Title

Disciplinary convergence: landscape architecture and the spatial design disciplines

Permalink

https://escholarship.org/uc/item/7mh243wq

Journal

Journal of Landscape Architecture, 11(1)

ISSN

1862-6033

Author

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Publication Date

2016-01-02

DOI

10.1080/18626033.2016.1144668

Peer reviewed

Disciplinary Convergence
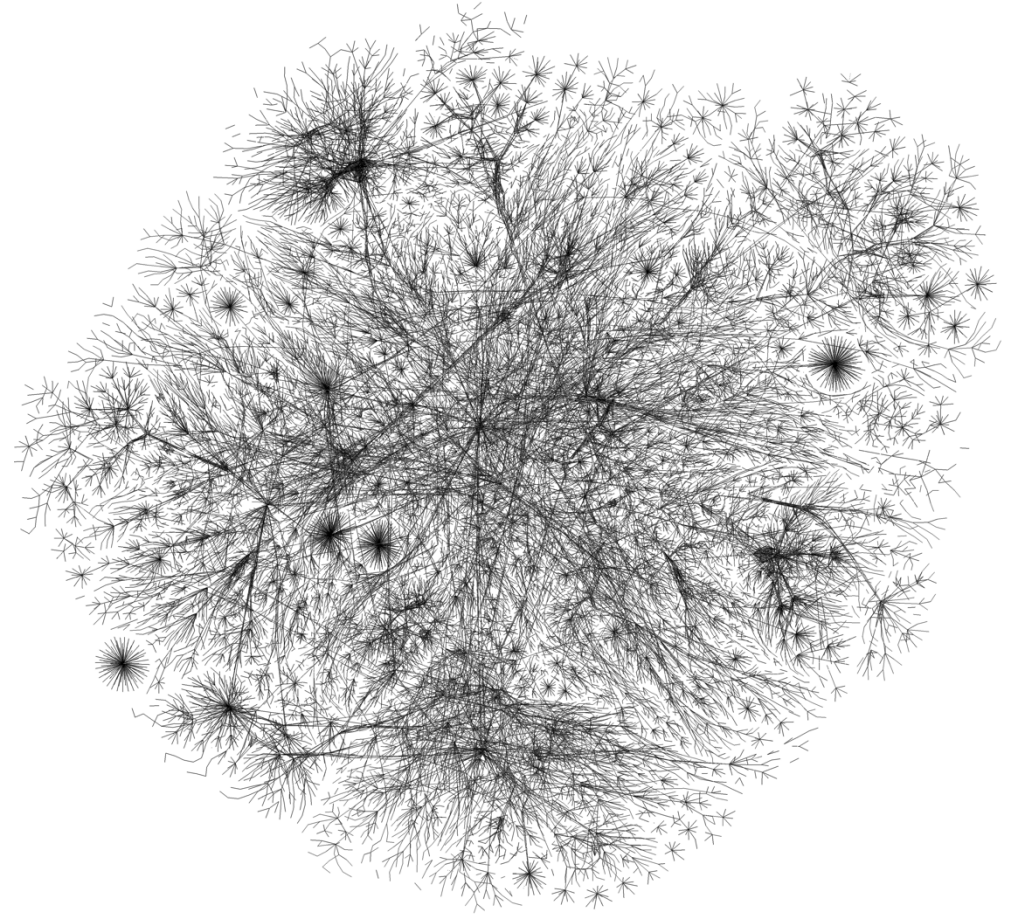## Landscape architecture and the spatial design disciplines

Karl Kullmann

Figure 1. Map of the internet used here to illustrate the intra-disciplinary connections between individuals and sub-fields that create a discipline. © 2003 The Opte Project / Barrett Lyon, reproduced with permission.

Introduction: landscapes of crisis and confidence

Over the past two decades, a steady procession of studies, polemics, and themed journals have addressed the question of the future of landscape architecture as a viable, codified professional discipline (Berkeley 2012; RMIT 2009; Hohmann and Langhorst 2004; Robertson 2003; Miller 1997). Recurrent themes cover fragmentation and loss of disciplinary territory in both theory and practice, lack of authentic design discourse that is attributed to the diverse origins of the field, and ambiguity inherent in both the landscape generally and in the term 'landscape architecture'.

While some examples can be mitigated as rhetorical provocations, expressions of disciplinary uncertainty also encompass established voices. These include Walker (2005: 45; 1998: 76), who observed that landscape architects "lost much of [their] public access" a century ago, and are "consciously or unconsciously in the process of redefining [the] profession again;" Swaffield (2002: 187), who deduced that without "some common ground across the profession … the future … is less certain, and more likely to include some degree of fragmentation;" and Balmori (Hines 2004: 108-109), who declared that "landscape architecture is poverty stricken in its tools"

while "landscape architects have cut themselves off and made the field less relevant." These concerns also fit within a longer modern / postmodern arc, as reflected in Krog's (1988: 94; 1985: 56) assessment of "a discipline in intellectual disarray" stymied by a "long-standing deficiency of theoretical discourse" and "thoroughly confounded by self-doubt," and White's (1952: 27) opination that landscape architecture became hemmed in by "the state of tension between [the] allied professions of planning and design."

This introspection may imply a pattern of disciplinary crisis, or alternatively, may indicate the vitality of a field that is robust enough to instigate and withstand candid self-reflection. Several commentators take the latter position in defending the cultural and discursive relevance of landscape architecture against more pessimistic views (Beardsley 2000, Jacobs 2005, Meyer 2005, Baird and Szczygiel 2007). These accounts reaffirm the disciplinary canon, cite the qualities of distinguished contemporary projects and practices, and state the increasing relevance of ecology and sustainability in society. Baird and Szczygiel (2007: 17) encapsulate these arguments, asserting that contrary to certain excessively negative assessments of the profession's future, 'a dramatic, positive shift in interest in landscape architecture as an art and design discipline of significance is underway'.

Such divergent positions regarding the health and prospects of landscape architecture are influenced by the circumstances of individual commentators. In addition, disciplinary introspection is contingent on the cycles of confidence associated with the cultural significance placed on a discipline in a particular time. The canon of landscape architecture is elevated in eighteenth-century Europe and nineteenth-century North America, while the neglect of landscape under Modernism depleted the influence of the profession / discipline through much of twentieth century (Scully 1988). The subsequent postmodern emphasis on site and environment signalled a revival of the value placed on landscape (Beardsley 1988). Within these larger oscillations, it is also to be expected that shorter-term inflections respond to the economic conditions of the day. Nevertheless, that the recent period of simmering disciplinary doubt occurs in the context of a cyclically resurgent role for landscape—and transcends both economic booms and downturns—appears to contradict projections of landscape architecture as an above average growth field (USBLS 2012).

Research scope

The discrepancy between the widely agreed upon potential of landscape and the sufficiently pervasive concern among some landscape architects establishes the context for this article. The recent uncertainty is explored as form of 'inter-disciplinary anxiety' [1] that results from convergence of the spatial design disciplines, whereby landscape architecture, architecture, urban design, urban planning, and the sub-discipline of landscape urbanism contest similar disciplinary territory. Several authors cite the convergence of the spatial design disciplines as emblematic of an emergent landscape-based trans-disciplinary [2] practice (Corner 2006; Vidler 2004; Beardsley 2000). While notable examples of this practice model are evident, the article identifies a more prevalent cross-disciplinary [3] interaction, where landscape presents an opportunity for other disciplines and vice versa.

Following Swaffield and Deming's (2011) classification of landscape architectural research strategies, the research applies two primary methods: 1) 'classification' which creates new knowledge by filtering, organizing and / or weighting datasets into patterns, and 2) 'modelling and correlation' which creates new knowledge through simplification. At present, material within the discipline of landscape architecture relevant to this topic is predominantly fragmented across non-scholarly settings in the form of professional publications, polemics, surveys, and interviews. Establishing a broader understanding of disciplinary interactions from a scholarly perspective provides a valuable context with which to understand past patterns and project future directions. This context is particularly relevant to the reconsideration of landscape architectural education models within shifting opportunities and challenges in the twenty-first century.

