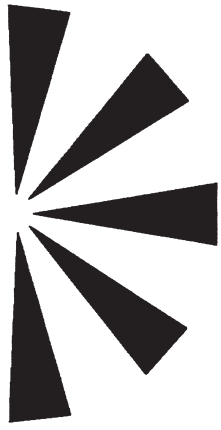

VIEWPOINTS

Discussion of topical issues
in urban morphology

Practising the science of urban form

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In relation to urban morphology and its application in relevant professions, three interrelated needs are especially evident: first, to respond to the challenge of bringing together research and practice to achieve their mutual development; secondly, to advance understanding of what urban morphology means as an interdisciplinary practice; and thirdly, to address the need for theoretical-practical coherence.

Between academia and the design studio

The acknowledgement by the ISUF Task Force of the importance of 'moving urban morphology from the academy to the studio' (Samuels, 2013) is a notable step in advancing towards an 'operational' morphology in urban design practice. Scholars have highlighted the valuable contribution that urban morphology is able to offer as a theoretical foundation for urban design (Marshall and Çalışkan, 2011) and how it can be applied in planning practice (Oliveira, 2016). Designing new urban forms, however, is a complex task that requires, beyond creativity, a significant degree of research and analysis. This is a must for any urban practitioner. Whether it concerns a masterplan for a city block, the design of a new urban centre, a regeneration scheme for a neighbourhood or designing within a historic urban landscape, the success that an urban designer should aim to achieve is not just about the design itself, but also very much about how new urban forms will be used and their impact on the community.

Urban design should always entail an element of science – an investigation into a project's site and its geographical, historical, economic and social contexts. Such investigation needs to be accompanied by an understanding of many morphological principles, relating to such concepts as 'tissue', 'topology', 'pattern', 'composition' (Kropf, 1996; Moudon, 1997), 'typology' (Caniggia and Maffei, 2001; Steadman, 2014), 'spatial configuration' (Hillier and Hanson, 1984), and 'plan unit' (Conzen, 1969) – all of which have been the subject of exploration in the practice environment. There are, for example, applications of Conzenian concepts such as that of the fringe belt (Whitehand and Morton, 2006) in existing British and Chinese cities, new syntactical methods such as segment based axial analysis (Hillier, 1996), and New Urbanists' proposals such as the transect method (Duany and Talen, 2002).

Implementing research in the studio works in ways not unlike those in academia. It is a form of research that incorporates an element of practical application in the methodology used, and ultimately in the research, or design, output. The outcome, therefore, is a creative product of the contribution to knowledge, whilst yielding new understanding about practice. In other words, research gains a better understanding of where new knowledge is needed, and enhances the prospects of being applied. Practice benefits by using research to improve built outcomes.

The challenge of bridging academia and the studio in urban morphology is a matter of mutual

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development. The concept of development implies change. Change in the practice environment tends to occur at a rapid pace with the advancement of state-of-the-art technology and resources. Change in academia tends to be slower paced. Academia offers the possibility of more in-depth insight within a lengthy time framework that almost no practice is able to afford.

To develop the relationship between research and practice in urban morphology requires both discovery and diffusion. In the former there needs to be appreciation that urban morphology is open and multi-faceted. Discovery implies the use of sufficient information to create something new for practice – this means an understanding of urban form informed by research. For academics, it entails awareness of the evolving spectrum of urban morphological applications in professional activity. Both the diffusion of knowledge in urban morphology and the discovery of new approaches imply an essential element that helps link research and practice, namely interdisciplinary connections. How does urban morphology contribute to other fields of knowledge, but also how do other disciplines use urban morphology?

Urban morphology as an interdisciplinary practice

Contemporary urban practice is becoming innovative in many ways – it is multi-disciplinary. It uses advanced technological techniques, such as GIS mapping, spatial analysis, visualization, data analysis and simulations. In urban design and planning, it is becoming increasingly important to use evidence-based practice (EBP). In fields other than urban design, EBP is one of the means to help bridge the gap between research and practice (Davoudi, 2006). Most commonly, it is proposed as a way of making professional decision-making more scientifically rational. However, what is essential about this approach is that it can draw on a wide variety of research methods and can be integrated with collaborative and participatory approaches that place greater emphasis on jointly providing urban solutions. Whether it is research or practice, collaboration implies an equal partnership, in knowledge and skills. Bridging the gap between the two domains requires the dissemination of knowledge from different disciplines (diffusion) and the knowledge creation that comes from learning and working with interdisciplinary connections (discovery).

Urban design is a field that is – and should be – multi-disciplinary. This includes specialists from a range of backgrounds, such as geographers, planners, architects, urban anthropologists, landscape architects, urban economists and spatial analysts. This rich variety of expertise helps the identification of key problems and the proposing of strategies for design solutions that give due attention to the relationship between place and people's spatial practices within it. Urban morphology, in this sense, covers a wide spectrum of professional activity by which different fields of knowledge can contribute the optimum morphological solution to an urban design problem. This requires that practice is based on thorough understanding of urban form and that its applicability is as an interdisciplinary field – from describing the character of places to designing the character of places; from describing the historical evolution of a city to prescribing its future growth through design guidelines; from understanding the value of heritage, advised by organizations such as UNESCO and ICOMOS, to making the best possible use of sound methods to plan new urban forms, or 'tangible' assets, that can lend themselves to the most appropriate 'intangible' urban value (van Oers, 2010).

Theoretical-practical coherence

Finally, the connection of research to practice can help shape current theoretical thinking about urban morphology. The key difference between academic research and research by practitioners is the way in which the two communities approach problems. Practice focuses on solving a specific problem, applying existing knowledge and best practices: the requirements of peer review and dissemination are more limited. Research is far more formalized and relates to questions posed by the field rather than by a specific situation. However, whilst different approaches exist in each case, they remain complementary, approaching a problem within the same science.

Science itself is rarely individualistic. Much of scientific research is collaborative, with different people bringing their specialized knowledge to bear on different aspects of a problem. It relies on evidence and focuses on the natural world. And in every science there are lines of investigation in which different applications of methods are practised. The same goes for urban morphology. It is a science in which different schools of thought have emerged and defined their expertise

in urban research – the historical-geographical approach of the Conzenian school, the process typological approach of Muratori and Caniggia, the configurational approach of space syntax of Hillier, and even the spatial analytical approach of cellular automata, fractals and agent-based modelling (Batty, 2005). Whilst these may be different ways of thinking about urban morphology, and in a broader sense cities, they are all complementary. They *should be* and *need to be* collaborative and not work in isolation. Urban morphology, I have argued here, is interdisciplinary. That means that, as a science, it embraces multiple approaches and reaches out to other scientific disciplines. Wider recognition that schools of thought can learn from each other would help strengthen the connections between practitioners and urban morphological research.

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Urban morphology and World Heritage practice

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Song *et al*. (2016) discuss the conflicts and prospects pertaining to the potential common ground of urban morphology researchers and World Heritage practitioners. They draw on the Chinese experience and emphasize complementary elements found in the concept of the cultural landscape as it is defined and used in academic research and in the practice of heritage conservation (see also Whitehand, 2013). In response to their discussion, a number of matters merit consideration concerning the potential contribution of historico-geographical methods of studying urban form in the particular domain of UNESCO's Historic Urban Landscape Recommendation.

The concept of the 'Historic Urban Landscape' appeared in the UNESCO World Heritage terminology in the 2005 Vienna Memorandum (Article 7) and acknowledged the value of both tangible and intangible aspects of historic urban areas in conservation practice. The 2011 Recommendation