

## THE WHOLISTIC APPROACH TO THE STREET

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### Résumé

La présente étude examine les multiples dimensions de la rue. Elle met en exergue la complexité spatiale de la rue et la « responsabilité » de l'environnement bâti dans la qualité de mouvement, la sécurité et l'appréciation aussi bien du piéton que de l'automobiliste. Le problème grandissant de la circulation a fait que la rue devienne dans les années 70 un sujet d'une extrême importance. Dans les années 80, la rue est devenue un sujet d'intérêt général.

**Mots clés:** Les multiples dimensions de la rue ; circulation; urban design; interaction  
Homme environnement.

### Abstract

This study is devoted to the examination and the establishment of the street's multiple dimensions. It highlights the complexity of the design of the street space and the "responsibility" of the built environment in enhancing the quality of movement, safety and the enjoyment of the pedestrian as well as the motorist. The growing problem of traffic brought the street into focus in the 1970s and since 1980 is becoming a subject of widespread interest.

**Keywords:** Multiple dimension of the street; traffic; urban design; man-environment Inter-action.

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### ملخص

تعنى هذه الدراسة بالشارع و أبعاده المتعددة من جهة و تبرز صعوبة التصاميم للشوارع و دور البيئة العمرانية في تحسين الحركة و السلامة و الأمان و الشعور بالراحة لدى الراجلين و السائقين على حد سوى .تطور مشاكل حركة السير أعطى أهمية كبيرة للشارع في السبعينات ثم أصبح موضوع قائمنا ابتداء من الثمانينات .

**الكلمات المفتاحية:** الأبعاد المتعددة للشارع , حركة المرور , العمران , التفاعل بين الانسان و البيئة .

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The major aim of this study is to find out the interrelations between built and open space and what broader range of mixed uses should be considered in the design of streets, and to establish a wholistic perspective with which the design of streets should be examined by architects, planners and designers. In addition the research aims at constituting a body of knowledge based on the gathering, understanding and the processing of a complex set of theories, concepts and findings of previous investigations.

Man-Environment interaction and the urban design field are discussed in this paper since this discipline in Anglo-Saxon universities is as important as architecture and planning, and its major preoccupation is the living quality of outdoor space. The major themes in Urban environment - behaviour research are identified. Some design strategies which appear to be useful for the empirical analysis of the street use are reviewed.

The misconceptions of the street can be related to the onset of the industrial revolution. The concept of the "street" has been redefined by many planning professionals in such a way that its role has been reduced merely to conveying traffic. The streets three dimensionnal nature has often been overlooked. The problem of vehicular traffic has been aggrandized, and solutions have been provided at the expense of the pedestrian's needs.

Architecture did not play its role of taking into account the introduction of the car in our daily life at the scale of the dwellings. This overcharged the public space and conflicts became more and more accute between the major uses:

- Pedestrians
- Motorists
- Parking
- Loading
- Unloading
- Displaying
- Open public space for enjoyment

The street has undergone alterations by many professionals, both through architecture and through the technical management since the onset of the industrial era. The expansion of cities and the enormous growth in the number of motor-vehicles may be considered the main factors which have led planners and traffic engineers to design at scale where the street is treated as a channel for movement (mainly vehicular), and to facilitate access to residential areas, and little else. Accordingly, the street, this integral feature of urban space, has been deprived of its role as a structural element in the city, as a support of the transitionnal space between public and private realms and of the urban aesthetic, and as a place for social interactions.

Seperation between buildings and street system is the main characteristic of many built environments in the 20<sup>th</sup> century. This principal form was principally advocated by the modern movement in planning and design philosophy, in which the street was considered merely as a means of technical management. The new urban structure was based on goals, whilst positive in themselves, had negative results for the quality of the city as a whole.

Admittedly, the new structure was presented as an ideal reconciliation between town (density) and countryside ( ecological advantages of open green spaces ). However, the psycho-social dimension of the street as a place for social encounter and for leisure activities such as strolling was overlooked. Pedestrian freedom of mobility was progressively eroded by systems of vehicular transportation.

The growing problem of traffic brought the street into focus in the 1970's, in some european countries, within planning regulations, but the main issue considered was safety; there has been a cumulative increase in streets converted primarily by pedestrians. With the establishment of environmental concern in the 1980's, during which The creation of physical environment designed to meet wider human needs became a subject of widspread interest, there has been renewed interest in open urban spaces in general and most particularly in streets and squares.

