School-place as a collective urban entity.

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ABSTRACT. The paper explores the role of school buildings in the construction and meaning of the city built up fabric, from the birth of the modern system of education in western societies and the first wave of large public school building construction in the mid of 19th century up to now. The main research question is focused on how school buildings have contributed to the definition of strategic place-making in western cities and to the emergence of a collective urban entity. The theoretical premise is that “school place”, defined as the condition that gives meaning to the educational experience, is a function of the degree to which the school is embedded in its societal and urban context. The paper is organized in four interrelated parts that explore the urban potential of the modern school premises as a carrier of meaning and provide an overview of the subject from a chronological perspective. Some notable schools, built at different times, are described and discussed.

KEYWORDS: School-place, city-based institution: neighborhood-based institution

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**Introduction**

Many factors shaped the meaning and value of the ‘school’ as it refers to both a physical entity – a public institution – and to an intellectual construct, an ordering system, one of the principal means by which humankind re-orders and re-produces knowledge and social rules. In this sense the ‘school building’ is also an apparatus, a technical mechanism for education, instruction and formation (MARKUS, 1987). Moreover the ‘school’ is a particular architectural building type, designed to meet a specific functional program (PEVSNER, 1976; MONTANER, 2001).

The purpose of this paper is to explore the role of school buildings in the construction and meaning of the city built up fabric, from the birth of the modern system of education in western societies and the first wave of large public school building construction in the mid of 19th century up to the present.

The main research question is focused on how school buildings have contributed to the definition of strategic place-making in western cities and to the emergence of a collective urban entity.

The theoretical premise is that ‘school-place’, defined as the condition that gives meaning to the educational experience, is a function of the degree to which the school is embedded in its broad context. This includes special features of the school's physical environment related to the neighbourhood built up fabric and to the community and also special social, cultural and educational influences. Detailed consideration of school buildings of any period tends to reveal this underlying complexity (WOOLNER ET AL., 2005).

It is argued that while schools are important carriers of meanings and values, they help to create and reinforce individual and community identity, as they serve as centers of learning and they connect neighbors with one another. Whereas this function can to some degree be influenced by the design of the school building the more aspects of the societal and urban context into which a school is embedded are taken into account, the greater will be its potential to support a variety of school and community related activities.

Following Rossi (1966) theoretical approach, this points to a dialectic relationship between education, urban planning and architecture. Educational visions together with emerging concepts in urban space design and architectural design strategies, at the time school buildings were built, create a particular entity, which acts as a tool for shaping the school-place in response to how people use and perceived it.

The paper is organized in four interrelated parts that explore the urban potential of the modern school building and provide an overview of the subject from a chronological perspective. Some notable schools, built at different times, are described and discussed.

**1. The mid 19th century: the school as a self-contained entity**

From the mid 19th century, and continuing throughout the first decade of the 20th century, school buildings, in particular those for secondary education were used as tacit structural elements in the shape of new expansion areas developed according to ‘regularists’ guidelines (CHOAY, 1969: 15-26) to compose the design and promote the legibility of the main streets by establishing the sense of place.
Stylistically eclectic, they were designed to perform as highly visible local landmarks, both by their strong architectural projection and contribution they make to the streetscape. Owing to the assumption that the school was a self-contained entity, the connection between it and the outside world took the form of a semi-opaque envelope.

Such design strategy emblematizes the isolation, or at least the separation of the institution from the public realm. Architecture objectifies and gives form to the school, just as it separates and protects students and staff from the world outside. The external elevations are the mediator that simultaneously connects and isolates the school, controlling both inward and outward interaction.

The French model of urban lycées, created by Bonaparte exemplifies this strategy. An “apparatus, representativeness, ostentation and the prestige, shaping the image and aesthetic of cities” (LAMAS, 2000): a single multi-story building, with a compact configuration defining one or two enclosed courtyards, which occupies the entire urban block, showing a relative massive scale in comparison to surrounding buildings. Also, the school buildings built in England by E. R. Robson following eclectic English or Flemish Renaissance style such as Primrose Hill Infants School (1885) or the Kenmont Primary School (1883) adopt a similar strategy, imposing its presence by dominating their surroundings as landmark buildings.

