Architecture and Urban Design

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1. Introduction

Buildings are essential to cities. They define cities in that they define space. Historically, large parts of the built environment have been and continue to be created without the help of "formal" professionals as expressions of "architecture without architects" (Rudofsky 1964). As cultures developed in different geographical contexts and humans began to formalize knowledge through oral histories and inter-generational tradition of knowledge and practices, architecture became formalized. It became a craft, with the title "architect" being given only to those most versed. Without the craft of the architect, cities would not exist in their current form.

This chapter attempts to identify what "urban" means for architecture and urban design. The following section presents a brief overview of the changing architectural profession and its product and how they relate to the city in recent history. Section 3 introduces the tangled relationship between research and design in architecture. Section 4 explores in detail some of the prevailing current research strategies, followed by Section 5, which gives a brief outline of transdisciplinary practices in architecture. Section 6, finally, traces some of the key ideas of the city—and the "urban"—in architectural research and practice, and the concluding Section 7 provides a working definition of the "urban" in architecture and urban design.

2. Architecture and the City in Recent History

_The Metropolis annuls the previous history of architecture._ (Koolhaas 2006, 322)

Buildings are made up of multiple building blocks (rooms, halls, and so on) in the same way that cities are made up of various components, such as squares, roads, gardens, or paths.
Buildings, as objects, are usually designed and built in a very short period of time. They transform only minimally to adapt to changing needs. Cities, on the other hand, are subject of continuous transformation as new components appear, disappear, and reconfigure space over time. The type and characteristics of cities are further subject to changes in the social and economic organization of a society. For example, Johnson-Marshall (1966) offers an elaborated study of changes over time in three different building types (components): shops, offices, and residential buildings.

Industrialization was a major driver of urban transformation—that is, the qualitative change and enlargement of cities around the globe (see chapters 2-5). Beginning in the mid-eighteenth century, smaller towns and mercantile centers saw enormous expansion, triggered by new means of transportation and communication, such as ship canals and railways. In old city centers, huge factories and warehouses replaced old merchant housing and reduced the de facto available open space, leading to an overall environmental deterioration. Those who could afford it moved out to leafier areas along railway lines. The masses were cooped into factory towns divorced from any appreciation of basic human needs (see Chapter 2). Sub-standard terraced housing filled in the gaps between workshops and factories. Industrial plants and mass housing were now considered “urban” elements.

[insert Figure 10.1 here – landscape]

*Figure 10.1* BASF factory in Ludwigshafen (Germany) in 1881, painted by Robert Friedrich Stieler.

*Source:* BASF Corporate History.

Overcrowding, the lack of sanitation and adequate provision of water, air, and light triggered the emergence of whole new systems of public responsibility and social enterprise
Minimum standards were slowly introduced to ensure adequate provision of space and a variety of services in low-cost housing. Yet such standards neglected “all those things from which no economic profit can normally be derived” (Johnson-Marshall 1966, 17). While architecture as a craft was highly respected since antiquity, formal architectural training began with the birth of the Industrial Revolution.

Interestingly, at around the same time the École des Beaux Arts in Paris triggered a shift in the perception of architecture as equal to art (rather than science or craft). Architects increasingly adopted the role of the “romantic artist,” that is, “individualistic, nonconformist and heroic,” emphasizing “emotional experience over objective reason as well as inspiration over common sense” (Lawrence 1993, 305). The production of beautiful drawings, rather than the context and feasibility of a project, was emphasized.

Although architects and urban designers are often associated with the development of “visions” for built spaces, it is impossible to consider their activity a purely artistic exercise. Buildings are shelters that can act as a filter between the private and the public; they can be symbolic, and they can carry economic and environmental implications (Lawrence 1993).

Satisfying human needs for shelter, security, and functions depends on the availability of means, such as building materials or local building skills. It has been argued, therefore, that the challenge of limited resources and unlimited wants lies at the core of architecture and urban design (for example, Lawrence 1993, Iossifova 2013). This may sound strangely familiar in that it mirrors Robbins’s (1932) definition of the science of economics (Chapter 6).

Today, architects and urban designers—their respective spaces of activity and influence frequently overlapping and converging (for example, Nadler 1980)—address this challenge in identifying the parameters for specific design briefs and designing for the client’s intention and goals. They seek to balance costs and benefits across diverse proposals and their plans for implementation (Lawrence 1993). Their job description includes preparing appraisals for the
financial viability of projects; making plans to maximize the potential of investments; understanding current patterns of consumption; and ensuring regulatory and planning compliance (Dye 2015, 118).

