LANDSCAPE REVIEW

THEME

Potential and Possibility: Educating Landscape Architects and Exploring Landscapes

CONTRIBUTORS

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LANDSCAPE REVIEW
A Southern Hemisphere Journal of Landscape Architecture

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Landscape Review aims to provide a forum for scholarly writing and critique on topics, projects and research relevant to landscape studies and landscape architecture. Articles are considered and published in three categories. 'Research' articles report on recent examples of substantial and systematic research, using a conventional format that normally includes a review of relevant literature, description of research method, and presentation and interpretation of findings. 'Reflection' articles undertake a more discursive examination of contemporary issues or projects and may be more flexible in format to suit the subject matter.

All published contributions in the 'Research' and 'Reflection' categories are subject to double blind review. Criteria for acceptance are critical insight, originality, theoretical and methodological rigour, and relevance to the aims of the journal.

A third category is entitled 'Reports'. This category is intended for shorter commentaries, reviews and reports on progress. Although not normally fully refereed, contributions in this category are nonetheless subject to editorial review.

The editor is particularly interested in contributions that examine issues and explore the concepts and practices of special relevance to the southern hemisphere, but welcomes contributions from around the globe. Contributions are encouraged from both academics and practitioners.

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Editing, proofreading and production, *Tanya Tremewan, Christchurch* and *Jenny Heine, Wellington*.

Foreword

JACKY BOWRING

This issue of *Landscape Review* brings together a wide range of articles, a true testament to the breadth of the discipline. It has an underlying theme of potential and possibility, of looking beyond the status quo of education, or the conventional image of site, and exploring new territories.

Education is the engine room for the profession. The first three papers all provide insight into the education of landscape architects, ranging from the choices student face when deciding to train, through to the ways in which we can teach landscape architecture.

The first of the education papers, 'Landscape Architecture Student Choice: Profession or Provider?' by Mike Barthelmeh and Dennis Karanja, focuses on the transition into landscape architecture education. How do school students decide to become landscape architects? And how do they decide where to study? These are critical questions for the profession, and for teaching programmes. As an often misunderstood, or even invisible, profession, it faces the critical challenge of raising awareness of what landscape architects do.

Once students are in a programme, how are they trained? Tertiary education is a complex topic in itself, with current debates and discussions around micro-credentials, blended learning, learning styles and so on. The infrastructure of education is expanding, embracing the possibilities of digital platforms – but growing too is the theory of how students learn. Design disciplines like landscape architecture involve even more complexity, as learning design is often seen as a highly engaged and experiential process. The 'how' of educating landscape architects is explored by Benjamin George in his paper, 'Barriers to the Adoption of Online Design Education within Collegiate Landscape Architecture Programmes in North America'.

The delivery of design education is also explored by Carlos Licon and Caroline Lavoie in 'Landscape Architecture Studio in a Large, Complex and Remote Location: The Learning Experience of StudioMx'. The remote learning implied by online education, as George discusses in the previous paper, has an intriguing resonance with Licon and Lavoie's project, in which the students were involved in a studio project for a site they did not visit. The broad – metropolitan – scale of the studio project, as well as the context of having American students working on a Mexican city, provided spatial and cultural challenges for the studio. Students were compelled to explore more than just aerial photos and maps.

Moving beyond the classroom, the computer screen and the studio, the second group of papers investigates a range of landscapes, and in particular the possibilities that evolve from non-traditional approaches to thinking about

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place. The first location is Christchurch, New Zealand, where Francesc Fusté-Forné looks at the evolution of experiencescapes. Landscapes of experience are core to shifting landscapes, like those of post-disaster cities such as Christchurch. Through disruption caused by its earthquakes, the city's narratives changed dramatically, but experiencescapes created ways of forming new connections. As a mainly grassroots endeavour, the creation of experiences in the city highlighted the importance of stretching our minds in terms of what is possible.

Across the Pacific, in San Francisco, United States of America, is the Albany Bulb, a landform constructed from waste. Karl Kullman's study of this landscape, 'The Garden of Entangled Paths: Landscape Phenomena at the Albany Bulb Wasteland', reveals the qualities of a *terrain vague,* one of those landscapes that hovers at the edge of a city's consciousness. Kullman's sustained phenomenological investigation of the site makes manifest its ambiguous and complex nature – qualities that, he argues, have a particular role in public spaces. Having this more open-ended, 'gardening' concept of a site is a way of 'trading off predictability for possibility'.