Definitions: circumscribing professional disciplines

Although their boundaries are incongruent (Meyer 2005), the discipline and profession of landscape architecture are interrelated and co-dependent (Dyck 1994). Therefore, the term 'professional discipline' describes the applied field of landscape architecture (Biglan 1973). A professional discipline creates and upholds a dedicated corpus of knowledge, which provides both a basis for professional practice and a theoretical structure from which to establish future knowledge (Swaffield and Deming 2011).

The image of a pure discipline is formed from the many interconnections between sub-fields and individuals, which are often as diverse as the distinctions between disciplines (Pollak 2001) (Fig. 1). Professional disciplines, however, are defined to a far greater degree by their boundaries (Cameron 2011; McAvin 1992) and tend to delimit whom and what falls within and outside their territory with 'geo-political' fervour (Klein 1990: 77). For this reason, professions have been criticized for representing an ineffectual way of segregating knowledge, owning information, and isolating markets (Saks 2014). Nonetheless, although their dissolution by disruptive technologies is recurrently predicted (Meltzer 2014; Beck and Young 2005; Fisher 1994b), the professions continue to control licensure, agenda, education, public perception, and the sense of identity of their constituents.

In a simplified static rendition of this territorialized model, the three most established professional spatial design disciplines (landscape architecture, architecture, and urban planning) are represented as compact contiguous entities. According to the prevailing Venn diagrammatic model, the overlaps between the three crystallize into urban design (Schurch 1999) (Fig. 2). However, the common culture of urban design solidified into a distinct professional discipline with exclusive contiguous territory several decades ago. Consequently,
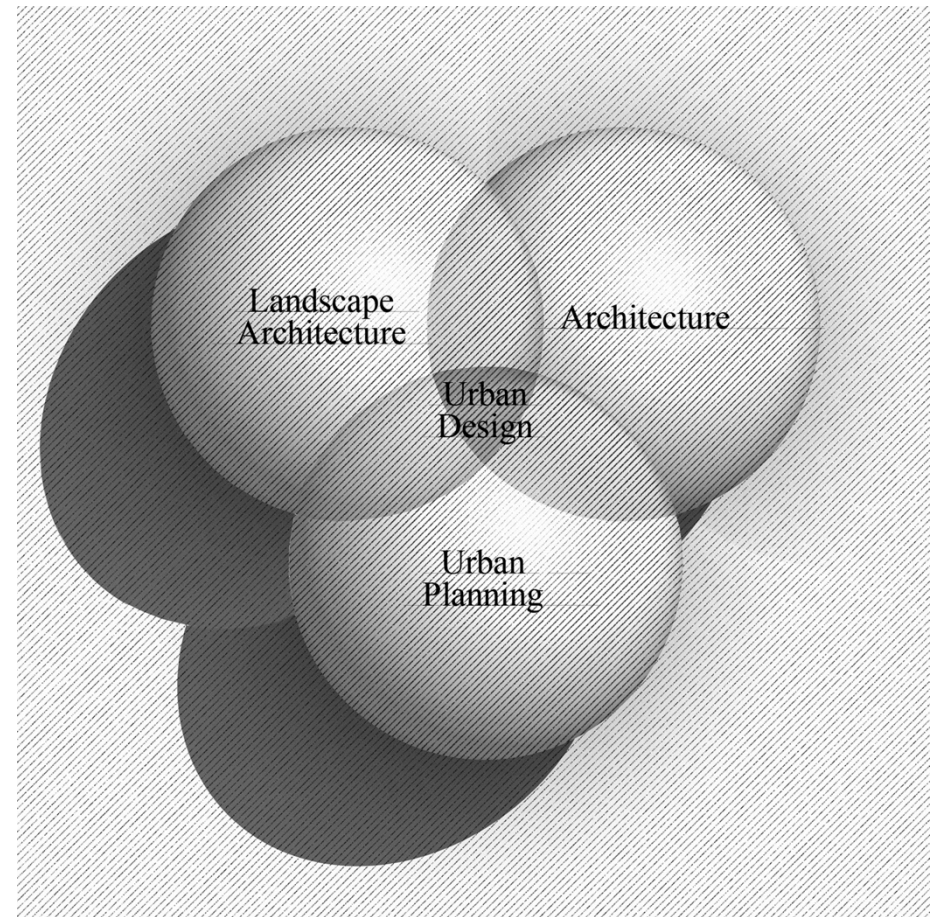

Figure 2. Idealized Venn diagram disciplinary model placing urban design as a hybridization of architecture, landscape architecture, and urban planning.

urban design is positioned with exclusive territory between architecture, landscape architecture, and urban planning (Fig. 3). Additionally, the sub-discipline of landscape urbanism, which emerged from architecture and landscape architecture (Bullivant 2006; Waldheim 2002), is positioned between these disciplines.
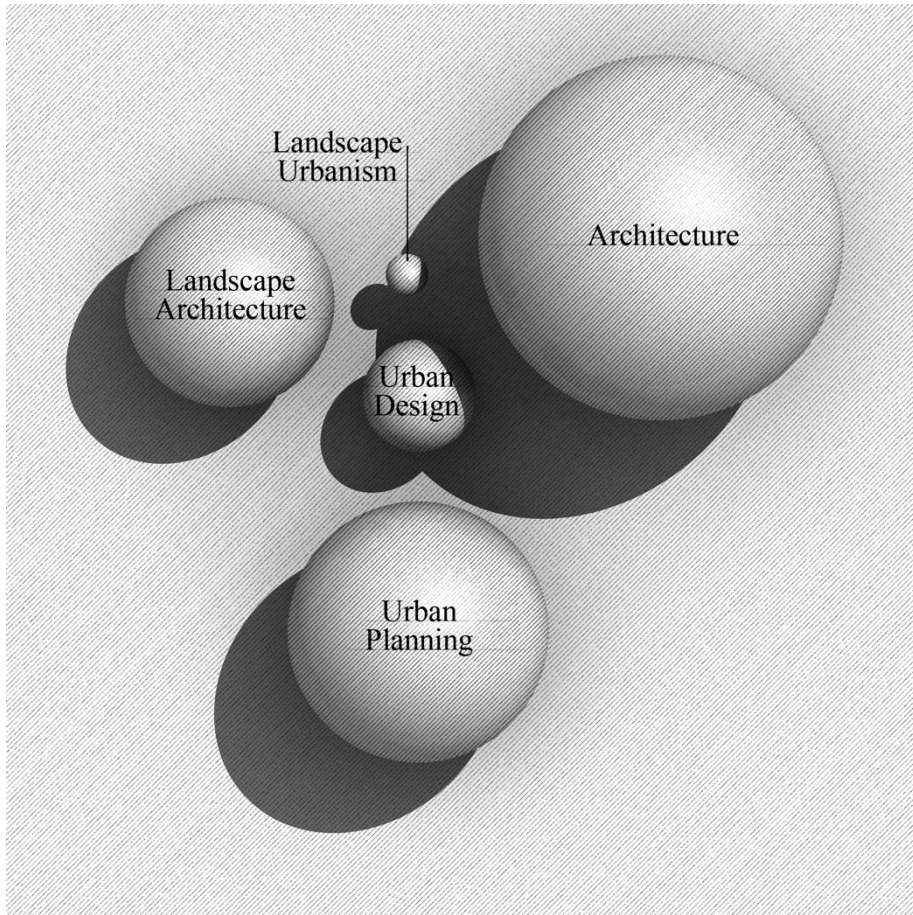
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Figure 3. Static spatial design disciplinary model. Proportional size of architecture, urban planning, and landscape architecture reflect the relative membership of each professional organization as quantified in USBLS (2012).