When shaping urban space, architects and urban designers deal with its “social content” (Madanipour 1997, 370). Modernists (see Section 6.2) even assumed that their spatial designs could change society (known as environmental determinism). Of course, in the meantime this understanding has been rejected and replaced by a more nuanced approach, seeing the relationship between people and their environment as one of mutual exchange (Saegert and Winkel 1990, see Chapter 8). Urban design is now understood as “the socio-spatial management of the urban environment using both visual and verbal means of communication and engaging in a variety of scales of urban socio-spatial phenomena” (Madanipour 1997, 372).

3. Conceptualizing Architectural Research

3.1. Design = Research?

[I]f you want to understand what a science is, you should look in the first instance not at its theories or its findings, and certainly not at what its apologists say about it; you should look at what the practitioners of it do (Geertz 1973, 5).

Patrick Geddes (1915) laid out ideas of design as research in proposing that architects, urban designers, and planners should base their proposals on an in-depth understanding of the historical, physical, social, and cultural context of a project. Such an understanding was only to be achieved through thorough survey and analysis preceding any design or planning activity. In practice, however, “the lack of analytical techniques and models for ordering information coming from surveys, and for making predictions” as well as “the lack of time for survey and analysis” and “the size of the solution space that would have been opened up if planners had tried to work by the book” all lead to a reversal of the logical progression from survey to
analysis to plan and design (Gill 1980, 141). This kind of practice—allowing architects “to make a mess of things”—is seen as the result of a “search for simplicity …, [viewing a project as] an artistic challenge of visual design, when it is really a problem of organized complexity obeying its own rules of evolutionary intelligence” (Mehaffy and Salingaros 2012).

Regardless of this harsh critique, there continues to be a strong relationship between research and practice in architecture. Most architects in practice will have to perform at least a certain level of research activity in order to achieve design aims. In practice, the city is often interpreted as “a projection of the possibilities of architecture, with this interrelationship defining collective ideas of the city that can be discovered, analysed and proposed” (Projective Cities 2010-2016). “Architects project new realities onto existing contexts, and thereby change those existing contexts hopefully to the better” (Groat and Wang 2013, 374). Design is considered “generative” in that it provides a description of what a (physical) object should be (Cross 2011).

According to Groat and Wang (2013), the contribution of design is the proposal of an artifact, whilst that of research is knowledge and generalizable application. The dominant processes in design are generative, whilst those in research are analytical and systematic (ibid). The temporal focus of design is the future, whilst that of research is the past and/or present (ibid). Thus, design operates along the lines of a systematic process, whilst research follows a “scientific” method. However, both follow the logics of abductive, inductive, or deductive reasoning. The scope of design can be macro, micro, and mid-level, whilst research develops big, medium, and small theory. Finally, design considers the social context in situated practice, whilst research does so as situated research.

3.2. Research Strategies in Architecture

Architectural research is sometimes seen as “research into performance in use informing the processes of design. Research into the products of design looking backwards to knowledge
about the processes of design. Research into the performance of buildings being critically informed by knowledge of the processes of architecture” (Till 2004, 5).

Different observers conceptualize the range of architectural research differently. For instance, Joroff and Morse (1983) distinguish various systems of inquiry in architecture, ranging from relatively subjective to relatively objective. These range from observation, design, review of precedents, manifesto, normative theory, development of prototypes, scholarship, social science research, to laboratory research.

Others distinguish between “science” and “myth” (Robinson 1990); or, more conventionally, quantitative and qualitative research (for example, Creswell 2002). Although architectural research was instrumental to the development of structural forms and building materials throughout the history of architecture, areas such as sociobehavioural issues, design methods, or energy conversation are relatively recent additions to the field (Groat and Wang 2013).

Groat and Wang (2013, 76-79) propose a continuum of research paradigms in architecture, encompassing positivism and postpositivism, the intersubjective perspective, and constructivism. In the context of architectural research, these overlap roughly with technical domains (energy consumption, building materials), inquiries into the “values and intentionality of people’s actions and interpretations of meaning at all scales of environments” (Groat and Wang 2013, 78), and research which seeks to co-create a shared understanding of a context or situation between the researcher and research participants.

