Abstract 3148

Michael Lennon[1]

Karen Foley[2]

1. School of Planning and Geography, Cardiff University, Wales
2. UCD School of Architecture, University College Dublin, Ireland.

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ABSTRACT

While scientists continue to debate whether-or-not we have entered the geological era of the anthropocene (Crutzen and Steffen 2003), the challenges that we face as a consequence of our impact on the global ecosystem show no sign of abating. Such complex environmental issues demand input from a range of different discipline areas. Within the framework of the landscape architecture profession, this paper looks at the shifts in the concepts of "landscape" and "green infrastructure" (GI) in the current century. This paper describes a multidisciplinary Irish research project (ECO-Plan research http://www.ecoplanresearch.org/), which seeks to provide an evidence-base for the effective integration of ecosystems services and nature conservation with spatial planning by applying the GI concept as an integrative tool. This project is funded by the Environmental Protection Agency's STRIVE programme. Some initial findings from this research are discussed below, with particular attention given to their potential implications for repositioning the landscape architecture profession.

INTRODUCTION

In the intervening years since the Centre for Landscape Research's conference in 2000, "Multifunctional Landscapes—Interdisciplinary Approaches to Landscape Research and Management" (Tress et al. 2001), the global challenges of biodiversity loss and climate change mitigation and adaption have grown in urgency, requiring integrated and innovative policy making. The publication of the Millennium Ecosystem Assessment in 2005 and the widespread adoption of the concept of 'ecosystems services' has been one response (MEA 2005). The ecosystem approach (EA) provides a framework for looking at whole ecosystems in decision-making, and for valuing the ecosystem services they provide (DEFRA, 2007). In terms of the concept of landscape, one of the most significant changes during this period was the ratification by most European counties of the European Landscape Convention (ELC). As well as providing a comprehensive definition for "landscape", the Convention broadened the interpretation of its meaning, shifting the emphasis from visual amenity to the consideration of landscape as a resource in its own right (Landscape Institute and the Institute of Environmental Management and Assessment 2013).

At a disciplinary level it has been suggested that the ELC should be seen as "a clarion call to landscape architecture to re-evaluate its old assumptions and … to engage more closely and creatively with the many other disciplines who also have an interest in understanding and shaping our common landscape" (Bell et al. 2012:2). This assertion adds to the chorus of voices that have spoken out during the profession's history, and challenges educators to question if our current educational approach is fit for purpose. The practice of "reflection-in-action" is one of the defining qualities of a profession (Schön 1991). A review of the landscape literature reveals on-going discourse and recurring shifts in emphasis about where the educational focus should

lie. An historic debate centred on where the discipline positioned itself with regards to science and art/design. Meyer, writing in her work "The Expanded Field of Landscape Architecture" (1997), challenges the landscape profession's tendency to see the world in binary terms, such as aesthetics and science, art and ecology, or culture and nature. She suggests that such absolute dichotomies potentially blind us "from seeing complex webs of interrelationships" (Meyer 1997:45). Recent reflection on future directions for the profession note the emergence of such "crossover" professional disciplines as urban design and landscape ecology as a response to the contemporary environmental challenges we face (Roe 2012:299). Analysis of the changing concerns of North American landscape professionals expressed in surveys from 2013 and 2014 (source the ASLA blog "The Dirt") reveals the growing focus on sustainability and climate change. This issue now exceeds concern expressed about the quality of design professionals.

In essence we have to challenge the sometimes-peripheral position held by landscape architecture where its customary role is often the short-term option of design expression and the production of schemes that mitigate rather than adapt (Venturi 2012), and where practitioners may focus on the "parcel" scale rather than consider the cumulative impact of their work (Austin 2014). GI thinking moves beyond traditional site-based approaches of 'protect and preserve' towards a more holistic ecosystems approach, which includes not only protection but also enhancing, restoring, creating and designing new ecological networks characterised by multifunctionality and connectivity. As such, it demands that those engaged in GI related design activities concurrently achieve seemingly disparate goals such as recreational space provision, habitat conservation and flood risk management (EC 2012; Novotny et al. 2010). Consequently, translating the GI concept from theory to practice requires an array of experience drawn from a range of opinions, theories and

practices (Benedict and McMahon 2006: 40). In this sense, a GI approach 'requires a co-ordinated approach from a multi-disciplinary, cross-organisational, cross-boundary team of partners' (TCPA & WT, 2012: 10). As noted by Kambites and Owen (2006: 490), 'The "silo mentality" whereby different departments of a local authority work separately from each other – and occasionally in conflict with each other – is inimical to the nature of green infrastructure planning'.

