, when the programme finally terminated in 2010, two points remained unsatisfactory for a new education and new schools. Firstly, the significant amount of investment in information and communication technologies classified the education of the 21st century towards a technology-deterministic ideal.[2] Secondly, along the same line, high-performance building solutions and high-tech architectural expressions defined the architecture of the 21st-century school, with little attention to typologies. (Figure 1.01) Although these two were significant enough, the exceeded budget and schedule requirements, and the insignificant changes in student performances triggered discussions on the performance and the efficiency of the programme.[3]

With the need for certainty, precision, economy, and efficiency learnt, the Building School for the Future in 2010 was succeeded by the Priority School Building Programme. This time, the government established several mechanisms to control the performance and the efficiency of the program, as well as the ones of the schools planned. Firstly, the program aimed at rebuilding only the primary and secondary schools in the worst

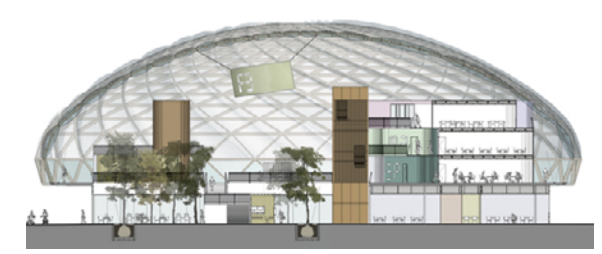
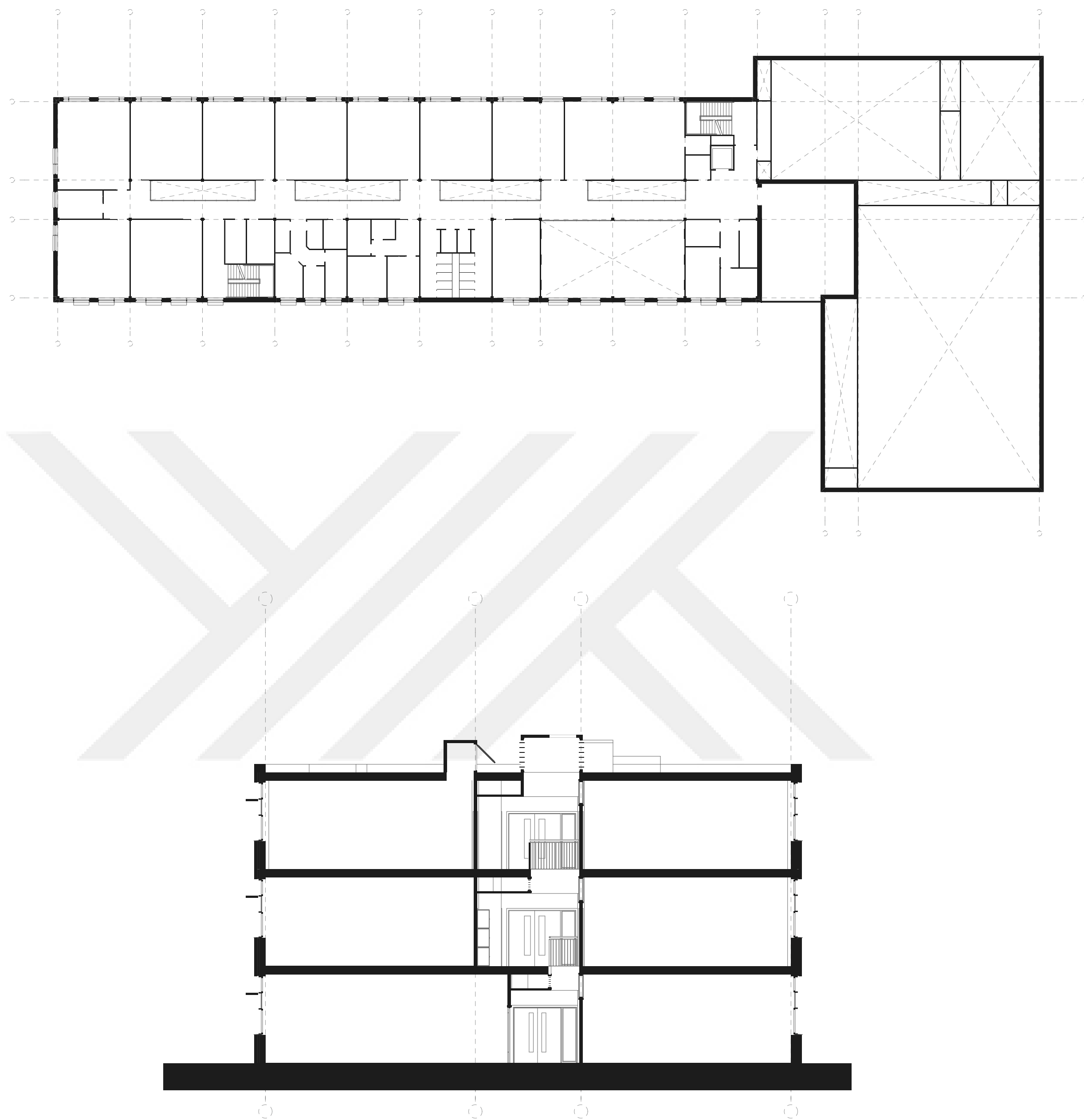