There are several different research strategies in architectural research, including historical, qualitative, correlational, experimental and quasi-experimental, and simulation research, as well as logical argumentation and case study and combined strategies (Groat and Wang 2013). Section 4 outlines a few of those most common, and most relevant, to research on the city.
4. Research Strategies in Architecture

4.1. Qualitative Research

A qualitative research strategy is marked by the aim to include a multitude of perspectives when assembling theories based in complex realities. Collecting necessary data (and knowledge) typically requires prolonged periods of fieldwork as well as acknowledging that “all phases of the [research] process may change or shift” (Creswell 2007, 39) during fieldwork. Common approaches in qualitative architectural research include phenomenology, ethnography, grounded theory, and integrative approaches.

Phenomenology seeks to identify the essential meaning of experience, encompassing “the combination of the outward appearance [of and object] … and [inward] consciousness based on memory, image, and meaning” (Moustakas 1994, 55). Influential texts, read at every school of architecture, include Bachelard (1964), Relph (1976), and Norberg-Schulz (1980). On its own, the phenomenological approach can be criticized for foregrounding researcher subjectivity. When supplementing other qualitative or quantitative approaches, however, it can be very helpful in bridging science and art as part of the architectural research and design process (see Finlay 2012).

Ethnography relies heavily on the researcher’s observation of the research context, including tactics such as observing, note taking, and other methods of recording. Cranz (2016) provides a comprehensive introduction to ethnography for architects and designers, explaining ethnographic methods in detail and how findings can be translated and applied in the design process. Examples of ethnography of professional architectural practice include Cuff (1992) and Yaneva (2009).

Grounded theory differs from other qualitative methods in that it adopts a vigorous analytical process in order to arrive at an explanatory theory—going well beyond mere description (Glaser and Strauss 1967). Typically, grounded theory involves an iterative process
of simultaneous data collection, data analysis (coding), and theory building (memoing), with the researcher going back and forth between these components of the research in order to arrive at an explanatory framework (Glaser 1978, Strauss and Corbin 1990, Glaser 2002, Charmaz 2006). Of particular interest with regards to the application of grounded theory to architectural and urban contexts and design questions is the emerging field of visual grounded theory (Konecki 2011). This includes the use of visual data as auxiliary, primary, or exclusive sources of empirical material (for example, Schubert 2002, Iossifova 2015a, b).

[insert Figure 10.2 here – landscape]

Figure 10.2 The Grounded Theory approach in architectural and urban research.

Source: Deljana Iossifova.

Groat and Wang (2013, 257) summarize the strengths of the qualitative research strategy as the “[c]apacity to take in rich and holistic qualities of real-life circumstances,” “[f]lexibility in design and procedures allowing adjustments in process,” and “[s]ensitivity to meanings and processes of artifacts and people’s activities.” They juxtapose this to the strategy’s weaknesses, namely the “[c]hallenge of dealing with vast quantities of data,” “[f]ew guidelines or step-by-step procedures established,” and the “suspect” credibility of the strategy if examined from a postpositivist perspective (ibid).

4.2. Correlational Research

A correlational research strategy is marked by the aim to “clarify patterns of [socio-physical] relationships between two or more variables” using statistical measures (Groat and Wang 2013, 269). This includes relationship studies that seek to identify the type and predictive power of relationships and causal comparative studies that seek to identify relevant
causes for differences in comparable groups of people or physical environments. Typical methods for data collection include surveys, observations, mapping, sorting, and archival research. Well-known examples are Lynch’s (1960) application of mapping techniques in *The Image of the City* and Whyte’s (1980) observation and analysis of the use of public plazas in *The Social Life of Small Urban Spaces*.

In architectural research, a common correlational research approach is typological analysis. Such studies consider a combination of factors (such as plan, dimension, and use characteristics) in order to classify apartment layouts, buildings, streets, blocks, and so on. The aim is to derive types; that is, to arrive at conclusions about “broad categories of spatial relationships and formal attributes from the scale of building interiors to neighborhoods” (Groat and Wang 2013, 300).

The strengths of correlational research include the ability to “clarify the relationships among two or more naturally occurring variables,” its suitability to study “the breadth of a setting or a phenomenon,” and its capacity to “establish predictive relationships;” weaknesses include the researcher’s lack of control over “levels or degrees of variables,” limitations with regards to the depth of studying a setting or phenomenon, and the inability to establish causality (Groat and Wang 2013, 309).