ECOPLAN RESEARCH IN IRELAND

Initial interview based research with local authority officers and design consultants indicated that such a 'silo mentality' was pervasive in the administrative arrangements and operational activities of Irish local authorities. This phase of research also identified frustration among many design and planning professionals with how the organisational structures of local authorities generated an impediment to both the development and deployment of innovative planning and design concepts. It was concluded by many interviewees that such fragmentation of expertise by administration structures posed a barrier to the successful operationalisation of the ecosystems services paradigm in Irish local government. Overcoming this institutionalised 'silo mentality' therefore occupied the project researchers who sought means to facilitate enhanced collaboration between the diverse array of professionals required to deliver the multifunctionality promised by the GI perspective. Central to this has been the development of a method of dissolving fractured working arrangements that segregate knowledge and experience. This research goal has been tested by the formulation of an innovative participatory problem-solving method that softens sedimented disciplinary delineations by creating an enjoyable yet challenging learning environment for multidisciplinary interaction. At the heart of this method is a board game called 'GI Quest'.

GI QUEST

The 'GI Quest' board game has been specifically designed to simulate a spectrum of issues potentially encountered in seeking to deploy GI thinking in the planning and design of complex urban, suburban and peri-urban environments. Professional groups tend to have their own disciplinary specialism and procedures for problem solving, i.e. the "engineering" approach, ot the "ecological" approach. To successfully address the range of challenges presented, the participants are required to pool their respective expertise. Key to the process is simulating collaborative problem-solving and participatory learning in an entertaining fashion so as to dissipate potential collaboration reticence. The activities of this collaborative learning forum are thereby unconventionally structured around playing a game.

The game-board comprises an aerial photograph of a small urban area and its hinterland. Framing this photo are coloured blocks. Each block corresponds to a different set of cards that address a variety of themes, namely; 'ecology', 'hydrology', 'cultural heritage', 'recreation' and 'wildcard' – the latter theme addresses miscellaneous issues such as unforeseen political interference and lottery bursaries (see Figure XYZ).

Figure XYZ

GI Quest game board

GI Quest: Stage 1. Players are first presented with context information. This outlines local landscape characteristics such as the location of flooding plains, nature conservation sites and protected views. Also provided is information concerning the local political and planning objectives for the area, including aspirations for a number

of urban extensions. The participants are then tasked with examining the aerial photo and context information supplied to identify potential opportunities for enhancing green space connectivity and multifunctionality through employing the GI approach. Using tracing paper and coloured markers, each team is requested to record in tracings, sketches and summary text their collaboratively derived planning and design objectives for consolidating and enhancing the area's existing green infrastructure

GI Quest: Stage 2. Having thus familiarised themselves with the context and formulated a series of planning and design ideas, the players then roll the dice and commence their passage around the outside of the game board (along the coloured boxes). The roll of the dice ensures a random outcome as different teams land on different coloured boxes and draw different corresponding colour-coded cards. Each card presents a new challenge, which the players must collaboratively negotiate through revising their plans and designs. The cards have been designed to simulate issues that may emerge in devising a site masterplan or local area plan. For example, drawing an 'ecology' card may specify that a recent ecological assessment has identified the presence of an internationally protected animal within a certain area with consequent implications concerning development limitations and conservation requirements.

GI Quest: Stage 3. The players finish their passage around the coloured boxes by landing on the large red circular shape that reads 'GI' (see Figure XYZ). The facilitators now present the team with details concerning a planning application. The team must once again pool their respective expertise in assessing the merits of this proposal against the GI informed design and planning concepts they have formulated thus far.

GI Quest: Finale. The session concludes with an open discussion, which provides a forum for participants to 'reflect-on-action' what has been learned through 'reflection-in-action' (Schön, 1991). A recurring theme emerging from such reflections, and from observing players tackle the challenges posed by the game, is that GI presents an opportunity to support the evolution of the landscape architecture profession by repositioning it within the design and planning process.