Figure 1.01—Exemplar School Design presented to Prime Minister at the official launch of the Building Schools for the Future (BSF).
Rijke Marsh Morgan Architects (dRMM), 2004. From < http://drmm.co.uk > [Accessed on 02.05.2017]

1. "Building Schools for The Future Factsheet". web.archive.org. Accessed 22 April 2017. https://web.archive.org/web/20070812122307/http://www.number10.gov.uk/output/Page5801.asp.

2. House of Commons Education and Skills Committee, Sustainable Schools: Are We Building Schools for The Future? (London: The Stationery Office, 2007).

3. "School Buildings Scheme Scrapped - BBC News". BBC News, 2017. http://www.bbc.co.uk/news/10514113.



condition. Secondly, a school area calculation tool for budget, student and building area values was provided. Moreover, thirdly, architectural baseline designs were provided that present possible solutions within the limitations of school area calculations. Specifications related to these designs were also provided to guarantee well-performing buildings and to provide solutions for the technical problems these plans created.[4] By doing so, the assessment criteria and objectives of the project were defined quantitatively. Therefore,this time, certainty, precision, economy, and efficiency could be measured, calculated, and assessed *objectively*.

In parallel, building regulations and other statutory documents related to school buildings have become looser in defining minimum standards, and were remodelled as non-statutory guides. [5] Economic building solutions demanded by the Education Funding Agency that administers the school construction programme, give the impression that the certainty and efficiency are calculated based on the initial cost of a school building. [6] Rather than the minimisation of floor area, what must be highlighted is the way this area is distributed, positioned, and organised in these school designs. The baseline designs stand for a certain school typology: equal-sized classrooms positioned along a double-loaded corridor. The double-loaded corridor provides an efficient building solution, as it minimises the number of walls compared to a single-loaded corridor or a central hall configuration. On the other hand, each classroom have the same size and the same relationship with each other and the corridor provides a certain flexibility in scheduling the use and the equal distribution of the classroom floor area. However, a more thorough analysis would reveals that the size of a classroom is not flexible in terms of teaching and seating arrangements. Neither the corridors with minimum width allow anything but circulation. (Figure 1.02)

Figure 1.02—First Floor Plan and Cross Section for a Secondary School for 600 Students, 11-16 Typical Curriculum.