4.3. **Experimental and Quasi-Experimental Research**

An *experimental research strategy* is marked by the focus on causality and “the use of … [an] independent variable; the measurement of outcome, or dependent, variables; a clear unit of assignment (to the treatment); [and] the use of a comparison (or control) group” (Groat and Wang 2013, 316). The strategy can be applied to the study of environmental technology as well as the sociocultural aspects of architecture and urbanism. The difference is that the first can easily be implemented within a laboratory setting, whilst the second usually requires investigation in the field. Where it is difficult to implement random assignment because of
practical or ethical reasons (which is frequently the case in field research), we speak of *quasi-experimental* research.

A few examples of experimental and quasi-experimental research design in architectural research include Lawson’s (1979) famous study on the acquisition of design skills by architecture students; Weisman’s (1981) study of the “legibility” of university buildings; Moore’s (1986) study of spatial characteristics on children’s social and cognitive behavior; Caplan, Kennedy, and Petrossian’s (2011) study of the impact of CCTV cameras on crime in New York; and Evans and Karvonen’s (2014) recent attempt to conceptualize the city as a laboratory.

The strengths of experimental and quasi-experimental research include the “[p]otential for establishing causality,” the “[p]otential for generalizing results to other settings and phenomena,” and the “[a]bility to control all aspects of experimental design,” thus arguably enabling the attribution of causality; weaknesses include the “[r]eduction of complex reality to identify ‘causal’” variables, the “[m]isuse by overgeneralization to different ethnic [and] gender populations,” and the “[o]veremphasis on control [which] yields ethical problems [and] dehumanization” (Groat and Wang 2013, 345).

4.4. *Simulation Research*

The final strategy discussed in this chapter is increasingly ubiquitous in architectural and urban research. *Simulation research* is appealing on its own or in combined strategies in that it enables researchers (and designers) to “preview” identified future scenarios without the potential negative impacts associated with them. Simulation research seeks to “illuminate how a symphony … of inputs all contribute to the holistic reality. When the behavior of that holism is simulated, we can then observe what significant variables are in play, and postulate further steps” (Groat and Wang 2013, 360-361).
In this context, it is important to differentiate between representation and simulation. Groat and Wang (2013, 356-357) define representation as “a fixed image that stands for a real object because the image has measurable qualities that describe and depict the real thing”—for instance, architectural drawings, photographs, and 3D architectural models. Simulation differs in that it “allows for dynamic interactions yielding measurable data” (Groat and Wang 2013, 357; see also Clipson 1993). It should be noted that although data collection in the realm of simulation research is frequently associated with big data collected using “smart” meters and other digital tools, much simulation research goes hand-in-hand with more traditional and often qualitative approaches to data collection and analysis (Luna-Reyes and Andersen 2003). Furthermore, the quality of simulation research depends heavily on the limitations of available data as they are often incomplete, not “spontaneous” (in that human free agency is difficult to simulate), and subject to interpretation (Groat and Wang 2013).

Finally, although computational tools have been in place to facilitate the simulation of building behavior (for instance, thermal behavior in relation to solar position, path, and radiation), endeavors to model complex realities on a larger scale are still in their infancy (Batty 2009, see Chapter 21). The development of “smart” city-scale models—which come closer to simulating real-time behaviors—is underway (for example, Aish, Davis, and Tsigkari 2013; see Figure 10.3), but not yet fully established. Instead, urban planners and architects continue to use increasingly sophisticated software to manage complex databases as the basis for advanced representation. One of many examples of such software is ESRI’s CityEngine, which lets users transform 2D geographic information systems (GIS) data into 3D models; test multiple project scenarios within their urban context; analyze the physical qualities of projects (for example, in terms of views, shadowing, and heat reflection); and share developed 3D models online for feedback from user groups and communities (ESRI).
Figure 10.3 Computational multitype CA model for the city of Manchester linking land use with embodied and operational energy along with construction volume requirements.

Source: Samuel Bland, Manchester School of Architecture (Complexity Planning and Urbanism).

5. Transdisciplinary Practices

It is important and urgently necessary to introduce architects early to a large variety of tools for scientific inquiry and to equip them with the necessary skillsets to achieve appropriate and transformative urban interventions (Iossifova 2015c). Architects and urban designers are faced with such a wide range of sociospatial problems that their engagement with knowledge and practice in other academic disciplines or professional fields is not only possible but indispensable. Examples include efforts toward climate change mitigation and adaptation in architectural and urban design (for instance, Mostafavi and Doherty 2010, Bauman 2015); the design of age-friendly buildings and cities (Buffel, Phillipson, and Scharf 2012, Lewis 2015); or recent attempts to develop “spatial agency” as an expansive field of potential (co-)operation for architects and non-architects (Awan, Schneider, and Till 2011).

