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Integrating trans-disciplinary approaches: Joined-up working in urban regeneration.

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This paper questions the relationship between biodiversity, planning and governance and highlights physical and organizational barriers that can prevent change. Trans-disciplinary approaches to evaluating biodiverse urban environments are discussed and analysed with particular reference to the role of environmental public art and community engagement projects within urban regeneration. Public art has been integrated into the regeneration of cities. Public artists are capable of delivering interesting 'greening projects' that involve local communities in the processes. Such projects appeal to local authorities because they are perceived to address objectives within authority's social and environmental policies. An illustrative study is provided: a multidisciplinary team were commissioned to map four miles of the Leeds/Liverpool canal as part of Liverpool Biennial's Urbanism 2009. The team, led by an artist and a plant ecologist, collected data over six months in the spring and summer of 2009. This data included measurements of the biodiversity of the area, recording and categorising human activity, patterns of dog fouling, 'landscape preference' using selected canal-side landscapes, and detailed data on the 'barrier constructs' (fencing, walls etc) along the canal which link back to patterns of human activity and can be further related to aesthetics and environmental psychology. The conclusions were that this stretch of urban waterway is an ecological gem within an area of urban deprivation, but for the gem to attract people from across all demographics - to enjoy and foster ongoing use and respect for the environment, changes need to occur in the way that agencies and professionals work together. This vision can only realistically be achieved if professionals from all relevant agencies work collectively, pooling resources and expertise. A series of recommendations for action are suggested: it is not so much about community cohesion - a sense of community in the built environment - but cohesion amongst agencies and professionals.

What is the current relationship between biodiversity, planning and governance in urban landscapes?

It is likely that there will always be pockets of land within our cities and towns referred to as derelict. These so-called 'brownfield' sites - previously developed or used but now vacant or contaminated and no longer in use as originally intended - are expected to be transitory spaces that sooner or later will be built upon. In time, these become used by a wide variety of life forms that colonise and inhabit the space and the biodiversity of these brownfields increases. When these areas are finally re-developed, there is an overall loss of green space in urban areas – as demonstrated, for example, in Pauliet, Ennos and Golding (2005).

The time between dereliction and re-development will vary, but increasingly, interim use of brownfield sites is advocated (Taylor 2008, English Partnerships 2006; 2007; 2008). These interim uses may take a variety of forms for example:

"use of open spaces for public events such as festivals or on a longer-term basis as ecology sites, or allotments." (Greater London Authority, 2005).

As a part of the process of developing appropriate interim use, professionals and key community members involved in urban regeneration, land redevelopment and land reclamation need to have reliable ways to evaluate derelict urban land and agree a way forward for brownfield sites that will be able to support a variety of stakeholder interests. These interests would include those charged with delivering environmental improvements, promotion of biodiversity and ecosystem services as well as encouraging amenity use by members of the local community. One way of achieving this integrated approach to interim use of urban brownfield is to devise ways of trans-disciplinary work between the agencies involved in urban regeneration.

We investigate one particular aspect of trans-disciplinary approaches to evaluating urban environments : the role of environmental art and community engagement projects within urban regeneration.

Within urban renewal and restoration programmes, art that can transform 'brownfields', contaminated or industry-degraded landscapes into new landscapes that can be used and enjoyed by a general public has been used as a low cost alternative to restoration/reclamation ecology and landscape architecture since the nineteen seventies. British artists engaging with environmental issues, the built environment and the natural environment, became increasingly involved in landscaping projects during the nineteen nineties as Public Art began to be integrated into regeneration schemes (urban and rural).

Public Art has played a role in urban regeneration since the mid-1980s (Landry et al 1996). By 1993 around 40% of local authorities in the U.K. had adopted public art policies advocating the role of art within regeneration (Miles 1997). As high profile success stories such as Newcastle's iconic "The Angel of the North" public sculpture by Anthony Gormley and the Baltic Arts Centre were increasingly cited as exemplars of good practice, culture led regeneration and iconic sculptures became key components within regeneration and the re-branding of post industrial towns and cities (Sharp et al 2005). By 2001 over 50% of local authorities had public art policies (Hamilton 2001) and in 2006, IXIA (The Public Art Think Tank) conducted a survey in England and found that approximately 61% of local authorities had public art policies, strategies or statements linked to local planning documents, and in 2011/12 IXIA intend to repeat the survey (Banks 2010)).

Public art has diversified over the past two decades encompassing performative work, sound, time based media, temporary art works, environmental projects and process led projects. To differentiate between the iconic public art sculptures and the variety of other art practices occurring in public spaces, the term Art in the Public Realm is now used as a generic term in preference to Public Art.