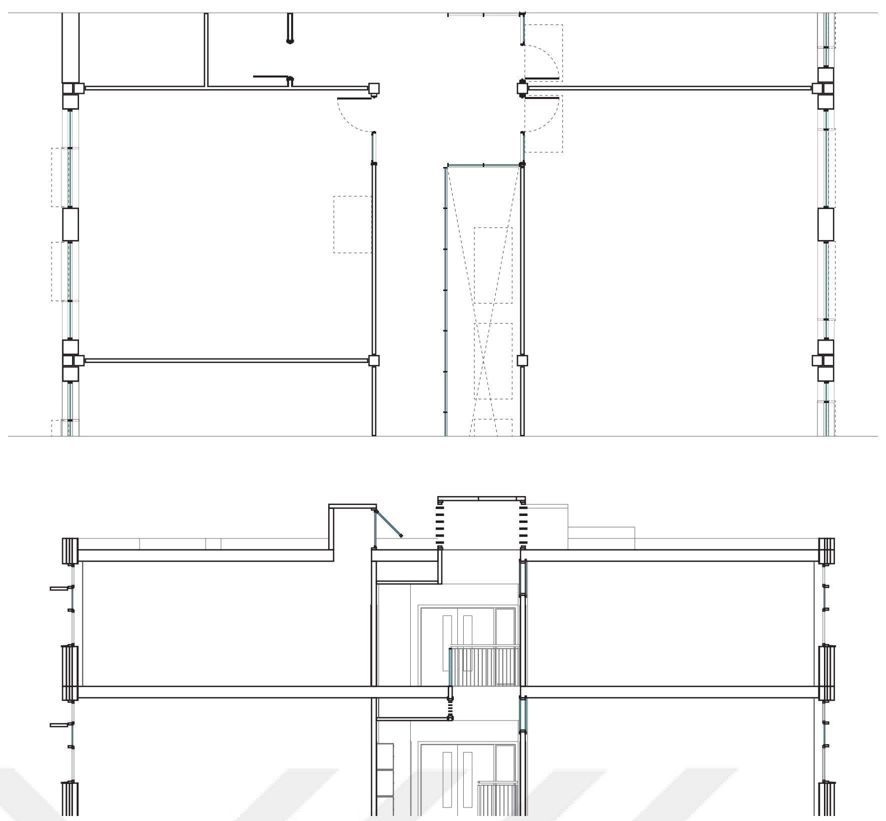
Priority School Building Program, Education Funding Agency. 2015. Redrawn by author based on the drawings from <www.gov.uk> [Accessed 02.05.2017]

While the proposed classrooms and the corridors are formulated as general and austere solutions, the drawings and the related specifications are detailed to the louvres, skylights, window heights, internal openings, and air ducts. (Figure 1.03) Robin Evans, in his *The Projective Cast: Architecture*

4. "Priority School Building Programme (PSBP) - GOV.UK". gov.uk, 2017. https://www.gov.uk/government/collections/priority-school-building-programme-psbp.

5. Compare The School Premises Regulations (England) 2012 and The School Premises Regulations (England) 1998, for the changing regulations.

6. The other documents on cost and area allowances are found in Building Bulletin 103.



and its Three Geometries (1995) suggests the drawing as a formative tool, rather than a descriptive one.[7] Departing from his point, such contrast in the definition of the building enclosure and the interior of the school equate these schools to well-performing buildings. Certainly, if we set aside the hygienist policies that paralleled the emergence of schools, the school design has been about the reestablishment of dimensions and details assessed in terms of daylight and ventilation since the first purpose-built schools. However, in the baseline designs and related specifications, the typical school not only re-establishes new technical solutions that provide environmental comfort and lower energy use but are also legitimised through them, as they make the efficient plan solutions and the double-loaded corridor configuration to function properly. As the two programmes demonstrate, environmental comfort and technology overtake the issues of school design. For instance, in the academia, the research on the assessment of learning environments mostly focuses on the classroom and school environment by attempting to set up relationships between the values of air quality, the amount of light, temperature, noise, and student outcomes. [8] (Figure 1.04) Thereby, the academia adds to previous equations by equating the student performance to building performance.

Figure 1.03—Detailing of Plan and Section.