The unpredictability of site use is also an underlying theme in Nasim Yazdani and Mirjana Lozanovska's paper, 'Australian Mythical Landscape and the Desire of Non-English-speaking Immigrants'. Australian parks reflect a legacy of European settlement, manifesting aesthetic ideals that are embedded in the iconic paintings of the landscape and the myths of 'bush' and 'Arcadia'. As Australia becomes increasingly diverse through recent immigration, the fluidity of these myths is drawn into question, and it becomes important to be open to possibilities rather than limit ideas of how parks might be used.

The final paper in this issue also draws together ideas of marginal landscapes and shifting narratives. Philip Hutchinson takes on the world's largest landfill in 'Exploring the Connection between Landscape and Biopolitics: The Story of Freshkills Park'. The transition from landfill to park demands an openness to possibility, and in this case the development of new narratives to help form new attachments to place. Most importantly the issues of climate change, ecological degradation, waste management, and terrorism inform the developing narratives of Freshkills Park, offering new lenses and a heightened awareness of the political potentials of parks.

As always, thanks to the authors and reviewers who have made the issue possible. In some cases it has been a patient wait by the authors until the opportunity came to include their paper in an issue, and we are grateful for this. Reviewing papers is one of the ongoing challenges of all academic publications, and we are very appreciative of the reviewers who have supported *Landscape Review*. And for the quality of the journal, with its excellent editing and production, thanks again to our wonderful team of Tanya Tremewan and Jenny Heine.

Landscape Architecture Student Choice: Profession or Provider?

MIKE BARTHELMEH AND DENNIS KARANJA

Secondary school students face many choices about tertiary education. Some will have a career path in mind and choose to attend an institution that offers a relevant programme, while others will choose a programme offered by an institution that has been selected for other reasons. This paper investigates whether students enrolled in one of the three accredited landscape architecture programmes in New Zealand first chose their career rather than first selected an institution. It also reports on the factors that influenced these choices. Ninety-seven first-year landscape architecture students were invited to complete a self-administered questionnaire. Seventy-five per cent chose a career in landscape architecture first, rather than first selecting an institution. In choosing a career, extrinsic motivations were more important than family or institutional influences, but institutional influences were more important than family or extrinsic factors when selecting a provider. The main factors influencing choice have implications for the profession; they also have implications for institutions regarding programme distinctiveness. Many factors play a role in these choices, including selection of subjects at school. Survey respondents reported on their choices of subject at secondary school and the usefulness of those subjects to their landscape architecture programme. A particular combination of secondary school courses may be a useful signal for students to consider landscape architecture as a possible career path.

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KEY WORDS

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Secondary school students face several choices when deciding to continue their education at a tertiary institution. Some will have a specific career path in mind and choose from the providers that offer a relevant programme. Others will select from programmes offered by a provider that is attractive to them, for instance, because of proximity or through family ties. These decision points affect both the landscape profession and the providers of professional programmes such as accredited degrees in landscape architecture.

This paper investigates the main drivers for first-year students of landscape architecture to enrol in an accredited programme. The setting for the study is the formal education system in New Zealand, which culminates in tertiary education programmes offered by eight universities and 18 institutes of technology or polytechnics. Students enrolled in one of the three accredited landscape architecture programmes in New Zealand were surveyed to establish if they had first chosen their career rather than first selected an institution and then decided to study landscape architecture.

The findings have implications for providers of accredited landscape architecture programmes and the professional organisation that supports landscape architects.

EDUCATION

Models of student choice

Studies have been undertaken on student choice of career path in subject areas such as economics (Ashworth and Evans, 2000, 2001; Fournier and Sass, 2000) and the physical sciences (Cleaves, 2005; Hassan, 2008; Lyons, 2006; Simpkins et al, 2006; Stokking, 2000; van Langen et al, 2006), although little research has occurred on student choice in landscape architecture. These studies show that choice in education about individual subjects or thematic study at both secondary and tertiary levels is not simple and is influenced by various contextual factors (Foskett et al, 2008).