Holding exclusive territory as depicted in the second model problematizes adaptability, since each expansionary or fragmentary action places direct pressure on a professional discipline's inflexible boundary 'fence' (Walker 1998). In place of this taxonomic approach (Saks 2014), it has been suggested that landscape architecture emulate medicine and be defined primarily by its core (Walker 2014;

1998; Fisher 1994a; McAvin 1992). Although a valid comparison, landscape architecture's core has been interpreted as vulnerable; both from a lack of concord as to its constitution and the pervasive apprehension that non-landscape architects can just as readily undertake core tasks. In response, Beardsley (2000: 57) argues that the 'convergence' of disciplines may contribute to the rehabilitation of a 'vital centre' and restore landscape architecture's prominence in both discourse and the public imagination. The following section examines the characteristics of this disciplinary convergence.

Evidence and analysis: disciplinary convergence

In the mid to late nineteenth century, landscape architecture was placed at the nexus of diverse infrastructural projects. As projects became more technically complex and specialized, landscape architecture repeatedly created, and then relinquished, territory to new disciplines and sub-disciplines, spinning off city planning in the 1920s (Fein 1972; Fein and Crespi 1977), followed by regional planning, environmental planning, and landscape planning in the 1970s (Walker 2005). In the twenty-first century, the increasing 'convergence' of design-based disciplines is an advancing paradigm across practice, research, and education. This process is principally driven by the catalytic role of interconnected digital media and the influence of meta-disciplinary approaches that draw similarities across scales and fields (Atkinson 2010). Disciplinary convergence suggests a centripetal counterforce to the centrifugal impulses of disciplinary specialization and fragmentation prevalent since the 1950s.

Within this context, the spatial design professional disciplines also appear to be converging into an expanded field as fixed disciplinary boundaries dissolve (Blanchon-Caillot et al 2013; Vidler 2004; Krauss 1979). The following section seeks to substantiate this impression with evidence of thematic convergence over the past two decades. As no single method provides an objective overview of all facets of the spatial design professional disciplines, the research analyses two

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distinct data sets. Design competition prizes and professional magazine covers were selected for broad relevance to design practice across the spatial design professional disciplines and availability of several decades of data.

Study 1: Design competition prizes

The first study analyses a design competition results archive. Although representative of one aspect of the diverse professional discipline of landscape architecture, design competitions occupy a central role and consistent forum in the shaping of discourse, praxis, and practice. Where entry eligibility is opened to multiple professional disciplines, design competition results potentially illuminate disciplinary alignments and interactions over time. To be certain, while the graphic spectacle associated with some high-profile competitions has been criticized for superficializing design (Kullmann 2015b), most competitions analysed here are for routine project procurement and deal in the same graphic Hyper-realism that is now pervasive throughout the design disciplines (Kullmann 2014).

Methods

The publically accessible website www.competitionline.com archives two decades of international and regional design competitions in the fields of landscape architecture, architecture, and urban planning. Using this database, the lead professions of the first, second, and third prizewinners of international and regional design competitions were collated over the period 1994–2014 (inclusive). Search criteria were limited to landscape-oriented competitions listed in the archive categories of 'Landscape Architecture and Urban Planning', 'Memorials', and 'Other'. Competition briefs predicated on the design of major buildings, competitions limited to a single profession or designated lead profession, competitions focussed on students, and competitions that did not award at least three hierarchical prizes were omitted.

The 311 design competitions that met these criteria were listed chronologically, based on the prize announcement date. Due to uncontrolled scheduling and increased online announcement and reportage of competitions, the quantity of results vary from year to year and are strongly biased to the second decade of the study period. To build an image of disciplinary success from a landscape architectural datum, prizewinners were assigned values of 1 (architecture), 0 (landscape architecture) and -1 (urban planning). These values were weighted at 50 percent (first prize), 30 percent (second prize) and 20 percent (third prize) and accrued to give an overall factor for each competition between -1 and 1.

Results and analysis

The average prizewinning factor across the whole study period of 0.35 indicates that most competition prizes were shared between landscape architecture and architecture, with comparatively few awarded to urban planning entrants (Fig. 4). Moreover, across the study period, the trend line indicates a subtle shift away from landscape architecture towards architecture. Limiting the results to open competitions displaces the disciplinary balance further towards architecture, with an average prizewinning factor of 0.43. The elimination of competitions based in Germany, Austria, and Switzerland (who typically tightly control professional eligibility, even where not declared as such in the database) further displaces the balance towards architecture, with an average prizewinning factor of 0.67.

The initial results were further classified into fourteen project types (Fig. 5). While half of the categories follow the general trend (as identified in Fig. 4), several deviate significantly. With a consistent prizewinning factor of 0.13, competitions categorized as garden shows remained firmly in landscape architecture's sphere throughout the study period. At the other end of the spectrum, shelter and lookout structures remained firmly in architecture's domain, with a
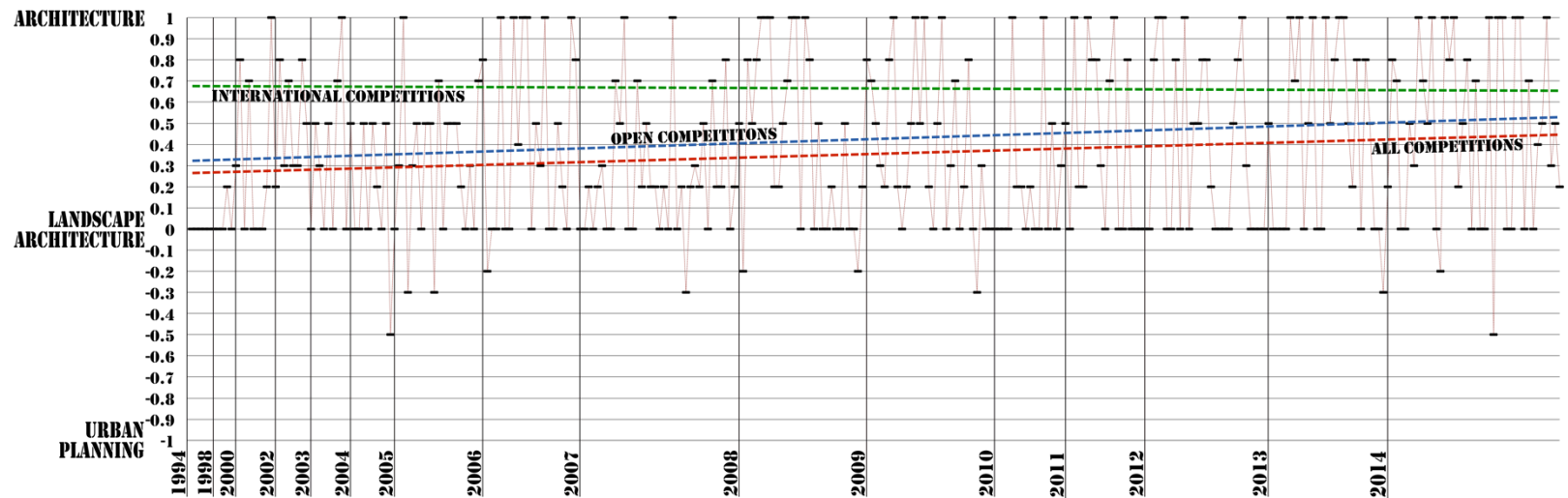
Figure 4. Disciplinary distribution of weighted first, second, and third design competition prizes for the period 1994–2014 inclusive. Trend lines are linear.

consistent factor of 0.78. Across the study period, prizes for urban structure plans and urban parks trended towards architecture at a rate three times the general trend. Conversely, prizes for streetscapes and multiple urban spaces trended back towards landscape architecture at an equivalent inversed rate.

The project types were ranked according to their average prizewinning factors and plotted radially against all first, second, and third prizes awarded to landscape architecture and architecture entrants across the study period (urban planning was omitted due to insufficient data). The resultant chart visually expresses the competitive overlap between the two disciplines (Fig. 6). Throughout the study period, landscape architects consistently won prizes in a core group of project types encompassing 'Garden shows', 'Streetscapes', 'Regional open spaces', 'Multiple urban spaces', 'Landscape parks' and 'Waterfronts'. 'Urban plaza' projects mark a clear threshold, beyond which landscape

architecture was only sporadically successful in securing prizes in competitions for 'Urban parks', 'Cemeteries', 'Urban structure plans', 'Zoo enclosures', 'Shelters and lookouts', 'Memorials' and 'Furniture'.