Emerging from the latter is socially motivated architectural practice, which shall be discussed here in more detail as an example. Such practice aims to transform buildings and spaces to achieve equality, sustainability, and social justice (Udall 2015). It builds on close collaboration with economists, artists, town planners, geographers, and other professionals in order to understand the context of a project and identify the optimal point of potential (spatial or non-spatial) intervention (see Figure 10.4). The close collaboration with academics and
professionals in other fields benefits transdisciplinary knowledge production. It can have more practical implications for architects in that it helps to unlock alternative funding sources, thus reducing their reliance on the traditional client-developer-architect relationship (Udall 2015, 44).

[insert Figure 10.4 here – landscape]

Figure 10.4 Building a local platform for exchange: the architectural team 00:/alma-nac seek to reveal, connect, and strengthen local skills and resources as a strategy for fostering greater resourcefulness and resilience in Bromley-by-Bow, a deprived ward in London. They do so through local skill exchange events, here Bow D.I.Y.

Source: SCIBE/Deljana Iossifova.

Methodological approaches in socially motivated architectural practice draw on management, education, and community development (see Chapter 14). They are influenced and guided by Marxist thought and, more specifically, Lefebvre’s work on “the right to the city” (2003) and the “social production of space” (1991, see chapters 2 and 3).

According to Udall (2015, 45-48), socially motivated architectural research (a) considers the ethical framework of research; (b) develops an in-depth understanding and representation of the context, within which a project takes place; (c) builds and expands on the work of and relationships with others; (d) seeks to develop skills with the aim to “empower” communities to enact change and sustainability; and (e) aspires to the principles of co-design, recognizing that design is an iterative process in which users and stakeholders should and can be involved throughout all stages of the project. Methods are closely related to (or mirror) anthropological research, in particular those used in visual ethnography, such as transect walks, participant observation, participation in community events, and so on (see, for example, Pink 2009).
6. Key Ideas of the City in Architectural Research and Practice

6.1. The Industrial City

Before attempting to define the urban in architecture, it is important to first highlight some of the field’s most enduring visions of the “ideal” city. A key starting point is the beginning of the twentieth century, when French architect Tony Garnier developed a pioneering proposal for an industrial city. It was set on a regular orthogonal grid and incorporated the principles of functional division (work, social life, and living areas) as well as strict separation of motorized and pedestrian traffic (Giedion 1967, Evers and Thoenes 2006). Garnier’s proposal was groundbreaking, serving as a model for later developments (such as the newer suburbs of Amsterdam) and proving inspirational for the work of Modernist architect Le Corbusier.

6.2. After the Industrial City

Following the success of his Towards a New Architecture (1931, originally 1923), in 1925 Le Corbusier published The City of Tomorrow (1980) to introduce his ideas of rational planning and the city as a tool. He proposes order and straight lines; “skyscrapers arranged around a central hub … within a large green area, which is divided by a system of hierarchically arranged streets to form a cityscape. The various urban functions like traffic, work, residences, and recreation are clearly defined and relegated to different spaces” (Evers and Thoenes 2006, 468). Distinguishing between life in the city and life elsewhere, Le Corbusier had also developed proposals for a Ferme Radieuse (Radiant Farm) and Village Radieuse (Radiant Village). Some two decades later, in 1943, Le Corbusier’s (1973) The Athens Charter set out the architects’ duty to differentiate and separate different functions and distribute different elements in proportions designed to bring to perfection new and improve existing cities (Evers and Thoenes 2006).
American architect Frank Lloyd Wright (1932a) proposed an entirely anti-urbanist (that is, anti-density) vision of the future. His Broadacre City had individual homes sitting on one acre of land, their owners entirely dependent on their automobiles or helicopters to reach the civic institutions that were dispersed across town.

_Imagine spacious landscaped highways ... joined at intervals with fields from which the safe, noiseless transport planes take off and land. Giant roads ... pass public service stations, [separating and uniting] the series of diversified units ... so arranged and so integrated that each citizen of the future will have all forms of production, distribution, self improvement, enjoyment, within a radius of a hundred and fifty miles of his home ..._ (Wright 1932b, 44).

Wright’s “anarchist” and “anti-capitalist” vision (Gill 1980, 144) was interpreted and criticized as the preview of decentralization and urban sprawl (see Fishman 1990). First coined in the 1930s, the term “sprawl” became synonymous with the “American way of life” and lower population densities outside of city boundaries, higher levels of housing and land consumption, car dependency and the ills of congestion and pollution, unequal provision of public services and goods, and, ultimately, residential segregation (Nechyba and Walsh 2004, 178).