REPOSITIONING LANDSCAPE ARCHITECTURE

To the fore in GI thinking is a requirement to respect the complexities of context in which GI design activity operates and to which a GI plan addresses (TCPA and WT 2012; William 2012). Here, a landscape perspective is indispensable as it moves beyond the particulars of site-confined engineering or architectural design to a landscape scale perception of 'place' as an integrated and dynamic whole of social-ecological interactions evolving across space and time. In this sense, landscape architecture professionals enjoy some advantage in GI planning and design through their schooling in the multi-scalar entanglements of human-environment interactions such that, 'a landscape approach to green infrastructure entails a design vision that translates planning strategy into physical reality while heeding the ecological and cultural characteristics of a particular locale – whether a region or an individual building' (Rouse and Bunster-Ossa 2013: 5).

Researcher[1] observations on participant interactions when playing 'GI Quest' suggest that landscape architects appear best equipped with the theoretical and design skills to most readily employ the GI approach. During the first section of the

[1] The researchers in these observations comprised two spatial planners, one environmental scientist and one landscape architect

game, players are asked to identify potential opportunities for enhancing green space connectivity and multifunctionality through employing the GI approach. From daily familiarity with 'seeing green' on maps, photos and charts, landscape architects appear to negotiate this with ease. Indeed, a conspicuous feature of game play is the way landscape architects quickly begin to lead their fellow players in identifying the multifunctional and connectivity potential of green spaces. By inverting the conventional focus on 'grey infrastructure' (streets, railway stations and telecommunications), the 'green' 'infrastructure' approach privileges the knowledge and skills of landscape architects who are trained to focus on green space attributes. Consequently, engaging in GI planning and design activities advances a perspective more sensitive to the concerns of landscape architecture.

The ratification of the ELC has shifted policy focus from the pristine landscape to an embrace of all landscapes including the everyday and the degraded. It is here that a multifunctional and integrated approach is emerging. Gallent et al. (2004), studying the urban fringe, calls for multifunctionality as a framework for action when dealing with such complex areas, while Termorshuizen and Opdam, (2009:1037) propose the concept of landscape services as a "unifying common ground" where the outputs from landscape science can be "integrated into multifunctional, actor-led landscape development". Furthermore, by virtue of its framing as 'infrastructure', research conducted for the EcoPlan project suggests that the GI concept presents a 'centring concept' that various design and allied professions can 'buy into' in forging interdisciplinary collaborative working arrangements that concurrently centralises landscape architecture concerns.

An objective of the collaborative problem-solving approach fostered by GI Quest is that it prompts a mutual exchange of knowledge between professionals of different

disciplinary backgrounds. Such knowledge most frequently centres on ecology, open space planning and hydrological management. However, a symmetrical relationship in the exchange of knowledge is not always evident. Indeed, researcher observation of game play suggests that through their training and necessary interactions with a variety of allied professionals, landscape architects possess a spectrum of knowledge that spans numerous issues, albeit with different levels of proficiency. This frequently enables landscape architects to more easily engage with an array of differing disciplinary perspectives than would, for example, a drainage engineer not normally acquainted with working with others beyond his or her discipline. Moreover, when engaged in collaborative problem-solving activities, players most often acquire new spatially attuned perspectives resonant with the schooling of landscape architecture professionals. This transfer of knowledge, and a sense of increased importance regarding issues of traditional concern to landscape architects, is also evident in the 'debriefing' section of the workshop that follows game play.

Although possessing deep roots in the history of landscape ecology, recreational planning and human ecology, GI is nevertheless a nascent approach. Consequently, experimentation and continuous learning characterise GI planning and design activity. Nevertheless, research conducted for the EcoPlan project suggest that by advancing the perspectives of landscape architecture among allied professionals, the successful integration of the GI approach to planning and design offers the prospect of repositioning the profession from the margins of conventional design processes to the centre of activity. Thus, buttressing the comparative advantage of landscape architects in GI planning and design, through targeted university education and CPD programmes, presents an opportunity to favourably position the profession as its traditional concerns increasingly occupy the theory and practice of allied disciplines.

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Key words

Green infrastructure; GI Quest; Multidisciplinary collaboration.