In addition to the ventilation louvres, the northern facade has larger glazing ratio than the ones in south. Shading devices are placed in southern openings. Classrooms in the second floor have skylights. Exhaust air from the classrooms are directed via ducts along the corridors. Opening in the corridor, allow the light from skylights to disperse to lower floor corridors, and contribute to the ventilation. Priority School Building Program, Baseline Design for a Secondary School for 600 Students, 11-16 Typical Curriculum | Education Funding Agency

7. Robin Evans, The Projective Cast: Architecture And Its Three Geometries, 1st ed. (Cambridge: The MIT Press, 2000).

8. Barrett, Peter, Yufan Zhang, Fay Davies, and Lucinda Barrett, Clever Classrooms, Holistic Evidence and Design Project (Salford: University of Salford, 2015)

On the other hand, the Royal Institute of British Architects confirmed the excessive attention to mechanical services in recent schools in the United Kingdom. Based on the post-occupancy surveys of 129 schools, the report states that the mechanical systems in recent school buildings (other than the PSBP schools) are usually redundant.[9] Although it was written from another perspective, it is helpful to mention Reyner Banham and François Dallegret's *A House is not a Home* (1965), to place the technological determinism within a larger architectural debate. Here the title plays with the architectural object (house) and its use and possibility of subject-building (home).[10] (Figure 1.05) Since Banham and Dallegret's early preoccupations of the mechanical systems against the subjective nature of architecture, architecture and the city started to become evaluated quantitatively rather than with their political and historical values. The design of the school is no different from Banham and Dallegret's proposal, which reduces the house to an enclosure only with a membrane and the mechanical fittings, offering the minimum necessary for comfortable living. Baseline designs offer the most efficient and generic layouts, made possible by technological solutions.

All in all, different stakeholders as academia, building industry, politicians, and architects make this a complete administrative project, with very little attention to the specificities of school architecture. Criteria such as building performance and student performance offer an incontrovertible legitimacy to school design. Indeed, well-performing building criteria provides certain qualities to the functioning of school buildings. However, variations of performances and well-performing enclosures apply to any building. Such approach does not only limit the possibilities of school architecture to enclosures but also replaces it with technical issues of defining outcomes and universal objective assessments to achieve predetermined ends. Subsequently, the word 'common', which is inherent in school as a common aim and interest, came to characterise the minimum and the generic. The necessity to discuss qualitative values specific to school architecture is still at stake.

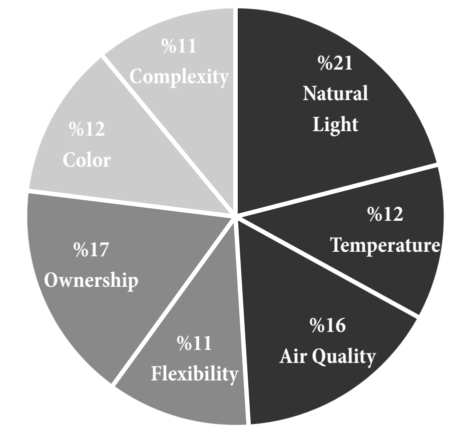


Figure 1.04—Factors in Classroom Environment Affecting Student Outcomes.

In Barrett, Peter, Yufan Zhang, Fay Davies, and Lucinda Barrett, Clever Classrooms, Holistic Evidence and Design Project (Salford: University of Salford, 2015)

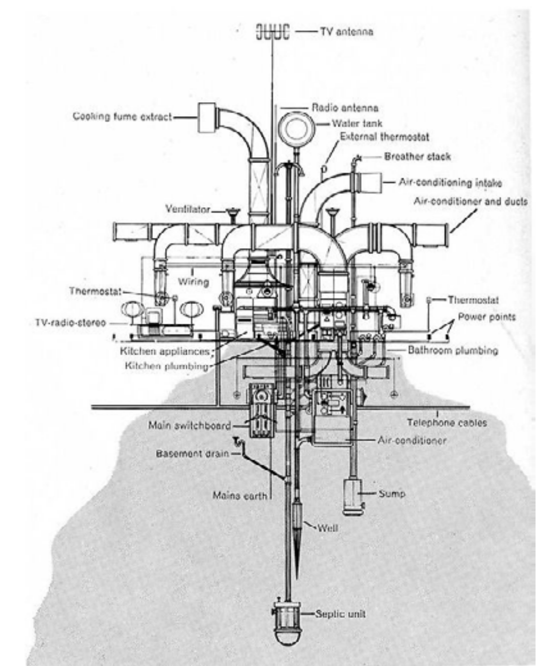


Figure 1.05—Baroque Ensemble of Domestic Gadgetry

9. Royal Institute of British Architects, Better Spaces For Learning, #TopMarkSchools (London: Royal Institute of British Architects, 2016), p.21.