The concept of the "street -as road" began to have currency in planning and social movements in the mid-nineteenth century, as the research for a solution to problems of disease, congestion and transportation became acute. Moreover the street appeared to be at the core of a conflict between life in the city ( supposedly with its dirty overcrowded streets ) and life in the country ( healthy conditions ). Its radical transformation ( if not its disappearance ) was considered a major objective in the transformation of cities to meet the requirements of an industrial economy, hygiene, and traffic as established in the following section.

A research into the technical history of urban space, undertaken by Guillerme, shows that between 1903 and 1914 the street reappeared as an important issue in Europe. For instance, in France, some road engineers looked for a degree of autonomy from the two powerful rivals: The Ministry of Public Works and the service of Bridges and Roadways ( Le Ministere des Travaux Publics et le Service des Ponts et Chaussées), and the Ministry of interior and its Roadway County Services ( le Ministere de l'Interieur et ses services visciueux departementaux).

The street was distinguished from road and track. The pavements approved by the state in 1843 are given pecukiar attention by the above services. Lastly, the development of modern architecture in the first thirty years of the twentieth century also had substantial influence on the quality of street-space.

By the mid-19<sup>th</sup> century, the industrial revolution in France was marked by a spectacular increase of population and of social disorder. Inflation, the problem of provisioning, the high cost of living, low salaries, insufficient health care, increase in land and property values, were but a few of the problems which created tensions in the city. Haussmann's strong influence on urban layout - *L'haussmannisation*- took place influenced by these phenomena, supported by a lack of financial and legal instruments.

The piercing of the wide street through build up neighbourhoods reduced the size of the block. Within it the plot lost its depth and was standardized ( 115, 300, 400 and 460 square meters) . The court yard, a private individual space, was “hollowed out” and became endowed with a “hybrid status”, belonging neither to the plot nor to the block.

In addition, these new developments were based on a segregation of functions: the system of linkage highlights an ideology which announces and originates at some levels the practice of zoning. ( Panerai, 1980; 17) . Later, the single-use characteristic of many towns has negatively influenced the quality of urban spaces because it reduced their degree of activity ( shopping streets became overcrowded during daytime and deserted in the evenings while housing areas were merely for situating houses or for parking cars, and nothing else.

The german admirers of the French School of planning in Paris , subordinated city building to traffic considerations, but still paid some respect to the creations of the past. Stubben evolved a hierarchy of street types, classified according to the importance of their arterial function: through-streets as opposed to local streets, diagonal streets that cut across existing networks, belt-roads that ringed a city nucleus, and single and double ring boulevards designed in place of ancient ramparts, and incorporating old and new features such as gates or sections of wall. ( Choay, 1969 )

In England, Paxton ( 1803-1865 ) designed what is considered by Creese ( 1966 ) and Choay ( 1969 ) as the prototype of the new city park, in which the circulatory system consisted of two completely independent networks: an irregular one of narrow pedestrian paths, and a roadway for carriages and horses that run all around the outer edge of the park dividing it across the middle. From that scheme it appears that Paxton adopted Haussmann’s principles only partially. The winding paths and the artificial mounds seem to be a rebellion against the straight line and the continuous plan. He presented a model in which dwelling and open spaces were interrelated for hygiene and leisure purposes. This led some historians, such as Creese and Choay, to consider him as the pioneer of the design of public urban spaces which integrated architecture, planning and landscape.

The Garden Cities movement was initiated as a response to the many problems of the metropolis of the 19<sup>th</sup> century, and was led by the synthesis of Ebenezer Howard’s ( 1850-1929 ) ideas concerning the improvement of the living conditions in cities. The schemes were conceived on two levels: urban reconstruction and the betterment of social conditions in order to achieve an integrated urban life.

The extensive use of the devices ( trees, edges, and grass verges ) to separate public and private life led to some dissatisfaction. The distinction between built space and open space is destroyed. The modern movement with the

“building in the park”, characterized by no differentiation between front and back, with no space for private activities overcharged the street and led to the conflicts cited earlier.

The environmental problem (congestion, pollution, noise) and the decline of city life caused by the traffic volume were formally realised for the first time in Buchanan’s “Traffic in Towns”, published in 1963. This report followed the rapid increase of car- ownership in Britain and the traffic problem it generated. It stressed a vigorous programme of urban roads and suggested a pattern of cities conceived as a patchwork of “environmental areas”, areas from which traffic (other than that which has business in the area) would be excluded. These “areas” are separated and connected by a network of “distributors roads” used for traffic and traffic only. It consisted of four main types of urban roads:

- \_Primary distributors.
- \_District distributors.
- \_Local distributors.
- \_Access roads.

The Report’s principles of segregating pedestrian and vehicular movements and the concentration on the transportation needs have been strongly criticised and considered as a key element which led to the impoverishment of the user’s experiences of outdoor spaces.