At the end of the 19th century, the Social Hygienic Movement had a major influence in urban planning theories as well as in the school building planning, programming and designing processes. More emphasis was placed on comfort and health, and consequently in the selection of the school buildings location within the urban fabric (FRAGO, 1993-94:29). Health and hygiene demands required high and dry lands, well ventilated and good solar orientation conditions, avoiding dark humid and not ventilated places while civic criterion required the removal of school building locations from places such as cemeteries, hospitals, taverns, prisons, brothels or gambling houses.

The school design solutions evolve from the compact building configuration with enclosed courtyards to a multi-story wing-type plan, with double loaded corridors, defining one or more open courts, which can take the form of gardens or patios. Related facilities for physical education were developed and expanded on school grounds. More sophisticated mechanical systems for lighting, heating and
ventilation were applied. In site planning, school buildings extended partially into the perimeter of the block, and took advantage of the plot main frontage to reflect their civic character and foster their presence within the urban fabric.

2. The early 20th century: the school as a neighborhood-based entity

In the first decades of the 20th century, the process of democratization of education led modern theories of urban planning to recognize the school building as a place-based institution, a day-to-day facility in close relationship with the neighbourhood. From the Ebenezer Howard’s idea of “social cites” proposed in Garden Cities of Tomorrow to the principles consigned by Raymond Unwin in Town Planning in Practice (1909), as well as by Perry in the 20’s or in the German and Dutch experiences of the late 20’s and 30’s, school premises became a key element of the neighbourhood structure.

Neighbourhoods were supposed to encourage the formation of social grouping with their own local centre. Schools were placed in the centre of the neighbourhood physical fabric, influencing its aesthetic character or round the edges of residential groupings, at communication nodes, serving two or more neighbouring groups of homes in walking distance.

Between 1925 and 1930 Germany was the site of innovative and extensive public housing development programmes. The experiences developed in Berlin and Frankfurt-am-Main (Siedlungen) established new forms of housing aggregation supported on innovative urban design goals (facilitate a life in air, light and open space). These programmes were based on the urban control, the industrialization of construction, and the harmony between architecture, municipal management and urban policies. A gradual release of the traditional perimeter urban block gives rise to other plot arrangements (e.g. parallel building plots), allowing the opening of its interior to public use, in some cases occupied with public buildings including schools.

At same time, the school design brief was considerably influenced by new attitudes towards education, supported by the educational reform and the new education movements’ and their related multifaceted philosophies and pedagogical practices.
The notions of child-centred education, activity based education and life long learning became key concepts of the modern school program.

The preceding model of school buildings were criticized from several directions and in response, new building typologies emerged, reacting against the monumentality and formality of traditional schools, reinforcing the educational vision of the time and fostering the opening of the school premises to a variety of related learning opportunities. In accordance with the modern urban planning framework, school building design were focused into less formal plan organizations and massing arrangements, looking for a de-institutionalized character and a more humanized and child-friendly learning environment. For hygiene and health purposes, the interior space became more open and interconnected with the exterior providing natural light and fresh air.

In site planning, school functional areas were distributed among several blocks combined in one building, or featuring several pavilions (sometimes divided into sections for students of different age groups) arranged around the perimeter of a courtyard or in a line and joined by covered passageways but without facing the perimeter of the plot. Rather, a physically and visually permeable barrier defines the inward and outward interaction.

The Friedrich-Ebert-Schule in 1929 designed by Ernst May, and the Dammweg Schule (1927) designed by Bruno Taut, both illustrate these strategies reflecting the modern educational program.

![Fig. 3](image1)

In high density built areas, with strong limitations of free space the pavilion type was often replaced by multi-storey school buildings, such as the Heinrich-Kromer Schule (1928), in Frankfurt, designed by Franz Schuster, the Petersshule (1926) designed for the core of Basel, in Switzerland by Hannes Meyer and Hans Wittwer, or the Open-air School (1929/30) built within a residential courtyard in Amsterdam by Duiker.
3. The post war period: the urban sprawl

The period immediately following the Second World War was one of wide-weeping reforms and innovations in the social and economic fields with clear interferences on education and urban planning theories and practices, including a vast expansion of education at all levels and the establishment of effective public control over urban development (LLEWELDYN-DAVIES, 1972: 104).