10. Banham, Reyner, "A Home is not a House", Art in America, Volume 2, (1965), pp. 70-79.

Schooling

The common school emerged at the moment in history when "a normative class conquered the power to identify the function of social norms with its own uses and its own determination of content".[11] In the 19th century, in Europe, a series of policies and techniques were developed aiming at the welfare and control of the population, positioning the state as services and assistance provider, and separating philanthropy from charity as an apolitical actor in helping the welfare provision. These, institutions, regulatory decisions, laws, administrative measures, moral and philanthropic propositions (adding into what Michel Foucault defined as apparatus) averted the risks of a destruction of society through the physical and moral weakening of the population.[12] Whether philanthropic, by the state, hygienic, or industrial, schooling was a tool in the project of the social. It transferred not only information and skills required for a productive workforce, but also traditional and moral values that construct identities, common ideals, sensibilities, and approaches. This genealogy, allows us to assert that pedagogy, in the sense of the practice and method of this transfer, and curriculum, the content, together form the operational domain of schooling. In this, one must also note that the use and content of schooling are constantly reinterpreted, adjusted, and negotiated.

Type

The school was a place, where the student was constantly measured against the norms derived from the statistics and calculations, and where social concepts, for instance, citizenship, hygiene, and morals were cultivated and spread to the population. In parallel, the interior of the school was a place where the populations were transformed to citizens, delinquents to responsible ones, unhealthy to healthy. While Foucault's terms make the power relations more explicit, social relations including the ones of pedagogy and curriculum alone cannot prescribe patterns of behaviour without being materialised. School buildings materialise some power relationships; all its formal, organisational, and material systems order

11. Georges Canguilhem, The Normal And The Pathological, 1st ed. (New York: Zone Books, 2007).

12. Donzelot, Jacques, The Policing of Families (New York: Pantheon Books, 1979); Foucault, Michel. "The Confession Of The Flesh" (interview). In Power/Knowledge Selected Interviews And Other Writings, 194-228. Colin Gordon, 1st ed. New York, N.Y.: Pantheon Books, 1980.

patterns, disable some of them and encourage others. In this, similar to Bruno Latour's keys,but in a larger scale, they "[hold] society together as a durable whole".[13] They materialise and define enclosures, divisions, connections, densities, and proximities in the form of the classroom, in the form of the schools, and in the form of the city. Thus, they negotiate social relations and policies, econometrics, technologies, and by doing so, they redefine the schooling. They operate on multiple scales; they define bodies, groups, hierarchies, neighbourhoods, and nations. Therefore, schools can be thought as diagrams that exist at multiple scales, and that explain certain approaches to and aspects of production of schools, both as objects that encompass formal, organisational, and material systems, and as discourses. The resolution of these diagrams allows us to understand and think about the possibilities of the agencies of the school architecture in defining the pedagogies.

Building Technologies

In repositioning the school architecture on the basis of pedagogy and curriculum, the dissertation does not do away with building technologies. If they are inevitably part of this formal, organisational, and material systems of the school architecture, they also contribute to what schools do. As schools inscribe social relations, negotiate multiple actors, and materialise borders, rather than what these technologies are, how they are used in these processes is important. In the administrators, financiers, and politicians' pursuit of evaluation, today, technologies provide calculable criteria to school buildings and dominate the other discussions in school design. At the same time, as history shows, building technologies are directly linked with the school design, as they could provide solutions for the constraints of lighting, ventilation, and building and maintenance costs in which the discussion of school design takes place.