New forms of streets have emerged, including pedestrianised and traffic-managed streets. Safety of pedestrians may be cited as the main reason, with reasons such as conservation and protection of historic buildings. The main criticisms directed towards pedestrianisation are:

-Other shopping streets which are not pedestrianised suffer, and this might affect other shopping streets in the town.

\_Commercial rents rise dramatically.

\_There is increased traffic in surrounding residential areas both through traffic and parked cars.

## URBAN DESIGN STRATEGIES.

Urban Design, a multidisciplinary field of environment, behaviour and design, is based on an inquiry at the boundaries of architecture and planning (at larger scale than this of single building) , the notion of the three-dimensional nature of urban space constitute its base, dealing with man-environment interaction. The process involved in the transactions between people and their environment is considered central. In effect this field of researches attempts to understand people’s needs (freedom of choice, appropriation, feeling of safety) in order to establish design principles which would bring “a human” dimension to our urban public life.

The foundations of urban design can be traced to the early decades of the twentieth century when a number of researchers developed global exploratory analyses of the

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design problem posed by the quality of the public open space (e.g. Sitte, 1889. Unwin, 1919).

The concept of urban space embodies an intricate and complex set of ideas. However its consideration through two distinct areas –the perceptual and the physical- help in seizing its meanings. The physical refers to all types of spaces between buildings in towns and other localities, identified mainly as the street and the square (Krier, 1979). The perceptual refers to “the normal behavior patterns of our sensory receptors” (Huff, 1968). The key intervening variables in the interaction between man and the environment are perception and cognition. The notion of sense of place or *genius loci* (Norberg Shulz; 1980) refers to the symbolic qualities, meanings and intangibles associations such as regional and cultural content, and “spirit of place”. Regionalism is a movement against modern architecture and stresses on the necessity of giving a sense of “identity”, “belonging”, “continuity”, “evolution” and that to enhance the “spirit of place” within the building, the street-space, the whole city. Place theory culminated in the early 1960s through Kevin Lynch s *The image of the city*. Based on an analysis of urban spatial cognition allowing for the dominance of vision in spatial perception, the central concept was the” legibility” of the cityscape, the ease with which individuals can organise the various elements of urban form into coherent mental, visual and functional representations “Paths are channels along which people move and experience the city...” (Gold, 1980).

The sources of the following design strategies in urban design are persisting historical models, complete new and utopian formulations of the city, and of the ways in which it is experienced by people.

### FIGURE GROUND APPROACH

The figure-ground approach theory aims to develop an adequate spacial language with which a meaningful environment can be organised. This theory may be encountered under different appellations such as built/unbuilt theory or solids/voids theory but the common reference is the relation between buildings ( figure, built, solids ) and open spaces ( ground, unbuilt, voids ).

This framework is used to “clarify the structure of urban spaces in a city of district by establishing a hierarchy of spaces of different sizes that are individually enclosed but ordered directionally in relation to each other” ( Trancik, 1987 ). The search is for harmonious effects, “artistic merit” and relates to the component of perception. This evaluation of cities attempts to understand the principles of steady settlements which seem to have grown organically in comparison to the highly planned, geometrical town. This specific examination of a facet of the urban fabric in general and of the stree-space in particular is, first, to isolate some formal properties and second to evaluate their performances in creating or adding cohesion and signification to our everyday space. This

approach whose earlier versions are related to Gianbatista Nolli and Camillo Site, is based on the comparison between two concepts of the layout of the city and incorporates the component of the perception.

The traditional city offers a model where the building coverage is denser ( horizontally ) than the exterior space giving shape to the open public space, namely the square and the street. The pervasive model of independent blocks laid on a large open space presents another system where although there is high density ( vertically ) the built space relates vaguely to the open space. The enthusiasm expressed for celebrating the modern conception of space and the free-standing building by some researchers ( for instance Giedon, 1967 ) is considered by many others as the breakdown point between architecture and public space, the negation of urban architecture, traduced by the loss of the “street” ( Krier, 1979, Castex, 1977, Andersson, 1978 ).

The structure of spaces, the typical block structure, is made up of buildings that have a basically different conditions of front and back. The block offers a public external front while the interior may be broken up into rear lots, communal, semi-private, or private spaces.

The first stage towards the negation of the street space is related to the decline of the “block” ( *l'ilot* ) which characterizes the classical European city ( Castex, Depaule and Panerai, 1977 ).