The risen of school-age population and the demand for school facilities created intense competition for land and other resources, especially for other community needs, such as affordable housing, parks, and community centers.

The vast production of new schools at this time was accompanied by concerted efforts to reformulate design standards and guidelines for their planning, programming, and design. Early in the 1950’s, a joint commission of UNESCO and the International Union of Architects (UIA) published a set of principles to be adopted by school building planning and design in order to guaranteeing the right to education to the school age population. These conducted to the publication of both the School Urban Plan and the School Building Charter aiming at rationalizing school production and adjust the school building location and design to current needs and educational vision of the time.

According to Roth (1957:11) the right to education and its democratization in most of the European countries was the first condition for the school construction program became an integral part of urban planning decision-making.

At the same time, the school design brief contemplated an increase of specific learning spaces (e.g. gym, multipurpose room, laboratories), which were complemented with different exterior learning spaces, as well as shared multiuse public spaces for community use. The outdoors spatial requirements demanded a multi-criteria selection of the school building site and expressed the importance of the landscape treatment.
The attention given by Scharoun to the urban environment on the "Volksschule" school building design, presented at the Conference in Darmstadt in 1951, was repeated in the two school buildings of Lünen (1956-62) and Marl (1960-72). Different areas of the school were organized according to their relationship with the surrounding area: the amphitheatre and the public spaces were situated next to the main entrance, in contact with the urban area; the learning spaces of the higher degree education in visual contact with the park and lake. At the same time, Scharoun’s schools were designed like small cities, fragmented in its volumes with the intention of giving an identity for each of its constituent parts (BLUNDELL-JONES, 1995). The circulation and meeting space ("Pausenhalte") design principles were similar to a city street, with different spatial situations, with different perspectives and multiple pathway options. This idea was reinforced by elements that traditionally are part of public urban space: drinking fountains, benches, bulletin boards, storefronts, green areas and a small bar.

The Pimlico Comprehensive School (1964-70), designed by John Bandroft from the Department of Architecture of the Greater London Council, follows the same idea. The public hall occupied almost the entire first floor of the building, and was designed like an internal street that should symbolize the social center of the school. From this space the student was able to identify the school spatial organization and recognize the different existing pathways. Placed in the city centre of London, in a 19th century residential neighbourhood around Westminster, this school occupied the middle of rectangular platform that corresponded to an entire block three meters below to the level of the surrounding streets. This solution allowed the required removal from the urban streets surroundings and the use of the external spaces for physical education and sports. At the same time, school building image was reinforced by the buried solution taking advantage of its expressiveness and inclined glass surfaces.
The increasing demand for school places during the post-war period through to the 1980s implied a transition to singular design solutions for widespread implementation, which has strongly impacted on the appearance of schools as well as on the aesthetic character of the area where such schools are placed. Moreover, the rejection of urban planning models based on defined catchment areas, in favour of widely overlapping areas of service, from widely distributed nodal points, together with larger site area requirements led to build new schools in outlying areas that are disconnected from existing neighborhoods and seldom viewed as community assets. As Woolner (2010: 76) points out, these schools were "set apart in large areas of playing fields, made them very separate from nearby houses".

4. The recent period: the school as a shared public resource

From the early 1990s, school buildings become a focus within the agenda of urban and social revitalization policies. Additionally, the pressing demand for new school facilities, especially in the inner city areas or in densely populated areas, were land is expensive and in short supply of suitable sites to built a new school or to expand a exiting one, makes a school a desirable candidate for the redevelopment of an underutilized site.

This approach is consistent with a growing body of research showing that school buildings actively contribute to a redeveloped urban area having a measurable positive impact on the process of social and urban regeneration, as they can shape the appearance and atmosphere of the urban environment and provide an anchor for social revitalisation and economic development.