Public Art and Art in the Public Realm is believed by many to play a critical role in the delivery of innovative, robust and sustainable regeneration. It is widely believed that art and creative community engagement as part of a regeneration programme will contribute to work on a number of urban issues including creating a local distinctiveness, improving urban spaces and public use of space, a reduction in vandalism and anti-social behaviour, renewing citizenship and an increase in cultural tourism, employment with a knock on effect in subsequent increases in land values (Landry et al 1996, Hall 2001, Arts Council of England 2006, Thomson et al 2005, Sharp et al 2005, Tornaghi 2007 Cumberlidge 2008). Case studies convincingly advocate the role of socially engaging process-led practice and frequently state how art positively impacts on communities and tackles issues such as social exclusion (Arts Council 2006, Tornaghi 2007).

If problems caused by socioeconomic inequalities are make areas less attractive to outside investors, then social inclusion becomes a necessity in regeneration and art as part of the process appears well placed to deliver projects that encourage community cohesion. Critical to this is the belief that art in the public realm is capable of creating a sense of social cohesion as well as forging links between communities and place. By commissioning socially engaging art work local authorities are not only advocating urban aestheticism but also showing a willingness to deal with social and environmental issues (Sharp et al 2005). The physical and social benefits accredited to art has encouraged and perpetuated a cycle for commissioning environmental socially engaging art projects in areas of deprivation that are undergoing regeneration. Neighbourhood art projects that affect landscape and social use thereof have become a part of urban regeneration and in 2008 the Commission for

Architecture and the Built Environment (CABE), Arts & Business, and the Arts Council England initiated Artists and Places, a scheme focused on Housing Market Renewal areas. There exists a real opportunity to integrate creative thinking into strategic housing developments, and place arts and culture at the heart of vibrant and sustainable communities (Holding & Brookes 2008).

Evaluating biodiverse urban environments

There are various ways of assessing the biodiversity of urban environments, including those that take into account both the potential for experiencing nature and the value of a site's location to the urban green space strategy, for example the evaluation method devised by Herbst and Herbst (2006). This evaluation method uses a geographic information system (G.I.S.) to record on-site data as well as the locational characteristics of a wasteland site to determine the importance of such sites as urban wildlife areas. The evaluation uses four main principles: the potential for experiencing nature (biota coverage and natural succession stages), potential for usability of the site, possible users and the importance of the site in relation to the local authority's green space strategy.

Art practitioners have begun to use these kinds of tools in evaluation of urban brownfields by adapting the tools to include criteria that link further to the potential for experiencing nature. For example a study by Morrison (2007) used additional criteria for evaluating 101 Liverpool brownfield sites for their value for experiencing nature: site accessibility, landscape aesthetics, percentage of tree cover and percentage of edible plants.

The role of socially engaging process-led art practice in non-conventional consultation processes in urban regeneration may yet need to prove its worth in the face of the hype. There are many potential and actual barriers to bringing the expected benefits of this approach to fruition. We illustrate this with the following example from a commission carried out over eight months during 2009.

A case study of socially engaged art practice in urban regeneration on the Leeds Liverpool canal.

The work was commissioned by the Liverpool Biennial (an arts organisation) in partnership with British Waterways, and Housing Market Renewal Pathfinder Newheartlands and the regeneration departments within Sefton Borough Council and Liverpool City Council. The commissioning partnership wanted to change local perceptions of the canal from being a dangerous backwater to being a valued 'frontwater'. To do this, they wanted to find a creative 'community engagement' approach. Thus they commissioned us as an established collaborative team of a socially engaging practitioner and a plant ecologist and asked them to map a 4-mile stretch of the Leeds Liverpool canal from Stanley Dock up to Seaforth and to engage with the community. Critical to the investigative enquiry was the visibility and approachability of the team so we employed a method of socially engaging dialogic art practice whereby the process of engagement and responsiveness between the artist and the participant is the art work (Kester 2004; Hein 2006). A socially engaging process invites the viewer to become an active participant. In this context 'Art work' ceases to be a noun but becomes a verb (Kwon 2002). Each team member donned a uniform of a warehouse coat with clipboard accessories and we perambulated a bespoke, wheeled art/science laboratory along the canal towpath carrying out the various investigations (Figure 1). Where appropriate, additional skills were brought to the team: a social geographer; a performance artist. We became a familiar sight to the users and they frequently approached us to discuss what they had seen, what they felt, what they knew. As issues came to light in this way, they became integrated into our practice and investigation and were further highlighted through subsequent activities. Our approach was to use multiple methods to evaluate the

land use of the canal by both humans and other organisms and make the process as 'witnessed' and interactive as possible (Kemp 1999).