### LINKAGE THEORY

This theory is based on an investigation into the comprehensive form of cities and its main concern is the structure of the overall plan ( maki, 1964 ). The aim is to build a coherent theory which goes beyond that of single buildings or the one of road hierarchy. This theory, while focussing on the articulation of exterior urban space, the site line, the organisational axis, makes direct reference to the street not only as a channel but as a three- dimensional space situated at the core of urban design: “Urban design is ever concerned with the question of making comprehensible links between discrete things . As a corollary, it is concerned with making an extremely large entity comprehensible by articulating its parts. Ultimately linking is assembling patterns of experience in cities” ( Maki, 1964 ). The traditional models which have survived the passage of time and those utopians models constitute the main sources and the background for this theory.

The principle involved in making the collective form is that the element in the meg-form does not exist without a skeleton. The skeleton guides growth and the element depends on it ( Maki , 1964 ). This new conception of three dimensional linkage “into the air” is considered notably unsuccessful to make meaningful complexes of form and activity and has been criticised by many scholars such as Banham ( 1976 ), Frampton ( 1980 ) and Rykwert ( 1988 ). The planning content has been regarded as the

expression of a lost of familiar public realm such as the street, the square and the *quartier* (neighbourhood).

## ADVANCES IN URBAN DESIGN

The social logic of space (1984) presents a theory and methods of analysis and responsive environments (1985) is a manual for urban designers and both are academically established. The former research is carried out by the SERC and a group of researchers (Hillier et al) of the unit of architectural studies at the Bartlett School in London. The latter is carried out by a team of researchers (Bentley et al) at the Joint Centre for Urban Design at Oxford Brookes University. "Social logic of space" is based on a comparative historical morphological analysis of the physical components of urban form, on the basis of empirical studies, not only studying the properties of plots, blocks and spaces, but also encompassing correlation between spacial and social interaction. Specific attention has been given to the concept "enclosure" Responsive environments is a definition of design principles and approaches for an analysis and An evaluation of the conditions within existing urban environments, starting from an additional premise in which the dynamics of architectural and spatial elements are studied. It stresses on the role of the urban designer to provide opportunities for discovery, appropriation and transformation. A research study using "space syntax" method involved the analysis and simulation of more than 1000 towns, urban areas and design proposals, and the systematic observation of 15 examples. It led to the conclusion that the spatial organisation of towns and urban areas affect patterns of movement and use according to three principles:

- a. intelligibility of space- that is, how easily inhabitants can distinguish between the larger pattern of space and the local parts;
- b. the continuity of occupation- that is, whether there are "pockets" of unused or underused space in an area;
- c. the predictability of space- how well the potential pattern of encounter is affected by spatial organisation.

Hillier assessed the prominent typology of spatial concepts, in housing, allegedly drawn from the urban past – enclosure, court, cluster- and which stemmed from a preoccupation with associating dwellings with identifiable and distinct spaces in the hope that the localised "enclosures" or clusters so created would form the basis of group identities and interactions. He compared a type of traditional urban pattern to a selection of recent housing schemes. He observed that the enclosure of these latter is open to objection.

The new plans are intelligible from the air, as plans. But if we try to move around them we quickly lose all sense of where we are. The similarity of the parts guarantee that on the ground they lack intelligibility.

Responsive environments is a manual which defines some key issues and provides the user of the built environment with an essentially democratic setting maximising the degree of choice available to them. The seven choices/ qualities defined are:

- (1) The degree of accessibility of a place for people is based on its permeability.
- (2) The choice of experiences is based on the variety (of uses).
- (3) The degree of people's choice for a place depends partly on how legible (how understandable, how much one can identify how to get where one wants to go) it is legibility.
- (4) Places which can be used for many purposes offer their users more than places whose design limits them to a single fixed use, the quality is robustness.
- (5) A place has visual appropriateness when its meanings help to make people aware of the choices offered by the qualities already cited.
- (6) The choice of sense-experiences depends on the most detailed level of design and this calls for richness.
- (7) People are given choices to personalise their places, personalisation.

The overriding importance of Urban Design lies in the search of confronting architectural theory, planning decisions, environmental psychology and problem-solving techniques in the design process of street environments in order to achieve superimposed functional and human patterns.

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## CONCLUSION

From this study emerges significant conclusions which firstly question the universalisation of the concept of the street as a channel for traffic. Secondly it highlights the misconceptions which prevailed in the consideration of the public/private interface and points out the overlooked street's interface as an open/built space. The segregation between pedestrian and motorists is not the solution since the car is strongly embedded in our daily life. However it attests to the preoccupation with the quality of this intrinsic part of the urban fabric. In addition the emergence of environment, behavior and design studies constitute advances in which the street-space is the core. Finally it is time where we must have a wholistic approach when dealing with this major urban element.

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