morphological research and professional practice. The particular example of personal involvement considered here strengthens our view that the Porto Plan is able to promote an urban morphological culture among the agents responsible for the transformation of the form of this city.

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Interlacing urban morphology and design studio education: the time is ripe

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Researcher Anne Moudon laments that for architects and planners 'morphological analysis remains a difficult mental exercise' because few practitioners are willing to 'spend time assessing the impact of their design decisions on the city' (Moudon, 1997, pp. 3-8). There are several root causes: the economic realities of development inhibit capacity to engage in reflective urban practice; a majority of practitioners have not been exposed to urban morphology theory or methods during their educational experience; and design studio faculty rarely teach morphological methods as part of a pre-design process for site and context analysis. If urban morphology is to gain widespread acceptance in design practice, it must first become a mainstream component of architectural and urban design curricula. This is not the case in the United States (and probably elsewhere in the world) where professional design and planning programmes rarely include urban morphology as an elective, much less a required subject. By contrast, use of Kevin Lynch's methods (1981) for imageability and legibility analysis are commonly integrated into design studio teaching and required courses in urban theory. What impediments continue to prevent urban morphology from becoming a mainstream subject in the discourse of architectural and urban design education and what strategies might help to better profile its importance?

Over the past 15 years I have sought to communicate urban morphology's relevance to architecture students through multiple teaching venues including topical seminars, as a component of urban theory courses and as an applied method for context analysis in design studio courses. I discovered the value of Conzenian methods (Conzen, 2004; Whitehand, 2001) through my own efforts to better understand and interpret traditional town morphologies in regional contexts where I regularly engage students in community design and planning assistance partnerships (McClure, 2001, 2013). Through efforts to teach the subject I have experienced several frustrations and a few successes. Discussion follows concerning two of the most significant issues and suggested strategies to address them.

The first is to find appropriate course readings. Urban morphology lacks an appropriate publication in English for introducing its theory, purpose, language and potential applications to architecture and urban design students. As early as 2001, Peter Larkham highlighted the paucity of published work available to inform course content (Larkham, 2001). This persistent vacuum suggests a need to publish a concise, well-illustrated 'morphology of the city', in the spirit of Lynch's *The image of the city* (1960). If presented in a format that can engage students who are primarily visual thinkers, such a resource might find its way onto studio desks, thus exposing a broader audience of future practitioners to processes for systematic interpretation of the underlying structure of urban fabrics. Architecture students would be more likely to incorporate morphological methods as part of their process for site and context analysis in preparation for urban intervention projects, and urban design students would be more likely to develop design recommendations and policy guidelines that are based on a structural rather than cosmetic under-

standing of urban context and its defining elements. The book could illustrate Conzenian methods for identifying and interpreting structural elements that comprise urban tissue and Italian School methods for identifying building typologies that define morphological periods and regions. Vìtor Oliveira suggests such a manual in the most recent issue of *Urban Morphology* (Oliveira, 2014). In my experience, design students, when exposed to systematic methods for cartographic analysis, intuitively grasp concepts for, and eloquently produce graphic interpretations of, urban processes and urban elements as defined by Kostof (1992) and Conzen (2004) in relation to plan units and comparative figure grounds of urban fabrics.

My own efforts to use articles from *Urban Morphology* as a teaching resource have met with mixed success. While the journal is the ultimate resource for seasoned scholars, articles are predominantly focused on interpreting complex, historical contexts or the contested terrain of conceptual semantics. Consequently the journal is less effective as a means to introduce students or new scholars to overarching theory and process. There are a few notable exceptions which include articles such as Moudon's introduction to urban morphology in the journal's inaugural issue (Moudon,1997) and Jeremy Whitehand's discussion of the Conzenian tradition and its use of cartographic analysis and visual representation to interpret urban process (Whitehand, 2001). My students experience an 'aha' moment when they read Siksna's article on the effects of relative block size; they recognize the impact of formative decisions in city building processes and how they manifest in long-term consequences for urban structure and character (Siksna,1997). It has been difficult to expand this repertoire of 'old favourites'. Findings from Oliveira's recent comprehensive survey of citation frequencies includes many of the same selections (Oliveira, 2013, 2014). His findings reinforce a need for additional contributions that present clear definitions and models for interpretation and analysis that students and scholars who are new to the subject of urban morphology can readily adapt and apply to a broad spectrum of urban fabrics.