Marketing of post-secondary choices by schools and tertiary providers has a strong influence on decisions students make, according to Foskett et al (2008). The authors demonstrated that socio-economic status is an important factor in influencing student choice, with the leadership of the school, its nature and values reinforcing or counteracting that influence (Foskett et al, 2008). This is a different view from Lyons (2006), who feels the concept of 'cultural capital' is a better term for explaining the close relationship between parental attitudes and students' own explanations of the rationale for making a particular subject choice in the sciences. Lyons argues that family, social and cultural capital could also influence decisions about other subjects, although the approaches to teaching science meant it had less intrinsic value to students than most other subjects. Thus students were aware of the value of these subjects in retaining future career options, while others with higher levels of intrinsic value (such as drama or visual arts) were understood not to provide that same range of options.

Motivation in education is a significant component of choice arising from a complex interplay between intrinsic and extrinsic factors (Baboolal and Hutchinson, 2007; Hassan, 2008). Hassan (2008) describes both of these aspects: intrinsic, where students choose a programme or subjects because they are 'inherently interesting and enjoyable' (p 130) and extrinsic, where choice is made to achieve a specific outcome 'such as earning money' (p 130). Lyons (2006) suggests that, as potential career pathways begin to emerge or crystallise in senior years of secondary school, awareness develops further about extrinsic aspects such as pay or status, which begin to 'have a greater influence on their post-secondary decisions' (p 58).

The value of subject (programme) advice from individuals was rated by the respondents in Lyons's (2006) study as being from parents first, followed by peers such as senior students and friends. The advice of expert, school-based sources (teachers, course advisers) was least important to choice of subject (Lyons, 2006). Lyons (ibid) adapted the original *multiple worlds* model developed by Phelan et al (1991) and included mass media, as well as the original family, school and peer worlds, as important influences on decision making. Lyons believed his theoretical model of students' multiple worlds was better able to provide a foundation for understanding how students make transitions between these worlds, and how the complex relationships formed by these transitions affected choice.

In the case of business studies, Malgwi et al (2005) found that parents and course advisers at secondary school have little influence on students' choice of programme. Fergusson and Woodward (2000) disagree, and show that the socio-economic status of families is a more important factor.

> In general, it seems likely that, in part, the lower university participation rate of young people from lower socio-economic status families may reflect the presence of attitudinal and economic factors that conspire to make university education less attractive to these young people than to their peers from socio-economically advantaged family backgrounds. (Fergusson and Woodward, 2000, p 34)

In regard to choice factors for tertiary providers, Holdsworth and Nind (2006) suggest that demand for a particular institution is related to the ways in which its attributes fit with the characteristics and needs of students. They further noted that:

> ... [a] significant persuading influence on the student's choice of university was the extent that it offered a degree option aligned with future career aspirations. Other universities were considered favorably where a particular student was considering a specialist course, unavailable locally. (Holdsworth and Nind, 2006, p 86)

Joseph and Joseph (1998) refer to the most important categories for provider choice as being academic and programme issues, cost, location and recreation facilities, and peer–family issues.

Payne (2003) prepared a useful summary of the factors that play an important role in making choices about subjects or programmes. She noted that those factors could be separated into three types of model: structuralist (choice is constrained by matters beyond the control of students), economic (decisions are based on rational assessments of potential returns) and *pragmatic rationality* (some rational choices are possible, but they are 'constrained by a realistic perception of opportunities' (Payne, 2003, p 1). Stokking (2000) notes that a common feature of these models is their assumptions about the degree to which individuals make rational decisions about options.

Education system in New Zealand

The setting or framework for such choices in New Zealand is a three-stage education system that features primary and secondary schools as the first two stages, usually preceded by early childhood education. Stage three, or tertiary, comprises higher and vocational education (New Zealand Qualifications Authority, 2015). The formal education system is compulsory for those aged six to 16, but earlier opportunities include kindergartens, which are aimed at children from around two to five years old, supported by other early childhood education options, such as play centre, Montessori or Rudolf Steiner programmes. Most children begin their formal education when they turn five and attend primary school (year 1). Primary school continues until children are 10 years old (year 6) when they can either move to intermediate school for two years (years 7 and 8) or stay at primary school for years 7 and 8 and then move directly to secondary education at a high school at around 13 years of age (year 9). Once children reach the age of 16 (usually year 11) they can leave school, although many stay until they are 18; this provides an opportunity for them to gain a university entrance qualification (normally taking them through to year 13).