Figure 1 The mobile art science laboratory on the towpath



To record the biodiversity, we used a traditional Phase 1 habitat survey, species lists, and observations of animal and bird life. From these observations we discovered there were in total 138 species of plants recorded over the period between May and August including some national rarities such as Purple Ramping Fumitory, *Fumaria purpurea*, a plant that is on the Biodiversity Action Plan for the area. It is nationally scarce and typically a plant of disturbed, particularly arable, habitats. The maintenance regime used by landowners (e.g. strimming and pesticide use on the canal side where this plant was found) may or may not promote its continued existence. The usual frustrations that result from bureaucratic structures were encountered when attempts were made to open a dialogue with the landowners around maintenance decisions.

Other species found are typical of the waterside habitats as might be expected, and included Skullcap, Hemp Agrimony, Annual Woundwort and Southern Marsh Orchid. We also recorded 21 species of birds including Dabchick and Kingfisher and observed water voles feeding on several occasions, clearly enjoying the locally abundant Fringed water lily *Nymphaea peltata* as a food source.

In many respects, enumerating species is the easy bit. We soon found that our observations of human use of the environment led us into a much more complex area.

Early on, we developed ideas about what factors might affect human activity along the canal and in order to investigate this we divided the canal into 32 sections. When we were initially asked to "map" the canal, we tried to think as widely as possible. We soon began to think about not only the physical and biological features but also about ways of mapping the human activity along the canal. This

quickly led us to thinking about the canal as a piece of "human habitat" and so we began to investigate and explore the instinctual or primeval elements that might affect how we interact with an urban environment.

If our preferences relating to features in our environment have at least some resonance with the way we see the landscape through our 'animal' eyes (as a habitat in which to live, find food, be safe and so on), then it is likely that we look at not only natural landscapes, but also human-formed landscapes, partly in these terms.

The literature that underlies this approach spans various disciplines: landscape architecture, evolutionary aesthetics, anthropology and environmental psychology. In delving into this literature it soon becomes evident that studies during the 1970s and 1980s (e.g. Kaplan and Kaplan 1990; Ulrich 1986) have led researchers to conclude (e.g. Ruso, Renninger and Atswanger 2003) that there are several features relating to landscape appreciation that are universal. For example, a seminal work proposed the prospect-refuge theory: human habitat preferences were driven largely by the ability to see distances to spot resources and the opportunity to anticipate and escape from danger (Appleton, 1975). Further research attempted to measure landscape preferences and from there, begin to categorise these preferences. They found surprising agreement in human habitat preferences, even across different cultures (e.g. Ulrich, 1991; Kwok 1979 in Voland and Grammer 2003). This chimed with our realisation that a canal is essentially a 'tunnel' and that, seen like this, we might be able to interpret human activity patterns in these terms.

Human activity

A method of recording was devised that used 30 minute periods of time to record gender, approximate age, group size and activity (walking, cycling etc). Each of the 32 canal sections was recorded three times over the period between June and August 2009 at various times of day. The results showed that the canal was used mainly by males in the age range 30-40 with the main activities being walking (with and without dogs) and cycling. Most activities (58%) were carried out in a group size of one. A further 20% of activity was carried out in groups of two, judged as friends or family. The demographic groups under-using the canal included single women of any age, the over 50s and children. Only 22% of all activity (574 records) was undertaken by females. Nearly 50% of all activity was by those aged 30-40. Figure 2 shows the activity categories recorded overall.



Figure 3 Average number of steps you could expect to take in each section before encountering a fouling incident



We also decided that two other prominent features of the canal deserved to be assessed, namely, dog fouling and fencing (barrier constructs): dog fouling because this was an obvious aspect of canal usage and fencing because of our ideas about the 'tunnel' effect and our observation of underuse by the groups as previously mentioned.

Dog fouling

To assess the extent of dog fouling, the team made measurements of the number of foulings against number of paces walked to get an idea of the scale of the problem. Figure 3 shows the average number of steps you could expect to take in each section before encountering a fouling incident.

Sections 5, 13, 14, 18 and 28-29 were the most heavily fouled. The pattern of deposition indicated, particularly in the cleaner sections, that, unsurprisingly, deposition occurred mainly at the entrances to the canal section. Sections 28 and 29 are the most heavily fouled sections (highest density) and this is probably explained by the many domestic dwellings in the area. The canal has been recently landscaped in this area with a newly gravelled towpath. It has an air of safety, as it is very open with low barrier constructs, and evidence of human activity (of course, the dog fouling is one example of this, but perhaps the presence of dog fouling actually contributes to helping us feel as if we are in a safe (or at least a well used) environment?) The human activity data though, shows that there was little activity recorded and that this fell into relatively few categories in these two sections, despite the high number of dwellings.