It is worth mentioning the group of young Japanese architects who introduced the Metabolist movement at the 1960 World Design Conference in Tokyo (see Koolhaas and Obrist 2011 for a detailed introduction). Metabolists expanded on Modernist ideas, but transcended its “Eurocentrism” and focus on “the machine” to introduce ideas of growth, change, and evolution (Kurokawa 2006). In particular, Metabolism worked with the typically Japanese cultural understanding that the architecture of the city is to be regarded as a “renewable variation of a prototype [rather than] lasting monument” (Evers and Thoenes 2006, 522). Metabolist proposals were less rigid than their European and US counterparts in that they allowed for mutation and organic growth. They often adopted mega-structures to which
individual components could easily be attached and frequently replaced to suit the autonomous and itinerant nature of their prospective dwellers (Sand 2013).

[insert Figure 10.5 here – landscape]

Figure 10.5 Aerial View of Brasilia's Cathedral and Ministry Esplanade in Brazil.

Source: iStock.com/VelhoJunior.

The success and implementation of Modernist planning ideas around the globe in the mid-twentieth century brought into being a number of planned cities (for instance, Le Corbusier’s Chandigarh, Lucio Costa and Oskar Niemeyer’s Brasilia (see Figure 10.5), or, later, Constantinos Doxiadis’s Islamabad) and urban redevelopment projects. In the majority, these were considered a failure on the grounds of the very “break with tradition, the separation of functions, and the dictate of functional logic” (Evers and Thoenes 2006, 468). It was precisely the overly functionalist logic underpinning the projects of this time that triggered the conception of some of the most influential theoretical texts in architecture and urban design (Section 6.3).

6.3. After the Modernist City

Jane Jacobs (1961) continues to be of enormous influence with her almost undisputed proposition that four conditions are indispensable in order to generate a “great” urban environment: (a) districts should serve more than one primary function; (b) blocks should be short; (c) they should contain buildings of different age and condition; and, (d) there should be sufficiently dense concentrations of people (see chapters 2, 4, 7, 8, and 12). Although largely based on personal observations and anecdotal evidence, Jacobs’s arguments have been
appropriated and repeated frequently in various guise (for example, Gehl 2010, 2013, Moreno and Grinda 2013).

Kevin Lynch (1960) proposed that citizens hold a public image of their city, and that city images can be categorized into five types of elements: paths, edges, districts, nodes, and landmarks. These elements allegedly form the building blocks for architects and urban designers. Although still taught as a core text in architecture, urban design and planning schools around the world, Lynch’s theory has not been tested sufficiently to assert that this is necessarily true (Marshall 2012, 260). For example, the “five elements” arose from his own conscious categorization and it remains uncertain whether there is one public image or several. At a minimum, to afford to different socio-geographical contexts and emerging city forms, the prescribed “five elements” should therefore be subject to modification (for example, Cairns 2006).

Alexander (1965a, 1965b) argued that cities, and hence the “urban,” may be considered intrinsically unpredictable and therefore unplannable. He showed the structural distinction in the urban fabric of “natural” (traditional) and “artificial” (planned) cities. Planned cities, according to him, fail to reproduce the qualities of traditional cities precisely because of their dysfunctional (eponymous tree) structure, which is the result of planners’ and designers’ failure to conceive autonomously of urban complexity (Marshall 2012, 262). Later on, in *Pattern Language*, Alexander and colleagues (1977) famously argued that everyone should be involved in the construction of every aspect of a community. They proposed that every act of construction should be consistent with the principles of organic units, participation, growth by parts, patterns, diagnosis, and coordination. Based on this premise, they describe 253 “patterns” as solutions to typical problems at different spatial scales. Street cafes, for instance, are proposed as indispensable for the life experience in cities (see Leitner 2015).
Cullen’s (1971) *The Concise Townscape* can be regarded as a philosophical approach to urban design. The stated aims of urban design (and architecture) here include the reinforcement of the *genius loci* (Norberg-Schulz 1980). The physical environment is assessed in visual terms and the individual’s experience of the environment is at the core of any design activity. The anticipated emotional effects that physical elements (and how they are assembled to form a *townscape*) create in the observer serve as a guide for the actions of architects and urban designers. Adding to existing townscapes or generating new ones would require, according to Cullen (1971), a certain degree of careful planning. This is supported by the application of “serial vision,” that is, the analysis of the perception of the built environment as the observer moves through it. Cullen set up a canon of specific human and physical criteria that ought to be satisfied in order to achieve a “good” urban environment. Problematic with this approach, as with some of the works mentioned earlier, is the lack of a defined methodology. Regardless, in some disciplines such as environmental psychology (see Chapter 8), the works of Lynch and Cullen have spearheaded the advancement of more scientific research. For a contemporary interpretation of Cullen’s work, see Engler (2015).