The main qualification for secondary school students is the National Certificate of Educational Achievement (NCEA), which has three levels, is recognised by

employers and is used for selection by tertiary education providers locally and overseas. Students work through levels 1 to 3 of the NCEA certificate from years 11 to 13 (Ministry of Education, 2015). There are other pathways available to enrol in a landscape architecture programme, but this paper focuses on students joining after gaining a level 3 NCEA certificate at secondary school.

Although students pay fees for their respective courses, funding of tertiary institutions in New Zealand is largely derived from central government grants; the annual funding model is based on student numbers, which means that more students equals more money for the institution. Therefore, there is competition between providers for students, especially for generic programmes such as science or commerce degrees. Because these generic programmes are offered by several tertiary providers, students are likely to make their choice with reference to other factors, such as proximity or differentiation between the programmes in terms of their particular strengths or character. More specialised programmes, such as dentistry or veterinary science, are each only offered by a single university in New Zealand; limited places are available and the competition is therefore between students for those places.

Landscape architecture sits between those two extremes. Programmes offered by two of the eight universities in New Zealand (Lincoln in Christchurch and Victoria in Wellington), and one polytechnic (Unitec in Auckland), are accredited by the New Zealand Institute of Landscape Architects (NZILA) with reference to guidelines prepared by the International Federation of Landscape Architects (IFLA). Accreditation verifies that programmes meet the minimum standards outlined in the 2012 IFLA/UNESCO Charter for Landscape Architectural Education.

However, unlike dentistry or veterinary sciences, which are limited in how many students they accept, with three landscape programmes to serve a domestic population of just 4.6 million people in New Zealand, there is good capacity available to train professional landscape architects. Differentiation between the programmes offered by the three providers and competition for prospective students is therefore significant. In fact, two aspects are involved in this competition for students: the first is to attract students to the profession from other career choices they may be considering; the second is for each provider to attempt to claim a substantial share of those who have chosen the landscape profession.

Secondary school students face many choices of subjects to study. The National Curriculum requires all students to include English, mathematics and science in their first three years of study, as well as elective subjects, but for the final two years students can select from a wider range. To qualify for university entrance, students must have level 3 NCEA, with 14 credits in each of three approved subjects, 10 credits in literacy, 5 in reading and 5 in writing (at level 2 or above) and 10 credits in numeracy at level 1 or above (New Zealand Qualifications Authority, 2015).

Programme providers in New Zealand do not require specific NCEA subjects for those enrolling in landscape architecture. However, Elsworth et al (1999), who reviewed a series of Australian studies about subject choice in secondary schools,

concluded those choices supported a 'persuasive pattern of coherent associations between generic interests and domain-specific school subject preferences and choices' (p 299). Despite the different approaches to study design, methods of measurement and analysis, the authors reported that the results showed 'remarkable consistency' (ibid).

This paper answers an important question about the factors influencing student choice of a tertiary landscape architecture programme. The investigation considers whether or not students who have enrolled in an accredited programme of landscape architecture in New Zealand chose to aim for a career in landscape architecture first, and then decided on a provider for that degree programme, rather than choosing a provider first and then taking one of their available programmes that happened to include landscape architecture. The findings could enable both NZILA and providers to make decisions about their respective marketing strategies. A related matter identified during the research was the degree to which subject choice by first-year students of landscape architecture is different from first-year student choice nationally. The findings could allow an opportunity for tertiary providers to identify those students who may be more likely to choose a career in landscape architecture.

Method

All first-year students enrolled in the three accredited landscape architecture programmes in New Zealand in 2009 (n = 117) were eligible for the study. This is a typical annual number of landscape architecture students and has remained around this level for some time. Only those who attended class when the forms were distributed (n = 97) were invited to take part in the study; this distribution occurred on the same day at each provider when all of the students had a formal studio class. Confidentiality and anonymity were assured because respondent names were not collected. In line with normal social science research protocols, participation in the study was voluntary, and completion of the questionnaire form indicated consent to take part in the research.