Discussion

The study illuminates several patterns. Compared with regional and restricted competitions, landscape architectural success was consistently diminished in international and open competitions. Possible explanations for this disparity include the capacity for larger architectural offices to incentivize their design proposals through higher graphic presentation standards and the traditional tendency for landscape architects to derive designs from detailed site-knowledge, which is often unobtainable in international competitions. Given that the study period correlates with the growth of online competition listings, the shift from limited circulation print advertising in disciplinary journals to internationally visible multidisciplinary website listings may also be a contributing factor. [4]
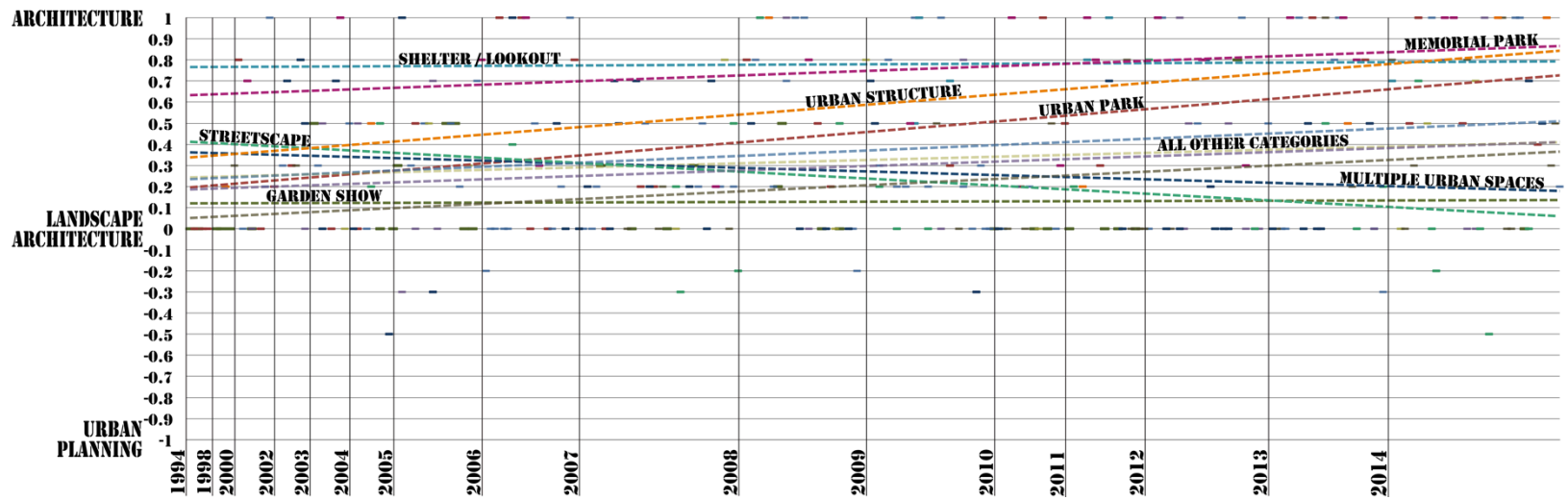
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While it is reasonable to anticipate that the traditional skill base of architecture would result in greater success in the more 'constructed' project categories (such as shelters and lookouts, street furniture, and memorials), the strong and increasing architectural success in urban park competitions does not appear to fit into this rationale. Although architectural interest in urban parks spans several decades, landscape architecture's concurrent shift from residual pastoral aesthetics to process-based design failed to impact urban park competition results over the study period. Conversely, landscape architecture exhibited increased success in design competitions for streetscapes and multiple urban spaces, which are typically characterized by intricate and / or ambiguous boundaries, diverse stakeholders, and variable budgets. Whereas these kinds of projects

are likely to be less visible, new urban parks tend to assume high profiles within communities, the media, and the design culture. The impacts of urban park competition results are, therefore, amplified over other competitions, which may distort the overall image of disciplinary roles within the public, and magnify a sense of encroachment into landscape architecture.

The distribution of competition prizes by project type indicates a core area dominated by landscape architecture, which eroded only slightly since the mid-1990s. At the edge of this core, a very clear threshold is evident at urban plaza competitions, beyond which, landscape architectural success diminished rapidly. While several of the more constructed project types in this milieu are accepted architectural pursuits, many are areas that landscape architecture strongly identifies with. For example, cemetery design holds an important place in landscape architecture's canon, while the design of zoological

exhibits and contemporary memorials are also long-held interests. By contrast, architecture prizes covered a larger spread of project types and were not constrained by a threshold, routinely wining prizes in core landscape architectural project types. This phenomenon implies a one-way disciplinary membrane, which constrains the project diversity landscape architecture but not architecture.

Urban planning is conspicuously absent from the study results, with only 2 percent of all first, second, and third prizes awarded to entrants identifying as urban planning firms. This absence may result from the tendency for urban planning to take non-lead roles within competition teams, the inability of urban planners to keep pace with escalating competition graphic standards, or the tendency for urban planning projects to be predominantly procured outside of the competition format. Lack of competition success may also result from urban planning becoming more involved in the strategic organization of urban environments through policy, rather than their spatial determination through design.

Figure 6. Comparison of first, second, and third design competition prizes awarded to landscape architecture (shades of blue) and architecture (shades of orange), plotted by ranked project types (as established in Fig. 5).
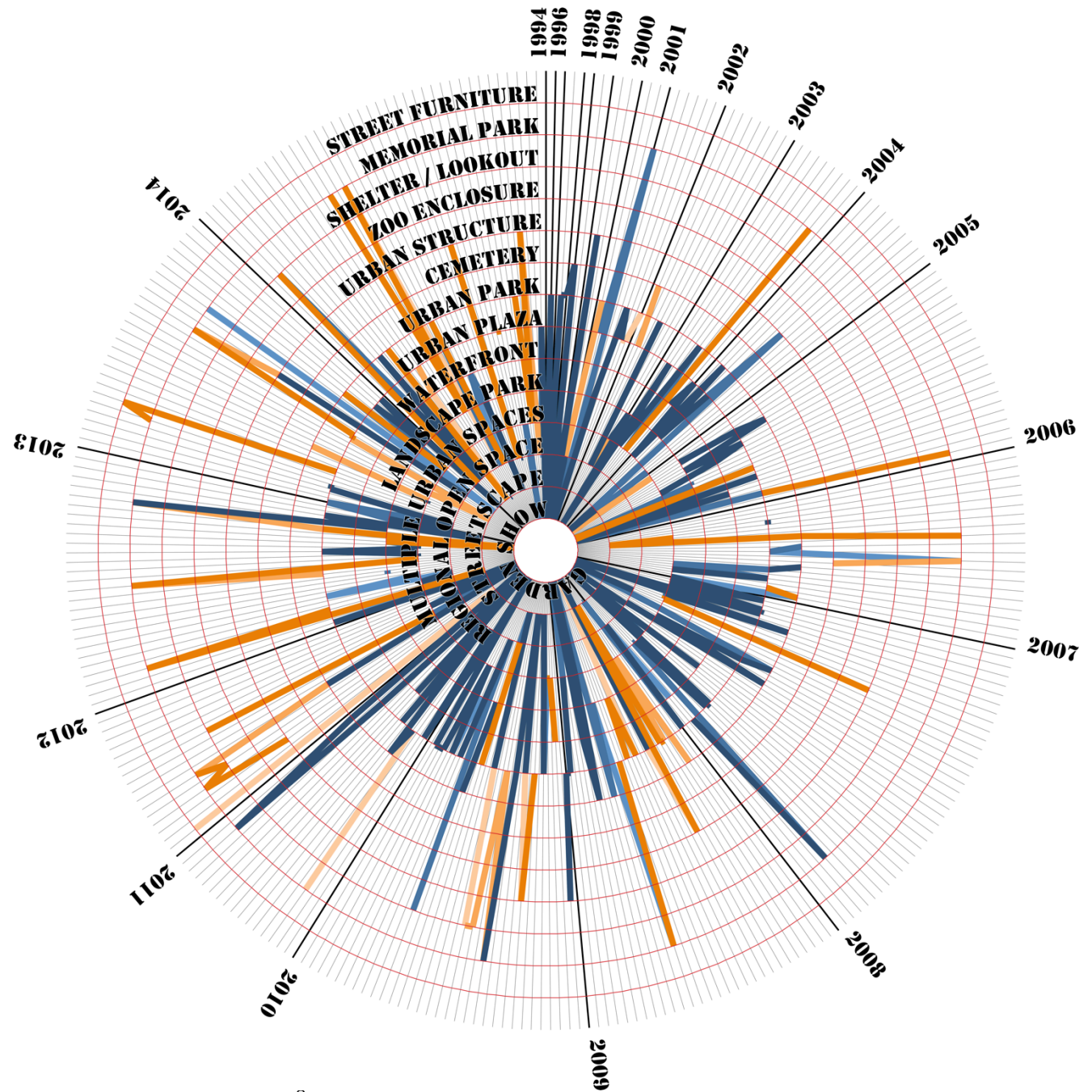
Study 2: Professional magazine cover images