The second challenge is to re-focus design studio pedagogy. There is an increasing number of US cities experiencing immigration of residents of the 'millennial' and 'baby boom' generations who embrace urban lifestyles and traditional, walkable urban neighbourhoods. How will the next generation of architects prepare to respond to increasing demands for urban infill and redevelopment in traditional US cities?

Since the design studio sequence forms the backbone of architectural education, its pedagogy exerts a lifetime influence on future practitioners. As a teaching setting the design studio affords an important opportunity for integrative thinking, where students can apply to creative problem-solving processes the theory and methods introduced in their other coursework. A solid camp of design faculty will continue to profess architectural design as high art where buildings are viewed as objects within the urban fabric, and uniqueness and self-expression are entitlements. Encouragingly, alternative points of view have taken root, thanks in part to new urbanism and the burgeoning sustainability movement. Both ideologies are helping to generate heightened sensitivity to place-based design, though too often without mechanisms to achieve a deeper understanding of urban structure.

Additionally, 'service learning' pedagogy, which by definition involves choreographing community service projects in which outcomes are equally beneficial to external project partners and the academic learning experience, affords an opportunity to forge deeper connections between urban morphology and design education. Service learning, which is widely endorsed in the US across a range of disciplines, is a natural fit with design education. Students seek opportunities to apply their emerging professional skills to real projects, and community partners benefit from their expertise. My own use of service learning has included partnerships with over 40 communities and several Native American Tribes. The opportunity to work on real problems with community partners has yielded several benefits for teaching urban morphology: architecture students become sensitized to a need for place-based design responses, and students are more likely to embrace analytical methods that afford a deeper, structural interpretation of context. When challenged to conduct parallel context studies using both Lynch's imageability language and morphological methods, their design and planning recommendations reflect a greater awareness of existing planning patterns, key spatial elements that contribute to a community's identity, and the need to connect to these inherited patterns

The climate is ripe for urban morphology to gain a foothold in design studio pedagogy. Those of us who teach urban morphology to architecture and design students should collaborate to create appropriate course support materials and encourage application of morphological methods in reality

charged settings if we hope to communicate effectively their relevance to future practitioners.

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Urban morphology: inside and outside the discipline

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Urban morphology deals with some of the largest and most complex human artifacts – cities – in which now live more than half of humanity, ever increasing in population, extent and influence on everyday life. Within ISUF, we all regard the city as important. But judging by the size of the membership of ISUF, the academic field is small. Why should this be the case? Other important phenomena – molecular biology, climate science, child development – have disciplines with tens of thousands of members and conferences that attract the attention of the popular media. Why do urban morphology, and ISUF, dealing with what are arguably phenomena of equivalent importance, not have similar status?

Of course, many academic and professional organizations, not just ISUF, are concerned with urban form. These include organizations of planners, the Society for American City and Regional Planning History, the European Association for Urban History, the space syntax group, special sessions on the city at architectural history conferences, groups of urban geographers who are not members of ISUF, and others. Can it be argued that although ISUF is small, the study of urban form is large, and that the diversity expressed in this multitude of groups is actually a healthy phenomenon?

Michael Conzen's definition of the field is broad enough to encompass this diversity, and seeks to make necessary connections between form and the reasons form comes about: 'urban morphology is the study of the built form of cities, and it seeks to explain the layout and spatial composition of urban structures and open spaces, their material character and symbolic meaning, in light of the forces that have created, expanded, diversified and transformed them' (Conzen, 2013).

But does the field, as represented by ISUF, fully embrace the implications of this definition? I argue that ISUF can do more to fully embrace them, and that there are three related areas that need to be addressed for it to do so: theoretical coherence (and intradisciplinary connections), interdisciplinary