Respondents were asked to indicate the main factors that had influenced their choice of landscape architecture as a career. They were also asked to specify the relative importance of those factors on a Likert-type scale (very important, important, slightly important or not important). The responses from those who rated a factor as being very important or important were aggregated. Other responses (slightly important or not important) were excluded because they indicated the particular factor was not a main component of their decision to enrol in a landscape architecture programme.

Respondents were also asked to list the subjects they took in year 13 at secondary school, to assess if any differences existed in respondent subject choice from national student population enrolments. Respondents were asked to rate the level of relevance or usefulness to their landscape programme of each of those subjects.

Data were analysed using SPSS 17. A chi-square test was used to determine whether or not the survey findings were significant in regard to students first choosing a programme or first choosing a provider. A correlation coefficient was

calculated to determine whether or not a significant difference existed between the subject choice of respondents and subject choice nationally.

Results

Of the students who attended class when the questionnaire was distributed (n = 97), just under half chose to participate in the study (n = 44), a response rate of 45.4 per cent. The mean age of respondents was 20.0 years (SD = 4.35); 54.5 per cent were female (n = 24) and 45.5 per cent were male (n = 20).

Landscape architecture was the career of first choice for 91 per cent of the respondents. Most respondents (n = 33) reported they chose their career first and then selected a provider for an appropriate degree programme. A chi-square test demonstrated this was a significant result (x^2 (1, 43) = 12.30, p <.05).

Figure 1 summarises the proportion of respondents who indicated a particular factor was a very important or important influence on their choice of landscape architecture as a career, with the factors listed in rank order. The same choices were also considered by respondents regarding factors that were very important or important to their decision to select a particular provider for their landscape degree. It should be noted that two of these factors, 'close to home' and 'cost of living', are only relevant to provider choice.

Career-based extrinsic factors thought to be important in the choice of landscape programme (work opportunities, lifestyle reputation, academic reputation) accounted for 48.1 per cent of the total number of factors identified by respondents. 'Family and friends' comprised 16.1 per cent of the total (family