The qualitative criteria school design is based is the correspondence of the formal, organisational, and material organisation of school building and the imagined social diagrams including the ones of pedagogy and curriculum. Acknowledging this, the dissertation will revisit the architectural agencies of

13. Bruno Latour's examples of hotel key and Berlin key, demonstrate the design of an object sugests a set of controlled actions. Latour, Bruno. "Technology Is Society Made Durable". The Sociological Review 38, no. (1990): 103-131. doi:10.1111/j.1467-954x.1990.tb03350.x.; Latour, Bruno. "The Berlin Key Or How To Do Things With Words". In Materiality And Modern Culture, 10-21. P.M. Graves-Brown, 1st ed. London: Routledge, 1991.

schools that embody the curriculum and pedagogy within them, and at the same time, form a complementary pedagogy and curriculum.

The dissertation will systematically go through an architectural history. It is not to trace a history of causal relationships that fall define a teleology. Rather, it is to analyse several school projects, where architects deployed different means and aimed at different pedagogical, social, economic ends. In resolving these diagrams, the aim is to understand the formation of school types and the relationships between pedagogy and school building. In other words, it is to argue what the architectural agencies of pedagogy are, and how they contribute to the formation of social relationships including the ones of pedagogies and curricula.

Case studies are selected to present as much formal, organisational, and material systems that reflect in one way or another to certain pedagogies, and that can be grouped to compare. Most of the case studies are selected from archival findings. In this, the dissertation brings out primary resources on most of which which, a secondary source is not available. The case studies that are analysed more in detail can be grouped in two historical periods, early 20th century modernism, and architecture after the World War II. Therefore, they unfold into the ruptures in the history of architecture in both in building techniques and in social concerns. This diagrammatic resolution will go along not only with the reinterpretations of the aims and meanings of schooling but also with other material systems incorporated within the school design. While the former encompasses well-known tendencies of standardisation, rationalisation, nation-building, and hygiene, the latter encompass a heterogeneity of both tools, and discourses, hence different interpretations of scales and parts of school buildings. Such analysis, then, will aim at understanding the architectural agencies that construct the enclosures, divisions, connections, densities, and proximities, not only through the scale of the school, but also extending in the technologies, regulations, policies, economics, and the city. Therefore, in parallel, different actors in school design and the city become visible. States of different models, philanthropist organizations, corporations, industry, academia…. Indeed, primary case studies of the dissertation are philanthropy-funded school projects working together with the academia, industry, state, and community. Analysing each project within its own socio-political, economic, and pedagogical context, allow us to draw comparisons that renders the knowledge embedded in these projects and their relationships to different actors clearer.

The analysis of case studies combine into a set of elements and scales each instance of which, cannot be covered within this work. The design projects complete the matrices of elements and scales, demonstrating and testing what the written part argues. In this context, the first chapter analyses and discusses the ways in which, building techniques affiliate to pedagogies. What connects them to each other, and through what they are mediated within the school are the typologies. This resolution allows us to direct the high-performance enclosures from a technological-determinist discussion to what they enclose and how do they contribute to it. The second chapter, then, discusses the corridor and classroom configurations that are mainstream in school design within a historiography. A further analysis of the experimental school designs in the last century in relation to different pedagogies reveals that not only the classroom's size, program, and furniture, and the corridor, but also the borders that separate them can be the architectural agencies of pedagogies. Building techniques, typologies, and these configurations together render the economic, technical, and social forces on school design more legible. Following these, the dissertation proposes these agencies as a strategy to revise and rethink the school between the financial, technical, and social forces. It suggests a series of classroom designs, that reinterprets these agencies intending to provide different teaching methods to co-exist in a dynamic configuration, without losing the specificities of the teaching methods. The third chapter focuses on the school in the urban contexts, tracing the same forces behind school planning and the possibilities of the relationships that the schools can establish with the city. At the end of the chapter, the dissertation proposes urban school typologies, that aim to negotiate the economic, and physical forces with the specifities of the school design developed.