The second study categorizes U.S. professional magazine covers. Given their official role in representing the interests of a large body of constituents, the magazine editors have judged each monthly cover image to capture a project, or an idea, that is relevant to the professional discipline as defined at that time. When viewed across a large dataset, professional magazine covers provide a window into the range and variations in interests of each professional discipline.

Methods

Back issue cover images of three monthly professional magazines in the U.S. (*Landscape Architecture*, *Architect*, and *Planning*) were categorized over the period 1992–2013 (inclusive). [5] Cover images were classified according to the type and scope of the project to which they referred. The project categories were customized to the content of each magazine series and ordered on a scale ranging from traditionally accepted core project types for that professional discipline through to cross-disciplinary types. Covers comprising portraits, abstract line art, or other unclassifiable imagery were omitted, yielding a total of 634 classified covers across the three magazine series (Fig. 7).

Results and analysis

Several patterns are evident from the analysis of the professional magazine covers. From the mid- to late-1990s onwards, *Landscape Architecture* diversified away from traditional project types, with images of urban design, infrastructural, and installation projects published more frequently on the cover. Importantly, this diversification did not extend into the publication of architectural projects, which remained absent. Throughout the study period, cover images of historic, rural, and natural landscapes, as well continued
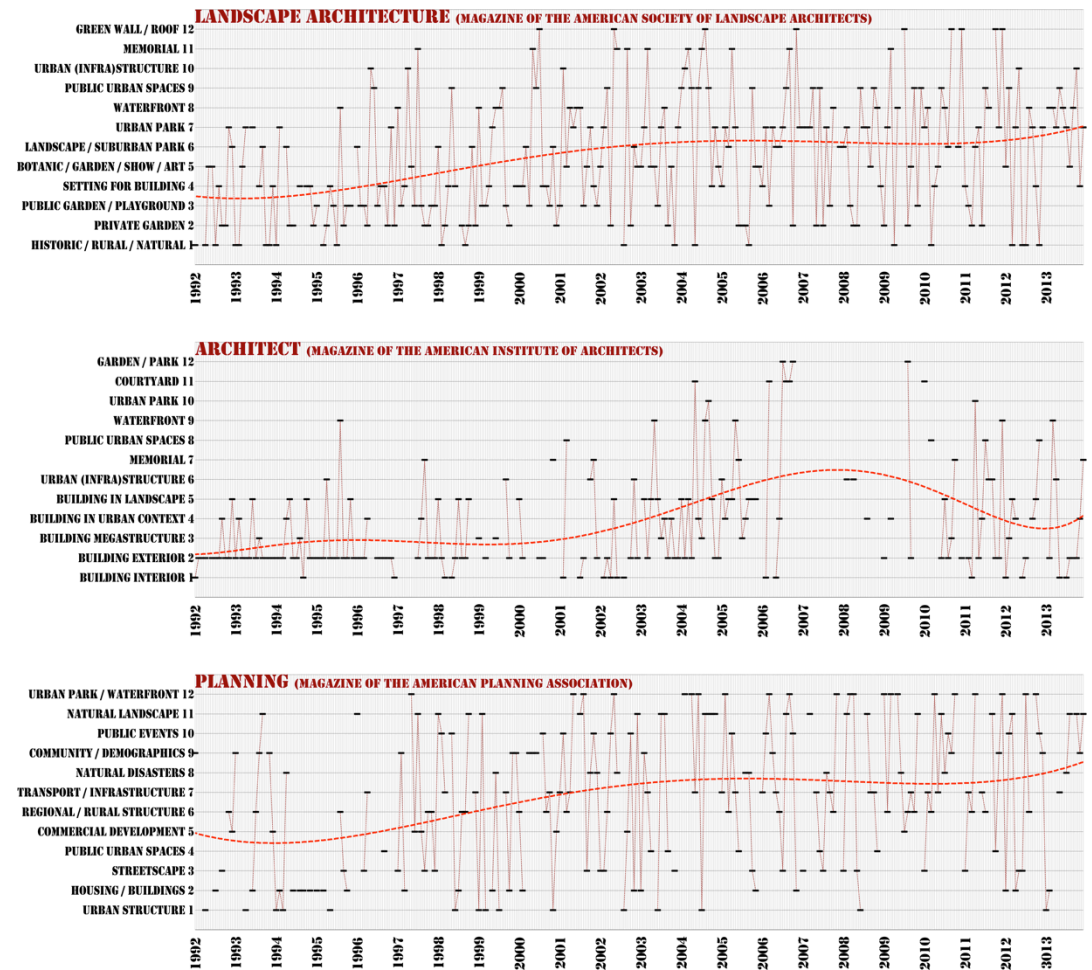

Figure 7. Classification of cover images from Landscape Architecture, Architect, and Planning, for the period 1994–2013 inclusive. Trend lines are polynomial.

as private gardens, playgrounds, and landscapes supporting buildings to be featured, albeit less frequently. These project types were displaced by a stronger urban focus, which, since 2000, featured significantly increased occurrences of urban parks, plazas, and other spaces.

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Starting in about 2000, *Architect* also trended away from cover images depicting buildings as objects to more contextualized representations of architecture. This trend was augmented by significant increases in urban and landscape-oriented projects. While echoing the tendency of *Landscape Architecture* to periodically return to core disciplinary territory (including interiors, residential houses, and commercial towers), this process appears more variable in the case of Architect, with periodic waxing and waning between peripheral and core disciplinary interests. Since 2010, while core architecture and urban themes were retained, covers depicting landscape projects actually declined.

While *Planning* covers also trend towards more contextual landscape-based foci across the study period, this impression is substantially negated by the increasing tendency for covers to use stock imagery and line-art with only abstract connections to the content of the magazine. Images pertaining to landscape tended to be featured as an idealized backdrop to discussions on policy, as opposed to spatially qualitative places. This contrasts with *Landscape Architecture* and *Architect*, for which cover images predominantly referred directly to a realized project featured within the magazine. Moreover, while the other two magazines repeatedly returned to core material across the study period, *Planning* recorded a marked shift away from the traditionally core themes of urban structure and urban housing.

Discussion
Increased contextual, urban, and landscape foci within *Landscape Architecture*, *Architect*, and *Planning* are evident from this analysis. All three professional magazines recorded an increase in interest in urban parks, waterfronts, and other public spaces across the study period. This contrasts with the results of the first study, which illuminated increased architectural success in securing these projects through the competition format. Convergence in other project categories is less universal, with urban planning, in particular, demonstrating an underlying declination away from the other spatial design professional disciplines towards policy, code, and governance.