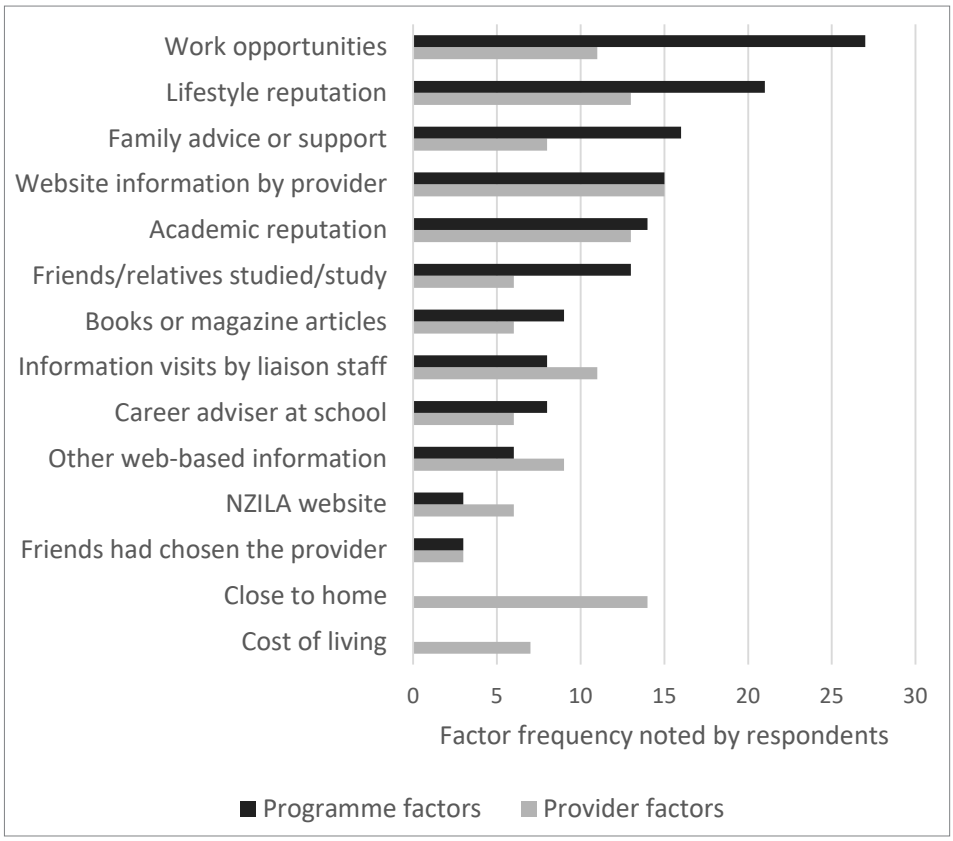

Figure 1: Choice factors – programme and provider

advice or support, friends/relatives studied/study landscape, friends said they were going to enrol). Those factors under control of the tertiary providers (website information, visits by liaison staff) also comprised 16.1 per cent of the total.

Factors reported as being important for choice of provider showed that 41.1 per cent of the total number identified by respondents were under the control of tertiary providers (website information, academic reputation, lifestyle reputation, visits by liaison staff). 'Family and friends' were more important to the choice of provider at 28.0 per cent than to the choice of profession (family advice or support, friends/relatives studied/study landscape, friends said they were going to enrol, close to home). Extrinsic factors (work opportunities, cost of living) were relatively low at 7.1 per cent.

A related question sought to establish whether or not respondents differed from the national population of first-year students regarding subject choice. The proportions of respondents and of students nationally taking the 10 subjects identified by the respondents as being most useful or relevant to their programme showed a significant difference (the null hypothesis was rejected; $r = 0.403$, p = n.s.).

Table 1 lists the size of the differences between uptake by respondents and by students nationally in the *top 10* subjects reported by respondents as being the most relevant or useful to their landscape programme.

The 'difference' column shows the ratio of the proportion of respondents taking each subject divided by the proportion of students nationally taking each subject. A ratio of 1.0 would show that the same proportions of respondents and students nationally were taking a particular subject; numbers greater than 1.0 show that proportionally more respondents took the subject than enrolments nationally, and numbers less than 1.0 show that proportionally fewer respondents than students nationally took the subject.

Figure 2 shows the same 10 subjects arranged from the highest ratio to lowest. This pattern of subject enrolments comparing respondents with their colleagues nationally points to a potential identifier of those who should perhaps consider landscape architecture as a career choice.

NCEA subject	Percentage of respondents stating subject useful	Percentage of students who took the subject		
		Respondents	*Nationally*	*Difference ratio*
Graphics	23.0	9.0	1.0	9.00
Geography	11.5	6.9	4.7	1.47
Design	10.6	4.8	2.9	1.66
English	10.6	11.2	14.5	0.77
Painting	6.2	4.3	2.9	1.48
History of art	5.3	4.3	1.4	3.07
Biology	4.4	4.3	3.0	1.43
History	3.5	1.6	2.7	0.59
Chemistry	2.7	2.7	4.6	0.59
Mathematics	2.7	8.0	12.9	0.62

Table 1: Top 10 useful subjects taken in year 13 according to respondents; comparison between uptake by respondents and students nationally in 2008