In the 1970s, Leon Krier’s critique of architectural modernism became influential and can be seen as the start of the New Urbanism movement (see Chapter 11). Architects and urban designers became increasingly consumed with the idea of “community” and the physical characteristics of the “traditional” European city model associated with a “civilizing” order (Krier 2009). Poundbury in Dorset, England, a small “urban village” that has been in construction since the early 1990s, serves as an example of the implementation of Krier’s ideas. Following typical New Urbanist principles on “hierarchy, scale, harmony, enclosure, materials, decoration, art, signs and lights” (HRH The Prince of Wales 1989, 15), the project is marked by the “transcendence of traditional Dorset patterns of spaces and buildings, and of
architectural style,” resulting in a neo-traditionalist settlement that has been accused of being “pastiche” and comparable to a “toytown” or “theme park” (Thompson-Fawcett 1998, 183).

Figure 10.6  A view of Poundbury Ringhill Street.

Source: iStock.com/RoJohn

The pervasive “antimodernism” of the time is shaken up by the publication of two highly influential texts by Dutch architect Rem Koolhaas: his “retroactive manifesto for Manhattan,” Delirious New York (1994, originally 1978) and the shorter essay “Life in the Metropolis” or the “Culture of Congestion” (2006, originally 1977). Koolhaas (2006) offers a sober analysis of the “urban” and how it distinguishes itself, in its extreme, from the “rural.” He defines the urban as “the mutant form of human coexistence” marked by “an architecture with its own theorems, laws, methods, breakthroughs and achievements that has remained largely outside the field of vision of official architecture and criticism, both unable to admit a fundamental rupture that would make their own existence precarious” (Koolhaas 2006, 322). The Metropolis, synonymous with the “urban,” is interpreted as “the apotheosis of the ideal of density per se, both of population and of infrastructures; its architecture promotes a state of congestion on all possible levels, and exploits this congestion to inspire and support particular forms of social intercourse that together form a unique culture of congestion” (Koolhaas 2006, 322).

Echoing Metabolist ideas, Koolhaas (2006, 328) observes that the changing social, cultural, or economic needs of “volatile metropolitan citizens” are successfully met by “continuously rearranging functions on the individual platforms [of skyscrapers, characteristic for the Metropolis] in an incessant process of adaptation that does not affect the framework of the building itself.” The urban, here, is democratization through technology, the “superior
substitute for the ‘natural’ reality that is being depleted by the sheer density of human consumers … [it is] the result of human fantasy” (Koolhaas 2006, 324). It is “an unstable and unforeseeable combination of superimposed and simultaneous activities whose configuration is fundamentally beyond the control of architect and planner” (Koolhaas 2006, 328). Hence, in stark contrast to Modernist aspirations, “no single specific function can be matched with a single place” (ibid). In this way, Koolhaas lays the ground for the abandonment of “all types of functionalist formalism” (Evers and Thoenes 2006, 558).

[insert Figure 10.7 here – landscape]

Figure 10.7 Aerial view on Dubai Airport and Downtown UAE.

Source: iStock.com/Lux_D

Some twenty years later, Koolhaas (1995a) offers a sharp analysis of the city and the urban in the age of globalization and meanwhile world-wide urbanization. This new “Generic City” is “so pervasive that it has come to the country;” it is planned and raised on tabula rasa, with its most characteristic element being its airport, usually well underway to replace the city itself (see Figure 10.7); its streets are dead, its roads exclusively for cars, and verticality, in the form of isolated skyscrapers, prevails; its past, if there was any, is restored to previously unknown glory in some relined complex or the other; its offices are everywhere; its only activity is shopping; it oversimplifies its identity and surrenders the majority of urban life to cyberspace; it is multiracial and multicultural; its “style of choice is postmodern,” because it is the only style “that produces results fast enough to keep pace with the Generic City’s development;” finally, the Generic City “is not improved but abandoned” (Koolhaas 1995a, 1250-1263). “The city,” Koolhaas concludes, “is no longer” (1995a, 1264). But where, then, lies the potential of contemporary urbanism?
1.1. After the Generic City?