A growing awareness of the role of the school beyond their site boundary as a shared public resource and civic engagement fostered a comprehensive modernisation of school facilities worldwide (HEITOR, 2010). As advocated by Lichfield (2003) school rehabilitation also offers both direct and indirect benefits to the overall community and can have a significant impact on a local housing market, with healthy, stable neighborhoods supported by healthy schools.

Since then school facilities are being re-examined so as to maximize their public use. Of special interest are those schools that incorporate new and dynamic kinds of public spaces and support greater opportunities for community interaction, being transformed into vital, lively hubs for community activities, often referred to as the "schools-as-centers-of-the-community": inviting places with an attractive presence in the neighbourhood, where people of all ages can access education, community services, recreation and culture. The design includes universal health care and early childhood education, family-friendly workplaces, adults learning opportunities, and parent engagement in their children's education.

The introduction of expanded curriculum and educational programmes, which go beyond what a traditional school offers, are resulting in a growing need for flexible learning spaces and updated technology as well as informal learning and social areas.

These aspects have a significant impact on the school programming. The design brief often gives civic presence by placing the main action on the front side of the school building and along the main street frontage, with more freely expressive forms with unprecedented openness and transparency, where some distinctive feature faces the neighbourhood performing as a landmark. This helps to strength the image of education in the neighbourhood, although they sometimes hardly have a school-like character.
4. Conclusion
Throughout the period under consideration, ‘school-place’ evolved from a prominent-singular entity, a city landmark to a neutral-commonplace entity, which operates as a neighborhood-based institution. This shift occurred in the turn of the 20th century, when school buildings were placed in prominent places in residential neighbourhoods and is role was seen as an intellectual centre. The transformation of school buildings into architectural landmarks in the neighbourhood reveals a joint strategy towards a new significance of education, which combines modern educational, urban planning and architectural theories and practices. This trend acknowledges the important role of the school as a shared public resource and gives meaning to school-place.

The emphasis given to the opening of the school premises to community use has contributed to foster their perception as a community asset. This was translated into the school design brief through the incorporation of other spaces, rather than classrooms, that support greater opportunities for community interaction as well as through the openness and informality of its overall organization which make them more pleasantly and homely.

Bibliography


Notes

1. As Markus advocates buildings are classifying devices, instruments that societies use to 'define and reproduce social structures, and to elaborate the meaning of relationships' (Markus, 1987: 468)
2. The development of school buildings prior to the mid of the 19th century proceeded slowly. Schools were frequently housed in monastery buildings or were constructed according to traditional monastery floor plans.
3. Regarding the education environment the broad social objective of the Hygienic Movement was the promotion of the student’s well being, by the improvement of hygienic conditions and the promotion of physical activities, with beneficial effects to the development of their intellectual and physical faculties.
4. The rapid rate of urbanisation and massive industrialisation of this period increased the need for order, control and urban improvements in such areas as public health, water and sewer systems, new transportation systems and improved building conditions.
5. These movements criticized the traditional school system uniformity and the rejection of authoritarian and unresponsive teaching methods of the time. An alternative school organization based on the respect for individuality, autonomy, ability and interests of each child was proposed and different educational models and pedagogical practices emerged, based on active learning methodologies.
6. As Schneider (2004:146) refers “this school for a society of the future distinguishes itself not only by combining a socialist pedagogy and a functional architecture, but also would have been a spiritual centre of a housing block defining urban public space, an example of was advocated by the architects gathered in the international congresses of modern architecture”.
7. This period is marked by a shift in planning theory away from a localized design focus and project orientation toward a concern with large scale, multi-community and multi-faceted problems.
8. The School Urban Plan constituted a new key element in school building planning and design, with clear implications on the relationship with the city built up fabric. The key points addressed aspects like the required number of educational facilities and their dimensions; their distribution in the neighbourhood and in the city. The close relationship between schools that provide different education degrees; school paths that should not be crossed by intense car traffic routes; the location of the newest school in the same school route to more advanced levels.
9. The School Building Charter was published in 1959. It considers the principles of school distribution in the territory, the factors that should influence its location, the natural conditions and dimensional demands of the school site.
10. In "The school within the neighbourhood and town area" Roth presents an overview of the issues related to school siting (e.g. solar orientation, dominant winds, topographical conditions), concerns about sprawl, and coordination with urban planning decisions and land policies. Other fundamental aspects related to
the number of students and the area required for each type of school. The selection of school buildings presented by Roth illustrates the tendency in the post-war secondary schools to occupy sites of soft slopes in new residential areas, away from the older urban areas, with good accessibility and adequate solar orientation, and closer to large green areas. The schools produced within the English school building programme implemented in Hertfordshire in post-war period, followed these premises.