Moreover, convergence between architecture and landscape architecture is asymmetrical. Whereas the study suggests that landscape architecture exhibits increasing urban and architectural foci over the past two decades, this disciplinary expansion extends to green walls and roofs, but does not encompass the buildings themselves. Conversely, architecture exhibits a wide thematic range by absorbing urban and landscape themes while maintaining a strong grounding in traditional core interests in buildings. The more variable pattern of architectural themes also suggests a shorter period of attention devoted to new areas of interest. While the study results may appear to imply that architecture shifted away from landscape themes over the past five years, it is more likely a reflection of avant-garde style reinvention once a new area of interest has been explored and absorbed.

General discussion: landscape, architecture, ethos
The disciplinary interactions identified in the two studies provide evidence of thematic expansion, overlap, and displacement, whereby each professional disciplines works on similar problems from different bases. The following discussion reinterprets the static disciplinary model to reflect these processes.

Shifting ground
Three factors principally drive cross-disciplinarity between the spatial design professional disciplines. First, following the demise of the unifying narrative of modernism in the 1980s (Costanzo 2009), context, ground, and surface became increasingly prominent in architecturally driven discourse (Kwinter 1992; Perrella 1998; Allen 2009). This discursive shift implicitly embraced landscape, which had been marginalized within modernism. Second, several disciplines pursued pragmatic opportunities to expand practice into neighbouring

disciplines. Emerging from the spatial poetics of postmodernism (Treib 1995), landscape architecture invested in urban design, which valued the qualities of the urban landscape as integral to city life. Moreover, both urban design and architecture established opportunity as planning prioritized policy and code over spatial organization (Dagenhart and Sawicki 1992).

Third, non-design fields from within the larger professional milieu encroached onto areas considered 'traditional turf' (Fisher 1994a: 45). For landscape architecture this encroachment included environmental science and environmental art, while architecture progressively lost control over many of the non-design components of the building process to engineering, development organisations, and project managers (Gutman 1998). Loss of ground to non-design disciplines effectively pushed the spatial design professional disciplines into markets occupied by their design neighbours. Due to its comparatively larger size and strong external pressures, architecture became the primary engine of this disciplinary displacement (Fig. 8). The following section elaborates the relationship between architecture and landscape architecture.

Architecture goes landscape

Despite similar nomenclature and current design interests, architecture, and landscape architecture originate from different bases with different sensibilities, languages, and ethics (Walker 2014; 1998). Nevertheless, the two disciplines have a significant legacy of engaging each other's theoretical content. Within Postmodernism and Deconstructivism, this largely occurred in one direction, as some landscape architectural designers drew on architectural theory. Subsequently, momentum reversed as landscape and ecology became valued in architecture for describing the evasive, organic nature of contemporary urbanism. A by-product of one discipline's 'old material' becoming another's innovation (Antrop 2003) is often the return of knowledge and methods to the originating discipline in a
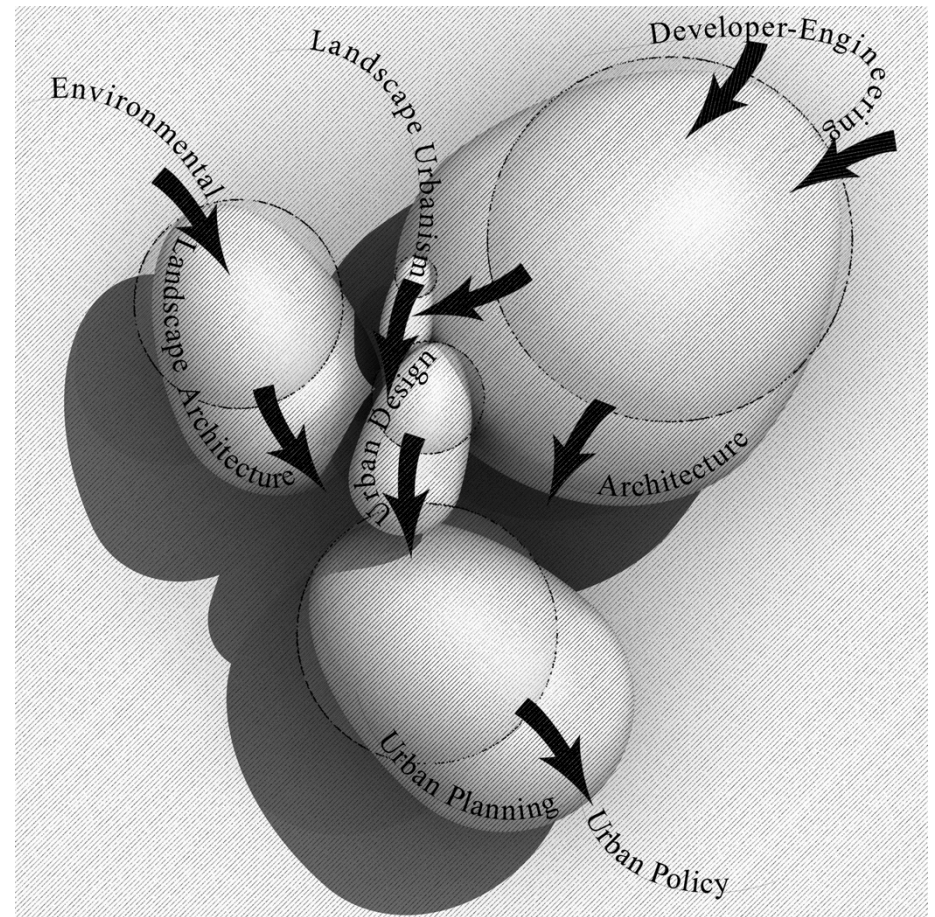

Figure 8. Modified disciplinary model depicting dynamic realignment among the spatial design disciples.

reinterpreted, recalibrated, or at least repackaged form. The reciprocity between landscape architecture and architecture follows this pattern, with the framing of urbanism in landscape terms initially refined in architectural design / research and, subsequently, filtered back into landscape architecture (Waldheim 2002). [6]
The efficacy of this return in the context of several decades of architecturally led landscape discourse is contentious. That

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architecture routinely promulgated many of the most significant innovations in landscape architecture over this timeframe continues to overshadow more recent disciplinary advancements led by landscape architects. The sense of exclusion from traditional areas of practice reported by landscape architects (LAEP 2013; Miller 1997) is therefore understandable given the number of pivotal landscape-based projects that have been designed, strategized, judged, or overseen by architects (Corner 2006). This is compounded by the rarity of the reverse operation, whereby the core of architecture remains fortressed by the tendency to restrict participation in—and even commentary on—architecture to trained architects (Becker and Holmes 2010).

Nonetheless, despite evidence of unilateral architectural appropriation of landscape architectural territory—either directly through project procurement or culturally through theoretical influence—the exchange is more complex. Miller (1998) concluded that although landscape architecture has actually relinquished less territory than architecture to neighbouring disciplines, architecture has been more effective at procuring new disciplinary territory from emergent opportunities. For architecture, landscape architecture is one of those opportunities, as is urban planning and urban design. The following section discusses the differences in education ethos that underpins the more effective expansionism of architecture in comparison with landscape architecture.

Two competing broad education models

For several decades, architectural training has emulated the broad education model pioneered by legal education (Gordon 2002). Seeking applicability across several professional environments, this model trades off the technical specificity of building design for creative problem-solving skills and information collation (Fisher 1994b). The product of this education is the 'expanded architect,' who is theoretically empowered as the 'flexible designer of the future', even

if they are not specifically practicing architecture (Varnelis 2007). The expanded architect has its roots in the Bauhaus concept of 'total design', whereby the architect's terms of reference transcend the shell of the building in both directions to include everything from tools and furniture to the expanded context of the site, the infrastructure, the city, and even the planet (Wigley 1998).