Barrier constructs (fencing)

We recorded characteristics of every barrier construct along the length of the canal. The towpath side, being more accessible, was recorded with completeness, while it was much more difficult to record the other side with great accuracy. Height, type of construct (e.g. palisade fencing, brick wall, vegetational barrier), length, and toppings such as razor wire or anti-vandal paint were all recorded, together with a subjective assessment of overall aesthetic appeal on a ten point scale. As we recorded, we became more aware of the barriers and the way they shaped both the look and feel of the immediate environment (Figure 4).

Figure 4 Multiple layers of fencing on the Leeds Liverpool canal towpath.



Figure 5 All occurences of each activity for all 32 sections of the canal.





Figure 6 Area of wall (m sq) in each of the 32 sections of the canal

Over one third of the 4 mile stretch was edged with what we categorised as 'aggressive' barriers over 3.5 metres high. As Figures 5 and 6 show, human activity did indeed seem to be negatively associated with wall area, with high wall area coinciding with low activity levels. We would suggest that there is evidence for the 'tunnel effect' here, which may begin to explain the patterns of human activity in terms of demographics in particular. Attempts to engage in dialogue with councils and landowners on the functional necessity of the barriers descended into a lack of willingness to admit ownership of, and take responsibility for, the barriers in question.

Through creative consultation processes, perspectives about space and use of space can be discovered that could easily be overlooked by more conventional methods of consultation or landscape assessment. The creative approach of a socially engaging and investigative practice is not one that seeks to replace an existing landscape with another, but a methodology to discover the value of what lies within a landscape, aesthetically, ecologically, and socially and to identify social and environmental issues that may be barriers to experiencing space.

Evaluation of an attribute of space such as for example, its biodiversity, is more than just counting plants or water voles, it is also about helping people to see and value what is on their doorstep. A process-led art project inclusive of dialogic methodology provides scope for investigative inquiry un-constrained by the conventions of traditional scientific inquiry and un-governed by external political agendas, organizational policies or prescribed outcomes. Embedded within *process* is the freedom to digress and respond to unpredictable encounters and create provocative happenings that raise awareness of often controversial issues. This allows for the unexpected to be discovered and acted upon, for example, aggressive and formidable palisade fencing that serves no apparent purpose can be identified and with cooperation from governing bodies and landowners, perhaps be removed thus opening up an environment. Removal of man-made features in a landscape that promote fearfulness and create 'tunnel effects' could make a space less threatening and more inviting, achieving the key stakeholders objective to enhance the environment and create an accessible open green space simply and cost effectively.

In the investigated stretch of the Leeds Liverpool canal there are four major stakeholders that are the gatekeepers of the environment via their decision-making processes: British Waterways, the Housing Market Renewal Pathfinder Newheartlands and the regeneration departments within Sefton Borough Council and Liverpool City Council. Each has different governing policies but with regard to this section of the canal the overall aim of all three is the same: to create an accessible and sustainable open green space. As the study illustrates, how they propose to achieve this varies and in some instances actions appear to be in conflict.

Developments in ecological science, use of ecosystem services concepts, awareness of environmental hazards and climate change, the imperatives of socio-economic drivers and socio-political issues and an appreciation of demographics are all inextricably connected to consideration of urban green space. Inclusive decision making is necessary to achieve *the multiple, dynamic and complex interplay between social, economic and environmental factors* in the provision and maintenance of urban green space (James *et al* 2009). Independent inquiry, i.e. working without external prescription or pre-determined time frames allows opportunity for boundaries of practice to be pushed and paradigms to be challenged. Creative practitioners could play an important and significant role in addressing the complexity of issues surrounding the uses of biodiverse Brownfield sites and apparently neglected urban green space. Process-led socially engaging practice and transformative environmental interventions could un-tap potential for increased social, environmental and aesthetic value.

Creative practitioners may possess the skill sets needed to operate effectively within regeneration and land remediation; the ability to research, engage in creative dialogue, communicate ideas and intentions to a range of audiences and deliver clear documentation or environmental outputs. In addition, artists experienced in working in the public realm may be knowledgeable about theories of public space, local distinctiveness, and social relationships (Minton 2008). Working in collaboration with an expert from another discipline expands the knowledge base further and thus broadens the scope of environment investigation and assessment. Of course, independent practitioners do not have the authority or means to implement groundworks such as fence removal or to change maintenance directives. So what

are the outcomes of such working methodologies? Once elements within a landscape have been surveyed and public responses and anecdotes recorded, the plethora of information gathered analysed and recommendations deduced, where does this information go and who is likely to action it?

The researchers believe that this is where transdisciplinary and multi-disciplinary approaches are crucial. Presenting possibilities for positive change is not enough. Joined up thinking and cooperative working is needed to develop further multidisciplinary and transdisciplinary research and practice in order to maximize potential for provision and enjoyment of urban green space.

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