If there is to be a ‘new urbanism’ it will not be based on the twin fantasies of order and omnipotence; it will be the staging of uncertainty; it will ... aim ... for the creation of enabling fields that accommodate processes that refuse to be crystallized into definitive form; it will ... be about ... expanding notions, denying boundaries, ... about discovering unnameable hybrids; it will no longer be obsessed with the city but with the manipulation of infra-structure for endless intensifications and diversifications, shortcuts and redistributions. (Koolhaas 1995b, 29)

According to Koolhaas, architects, urban designers, and urban planners have failed to influence the development, and, ultimately, to prevent the death of the city. With progress in digital technologies, new approaches to understanding, designing and planning the city emerge. These approaches seem closer to Geddes’s (1915) originally proposed process of survey, analysis, and design (Section 3.1). Some of the more promising approaches begin to conceptualize cities as complex adaptive systems (Allen 2008, Weinstock 2010, Portugali et al. 2012, Batty 2013, see Chapter 21). Practical approaches draw on increasingly available data to feed into a better understanding of interrelated urban systems and how they are linked in multilayered networks (for example, Offenhuber and Ratti 2014). This new reading of “‘system city’ represents a whole-scale rethink of the urban,” placing it “on a much wider canvas—whether at the evolutionary, cultural or global scale” (Castle 2013, 5).

2. Defining the Urban?

The “urban” in architecture cannot be easily distinguished as a scale, a type, or a typical set of functions. If once it was the playground of planning and official architecture, it now gives way to the unplanned, informal, and unplannable. If once it was synonymous with dense centers and congestion, it now exists as endless urban sprawl. If once it was characterized by coexistence and diversity, it now flourishes in uniform gated enclaves. The urban is no longer
associated with synthetic, abandoned, or replicated nature, but rather, it seeks to absorb it and make it its own. The urban promise of democratization through technology slowly gives way to control through “smart” design. The set of traditionally urban functions (traffic, work, residence, and recreation) expands or contracts to accommodate additions and alternatives. The definitions of the past no longer hold. Verticality in the form of the skyscraper, at least in the imagination of the architect, appears to have remained the last element explicitly associated with the urban.

Cities are falling apart in fragments. They no longer have a single morphology or typology in common. As Koolhaas (1995b, 28) asserts, a “perverse automatic pilot constantly outwits all attempts at capturing the city, exhausts all ambitions of its definition, ridicules the most passionate assertions of its present failure and future impossibility, steers it implacably further on its flight forward. Each disaster foretold is somehow absorbed under the infinite blanketing of the urban.” The city no longer exists; “each insistence on its primordial condition—in terms of images, rules, fabrication—irrevocably leads via nostalgia to irrelevance” (Koolhaas 1995b, 28).

3. Conclusions

In architecture and urban design, the urban is often used as a descriptive type, neither explanatory nor predictive. A widely recognized, evidence-based taxonomy of the urban does not exist. This is perhaps due to the continued use of outdated visions and ideas of progress which fail to acknowledge insights from emerging transdisciplinary research and practice.

The theory that shapes architectural practice is often rooted in radical political ideologies, rather than in the empirical analysis of the real. Despite fundamental changes in the technological, social, political, and institutional context of urbanization over the past decades, many important architectural research and teaching programs build almost exclusively on Lefebvrian philosophy to identify those processes which are currently transforming the
“planetary” socio-ecological landscape (Lefebvre 2003, Brenner 2014). Technocratic or artistic models of architectural or urban design practice ignore the rules of evolutionary intelligence and seek to respond to complex problems as if they were merely visual design challenges (Sengupta and Iossifova 2012). Theory and practice seem unable and unwilling to transcend outmoded ideas about society and space.

In times of climate change, economic and other crises, a new generation of universally skilled, transdisciplinarily literate architects and architectural researchers will need to progress a taxonomy of the urban which is rooted in observable and measurable characteristics. To capture, comprehend, and, where possible, direct emergent urbanization and to achieve some of the ambitious aims that the profession has established for itself, architecture and urban design urgently demand the development of new strategies, innovative analytical frameworks and practical tools that are capable of describing complex realities across multiple scales. The architectural and urban interventions of the future will then be based on a longitudinal understanding of existing sociospatial urban systems and capacities for transformation, adaptation, resilience, and evolution.
References


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