Architecture reconceived as a mode of thinking is hypothetically freed from the knowledge possession that confines more technically based disciplines into defending territory from encroachment by other disciplines (Becker and Holmes 2010). Miller (1998: 85) voiced concern that if the broad architectural education model were to be widely adopted and architecture rebranded as a 'broad environment-related design-oriented education,' it could begin to infiltrate into arenas customarily served by landscape architects. In the time since Miller's caution, many architectural schools seeking international visibility have taken this pedagogical route. Indeed, this process has been predicted to be on-going, with architects utilizing 'synthetic knowledge' to continue to expand the discipline into new fields (Varnelis 2008).

Situated parallel to the broad-schooled, expanded architect model is landscape architecture's own broad education model. Traditionally, landscape architectural education is considered to be one of the broadest educations available at the tertiary level. Most landscape programmes cover large-scale shifts from garden design to regional planning and balance a wide spectrum of knowledge ranging from the sciences to the humanities. Like broad-schooled architects, landscape architects are also taught to assimilate large quantities of disparate information and develop and apply methods to particular settings. Nevertheless, three key differences between the two design education models influence landscape architecture's more reticent legacy of expansionism.

First, whereas design is the key synthetic element in a broad architectural education, this is not necessarily the case for landscape architectural education. While design studios do form the creative nexus of most landscape programmes, the ethos of design does not necessarily permeate across all subjects, with pure hard and soft sciences only loosely integrated into many programmes. [7] Moreover, whereas design is understood as the active agent in architectural scale shifts, landscape architecture retains the residual division between landscape design and landscape planning that was first identified in the 1980s (Corner 1990). Although landscape urbanism suggests some reconciliation, the design / planning rift continues to divide scales in landscape architecture, with planning typically applied to the regional scale and design at the site scale.

Second, the culture underpinning landscape architectural broadness differs from architectural broadness. Whereas broad-schooled total design assumes a trajectory of design control across scales and through disciplines, landscape architectural broadness exhibits a more holistic tradition of strong interdisciplinary connections and underlying ethics of environmental and social justice. Within this model, landscape architecture has ideally occupied the position of moderator or 'knowledge-broker', a role that involves maintaining a position of equality and stability within an interdisciplinary structure of adjacencies (Mansfield 2003: 33). Moreover, whereas the corpus of total design is heavily biased towards actively visible design outcomes, landscape architectural outcomes are often intangible when evaluated within reductive definitions of what constitutes design (Kullmann 2015a). These differences are reflected in the visibility of individual designers; whereas the heroic designer underpins total design in architecture, the messiness, indeterminacy, and inclusivity of the landscape tends to neutralize omnipotent master designers. [8]

The third distinction between the two education models relates to the existential role of the ground. The modernist foundations of broad-

schooled total design are premised on mobility, lightness, and adaptability. In contrast, landscape architecture has a more problematic relationship with Modernism, due to the inherently grounded nature of the landscape and its residual aesthetic role as the counterbalance to the impacts of Modernity (Weiss 1998). While landscape architecture's mission in society is evolving, this grounded role continues to influence both the terms of the broad landscape education model and the greater reticence for landscape architecture to embrace new fields compared with architecture.

Implications for practice and education
The analysis and discussion suggest that cross-disciplinary convergence between the spatial design disciplines—and architecture and, in particular, landscape architecture—will continue. Current trajectories also suggest that landscape will remain a critical focus of an expanded and enriched conception of architecture for the foreseeable future. These conclusions highlight the importance of future professional disciplinary interactions and the different broad educational models that underpin them. Adapting education and practice to reflect cross-disciplinary convergence suggests two principal scenarios; 1) maintaining competitive distinctiveness, or 2) integrating structurally and pedagogically.

The first scenario retains distinctiveness between the spatial design professional disciplines and, in particular, between architecture and landscape architecture, which as Pollak (2001) observes are not predisposed to deliberate assimilation. This is premised on the notion that specific knowledge created and refined within landscape architecture retains value in addressing the complex design problems of the real world that may be treated too superficially by broad-schooled expanded designers (Gazvoda 2002). Additionally, maintaining disciplinary distinctiveness may provide healthy competitiveness, whereby each professional discipline strives to refine and innovate to maintain, or grow, their market share of both

knowledge and projects. As White (1952: 29) observed, perceived tensions and differences of opinion between architecture and landscape architecture are constructive since 'each profession should have its own point of view'.

A likely drawback with on-going cross-disciplinary convergence is an increasingly crowded disciplinary arena, wherein the main professional disciplines remain intact but are overlaid upon one another. Notwithstanding special instances of trans-disciplinary practice, this overlay takes the form of stratification rather than integration (Fig. 9). In this environment where many disciplines seek the same projects and work on the same problems from different bases, smaller disciplines may need to differentiate their activities to remain visible within busy intellectual and design arenas. A potential negative consequence is the differentiation of professional disciplines by project status as defined by size, budget, or prestige, rather than by ethos, skill set, or specialization. As Swaffield (2002) cautions, a hierarchy may develop whereby certain professional disciplines capture the market of highly visible and significant cultural projects, while others service a more quotidian market. As identified in the design competition analysis, greater architectural interest in high profile urban parks and less in smaller utilitarian landscape projects previews this arrangement.

The second scenario involves advanced integration between architecture and landscape architecture to reflect their common interests. Despite converging from quite different disciplinary lineages, amalgamation acknowledges that the interests, problems, and solutions facing architecture and landscape architecture are now closely aligned. While integrated foundation education is already quite common in schools with architecture programmes, complete integration involves architects and landscape architects undertaking
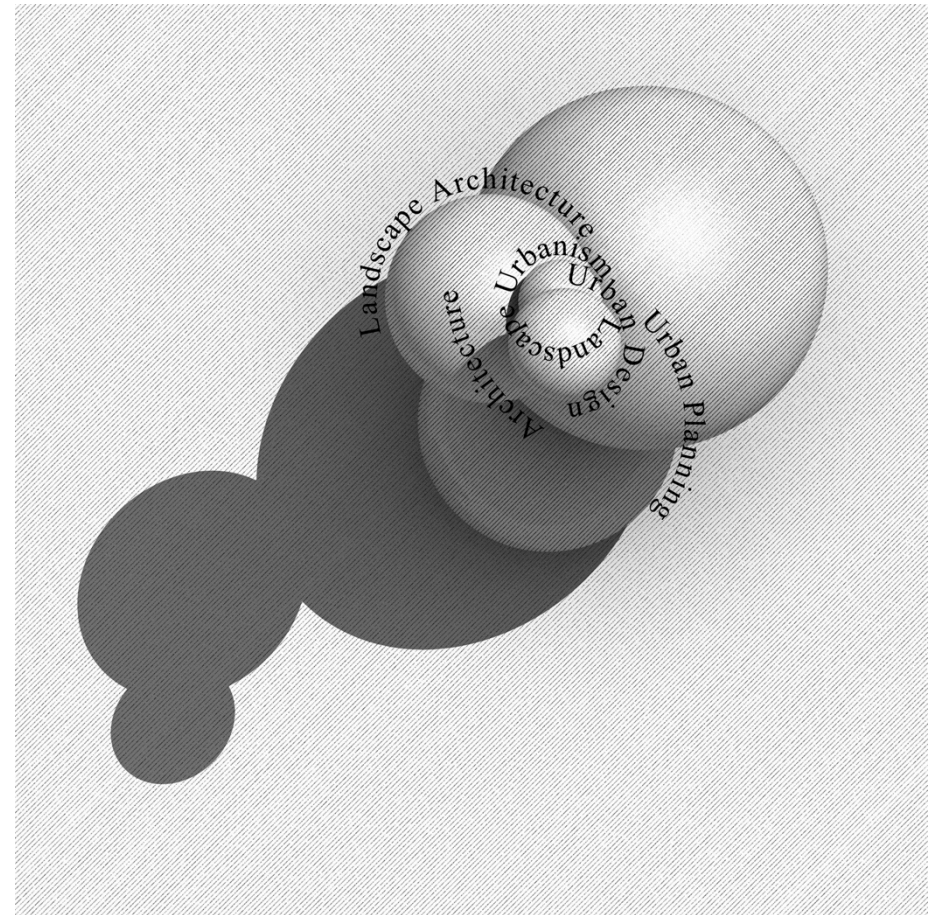

Figure 9. Modified disciplinary model depicting extreme convergence and overlapping of the spatial design disciples.

the same educational experience and pursuing equivalent roles within the total built environment.