11. Besides sending the message that education is valued, a commitment to improving school facilities will help to make a more efficient allocation of resources in the educational sector, improve the quality and effectiveness of education, know-how, lifelong learning, social participation and well-being (Schneider, 2004).

Legends

Fig. 1 - Lycée Buffon (1885) by Émile Vaudremer built in the centre of Paris became a reference for the Lycées's Beaux-Arts programs.

Fig.2 - Valeriuusschool (1930), one of the schools designed by W. Dudok, in Hilversum. Dudok became the city architect for Hilversum, in 1927, where he design a large number of public buildings, among them some school buildings, and was responsible for the expansion of the town. More than its particular value, the urban integration of these buildings in the neighbourhood, contributed to the creation of an important urban culture and city identity.

Fig. 3 - Friedrich-Ebert-Schule, designed in 1929 by Ernst May. In connection with the design work of several housing estates in Frankfurt, the school used the pavilion type, answering both to new educational premises and hygienist demands, encouraging outdoor education, the relationship with nature, lighting, ventilation and sun (Schneider, 2004). In Berlin, the Dammweg Schule (1927), designed by Bruno Taut in collaboration with the reformist pedagogue Fritz Karsen, was conceived as a small town, and became known under the name of 'mammoth' school. The idea of this school was to condense a number of services, including a library, a museum and a gym, that could be used by the surrounding community.

Fig. 4 - Heinrich-Kromer Schule (1928) designed by F. Schuster. The design tried to apply the benefits of the pavilion type to buildings with more than one floor through the elimination of the circulation corridor, ensuring access to classrooms by the stairs placed between each two classrooms. Petersshule (1926) was designed for the core of Basel, in Switzerland by H. Meyer and H. Wittwer. The student's playground was placed in platforms at different levels, communicating with each other and with all floors of the school, through a system of external stairs, while a covered square for public use was created at the street level. Open-air School (1929/30) by Duiker. Built within a residential courtyard in Amsterdam it determined a new social impact and urban lifestyle through the openness of school spaces to the neighbourhood community.

Fig. 5 - Aboyne Lodge Infants School (1949-50) in St. Albans, by Donald Barron. The school building programme carried out in Hertfordshire was the first industrialized construction program in the post-war period, outside the field of housing. With the involvement of municipalities and central government, its accomplishment was established through a multidisciplinary working team with the purpose of developing an architectural solution to respond effectively to the required educational objectives. The solution was based on the development of an architectural 'language' creating a coherent and flexible construction system, new processes and methods of construction. Geschwister (1956-62), in Lünen designed by H. Scharoun. The design was based on the intention of stimulating the gradual integration of the child in the school community, emphasizing its skills and
individual characteristics. With this purpose Scharoun designed distinct learning clusters with different borders and identities, in order to create spatial characteristics associated with the concept of neighbourhood.

Biography

Teresa Heitor is full professor of architecture at IST. She has research expertise in the area of space-use analysis within the theoretical and analytical framework known as 'space syntax'. Her current research interests include the understanding of the structure of built space, shape and form and their functional, behavioral, cognitive and cultural implications. Prof. Heitor's first degree was in Architecture from the Escola Superior de Belas Artes, Lisbon, Portugal (after which she practiced as an architect for several years). Her Masters degree in Urban Design was completed in 1984 at the Joint Centre for Urban Design Oxford Brooks University, UK and her PhD, in 1997 at the Instituto Superior Tecnico, Lisbon, Portugal.

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