Just what advanced integration between landscape architecture into architecture may augur for the smaller discipline is questionable. On the one hand, it may empower landscape architecture by offsetting the loss of independence with access to new markets, technologies,
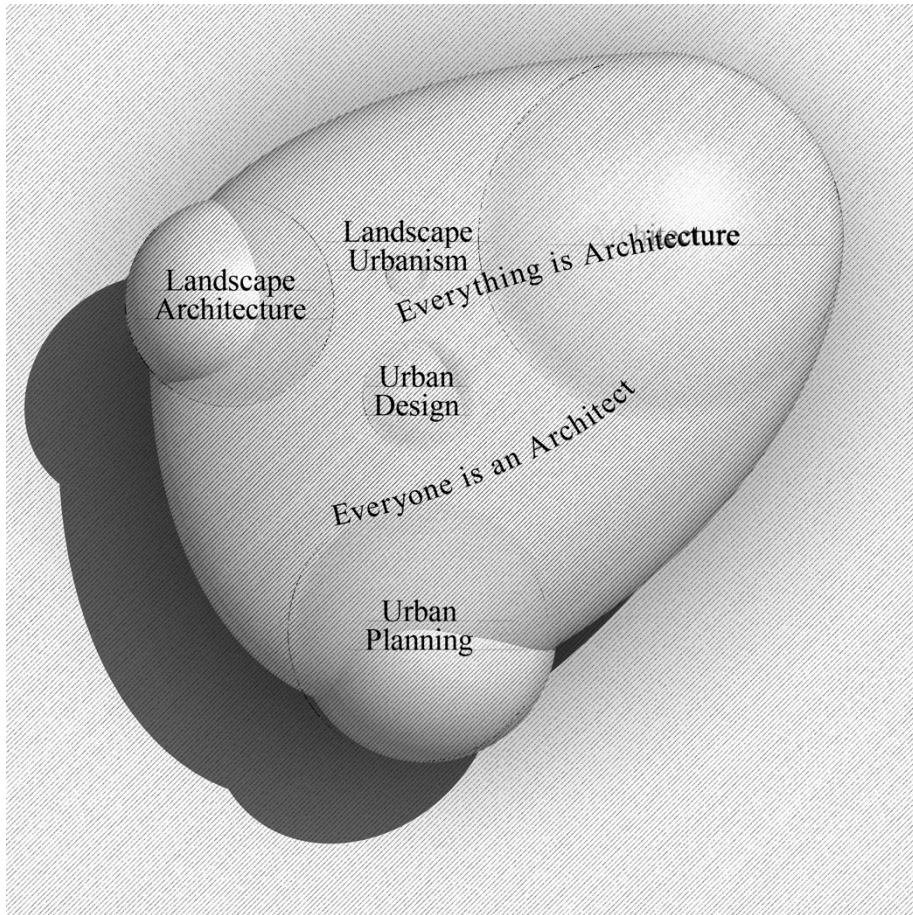
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Figure 10. Modified disciplinary model depicting architecturally based integrated design.

and techniques, along with opportunities to embed landscape architecture's environmental and social ethics nearer the core of project power structures. On the other hand, the complete assimilation of landscape architecture into architecture may risk extinguishing identity and development by reducing the former to a static set of wrote-learnable norms. In this context, the unique attributes of landscape architecture that have proven so effective in

difficult contexts—such as population decline (Kullmann 2013) and social and environmental justice—may be eroded. Integration also risks perpetuating the devaluation of landscape architecture to the provision of horticultural or hydrological technical advice to broad-schooled total-designers (LAEP 2013).

Mutually empowering integration requires the walls that have long been materially dissolved from buildings—but persist psychologically between the disciplines—to be permeated in both directions, and not only from the architecture outwards. Within the spirit of 1960s inter-disciplinarity, Hollein (1968) viewed the potential of integration in these, more equal, terms. Hollein argued that although 'everything is architecture' as 'architecture shifts into fields that were once distant,' so too 'everyone is an architect' as 'many fields beyond traditional building move into architecture' (Fig. 10). This ideal invests in the idea that architecture and landscape architecture fundamentally share the process of reconfiguring space and matter (Pollak 1997).

Over the past decade, the trend towards using design (in the loosest sense of the term) as the common agent for collaboration among both design-based and non-design fields extends this ideal beyond the constructed world. The meta-concept of 'everything is design' is embodied in the recent proliferation of 'design labs' that place conventional design fields, such as architecture and industrial design, into direct conversation with non-design fields, such as business, computer science, engineering, and cartography. These environments represent an opportunity for landscape architecture to transcend territorialism by injecting narrow prevailing conceptions of design as technology / product / market oriented with broader social and environmental agendas.

Conclusions

In the context of global urbanization, traditional distinctions between city / country, building / landscape, artificial / natural and figure / ground become increasingly blurred. It follows that the traditional territories of the professional disciplines—if not the professional disciplines themselves—are also dissolving. Moreover, as landscape comes to be understood less passively as an integral agent in urban processes and city life, it follows that landscape becomes of central interest to a range of spatial design disciplines. Given the entrenched constitution of professional disciplines as exclusive domains, this is an understandably fraught and uneven process for landscape architecture.

The one-way threshold clearly identified in the first study, and corroborated in the literature as restraining project procurement, encapsulates the uneven disciplinary relationship, whereby architecture expands freely into traditional landscape architectural areas, but the reverse process is stymied. Also, the core that is enframed by this threshold suggests the composition of a 'vital centre', which as Beardsley (2000: 57) identified, is important to re-establish. If landscape architecture is to maintain distinctiveness, building on this core—either contiguously, or by establishing new satellite interests in other fields—is crucial. Additionally, reconsidering landscape architectural education models to reflect—or at least acknowledge—current and projected cross-disciplinary overlaps is of key importance.

The landscape philosopher Ton Lemaire described the angst associated with the impact of increasingly rapid changes on the environment as 'crisis of the landscape' (Antrop 2014). Any sense of a crisis of landscape 'architecture' is likely to be causally similar, whereby landscape architects' reported anxiety is a symptom of larger shifts in the disciplinary environment. Given that architecture reported a similar, but passing, period of disciplinary doubt in the 1980s (Costanzo 2009), on-going research is required to monitor whether expressions of landscape architectural disciplinary anxiety also wane over the next decade. If this is the case, it is likely to be a delayed reflection of recent encouraging indications of landscape architectural empowerment in theory and practice.

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Notes

1. 'Inter-disciplinary anxiety' is where the crossing of boundaries leads to concerns regarding the integrity of institutional identity and an irretrievable loss of intellectual autonomy (Huggan 2002: 245).

2. 'Trans-disciplinary' refers to a holistic unity of knowledge that is greater than the sum of the constituent disciplines. Individual disciplinary boundaries are significantly reduced in importance, since the production of knowledge occurs using methods influenced by all participating disciplines.

3. 'Cross-disciplinary' refers to research that unilaterally investigates a topic outside of the researcher's original discipline, without interacting or cooperating with the visited disciplines. While disciplinary territory is crossed, there is no mutual exchange of knowledge or ideas.

4. The design competition clearinghouse www.deathbyarchitecture.com was launched in 1995.

5. Urban design was omitted due to the absence of an equivalently consistent professional magazine throughout the study period.

6. As Kwinter (2002: 6) noted, one decade after his widely influential essay 'Landscapes of Change', the article 'post facto managed to interest a few landscape designers (to whom it was absolutely not addressed)'.

7. From analysis of curricula of top ten ranked U.S. landscape schools (as listed by Design Intelligence 2015).

8. This is illustrated through comparison of the cover images of monthly U.S. professional magazines. Between 1992–2013 (inclusive), Architect ran twenty-four portraits of architects, while Landscape Architecture ran five portraits of landscape architects.

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