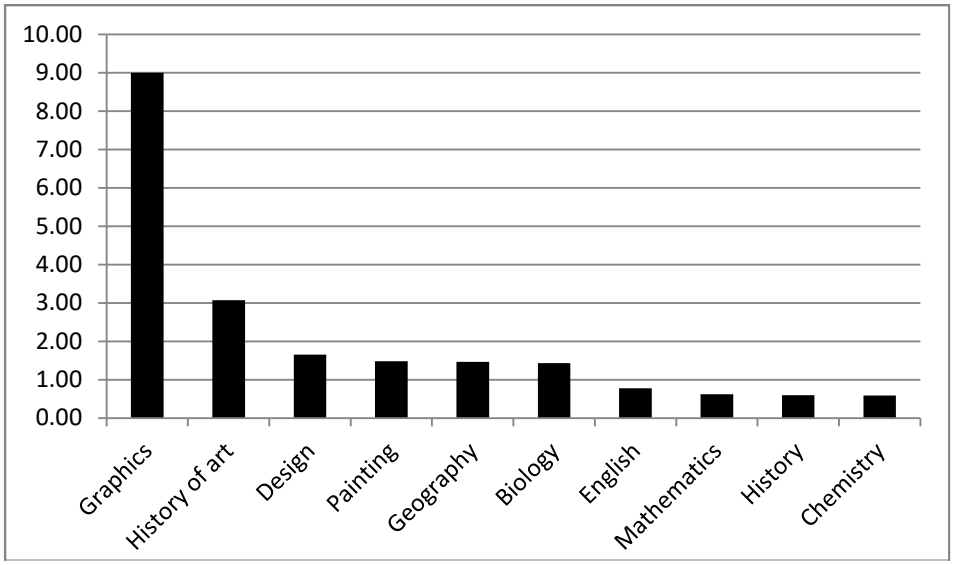

Figure 2: Respondents' top 10 useful subjects arranged by their difference ratio

Having established that those top 10 subjects were useful for distinguishing the respondent population from the national population, further analysis is shown in table 2. Here, the 10 subjects are grouped with reference to two factors: their uptake by the respondents in comparison with national data; and the level of support by the respondents for the relative usefulness of each subject to their landscape programme.

The subjects listed in each column in table 2 are grouped by difference between respondents and their peers nationally. The left-hand column lists subjects taken by proportionally more of the respondents than by students nationally. The right-hand column lists subjects taken by proportionally fewer respondents than students nationally. The two rows differentiate subjects by the relative value of each reported by the respondents. If more than 10 per cent of respondents reported a subject as being useful to their landscape programme, it appears in the first row, but if fewer than 10 per cent reported a subject as being useful to their programme, it appears in the second row.

The subjects that appear in the top-left quadrant and those in the lower-right quadrant can therefore be seen as distinguishing features of the respondents, when compared with the national student population, in terms of subject choice. It is interesting to note that graphics and design are more likely to be subjects selected for intrinsic reasons; history, chemistry and mathematics are more likely to be rejected for intrinsic reasons.

	Subjects taken by more respondents than students nationally	**Subjects taken by fewer respondents than students nationally**
>10% say useful	Graphics Geography Design	English
<10% say useful	Painting History of art Biology	History Chemistry Mathematics

Table 2: Top 10 useful subjects taken in year 13, grouped by difference and usefulness

Discussion

Most respondents (75 per cent) chose their career first before selecting a provider offering a programme leading to that career. While not unexpected, it supports the view that the particular characteristics or qualities of landscape architectural professional practice have a higher priority for the respondents than where they studied to gain access to their chosen profession. It is unclear whether the reasonably small number of first-year landscape students in New Zealand (n = 117 in 2009) is low because landscape architecture is only attractive to relatively few people, or whether most year 13 students are simply not aware of the profession; it may not be an obvious career choice. Shaffer's (2010) US study found that most students were not aware of the landscape architecture profession while in high school.

This finding contrasts with that of James et al's (1999) Australian study, which found students used a combination of course and institution factors when making their choices. However, their study was focused not on landscape architecture but on tertiary education in general. A more specific study by Shaffer (2010) found that more than half of the students interviewed (52 per cent) chose a provider first, while 48 per cent chose landscape architecture first. Shaffer notes that choosing a provider first, however, is constraining because it implies fitting a student's aspirations to the available courses within the provider. While the New Zealand students enrolled directly into a landscape architecture programme, in the United States of America students do not have to choose a major, for example, landscape architecture, until they have enrolled in their chosen provider (Study Group, 2015). This may explain the difference between Shaffer's findings and those of the present study.

The finding that students choose their career first is important for the three institutions offering accredited landscape degrees in New Zealand, because they must promote the distinctiveness of their programmes to continue to appeal to as many students as possible. Two reasons explain this importance. First, a 'numbers' funding model means total student numbers have an influence on the overall financial viability of an institution; more students equals more funding from central government. Second, a critical mass of students is required for a robust and healthy exchange of views and ideas, and there are implications for staffing levels.

The factors selected by respondents as being very important or important in making their decision about a career in landscape architecture and the provider that offers a programme to enable that career fall into three main groups: extrinsic motivation; family and friends; and tertiary provider. What the findings show is that extrinsic motivations are far more important than family or institutional influences on career choice, but institutional influences are far more important than family or extrinsic factors when choosing a provider. This indicates that providers have little influence on the choice of a career in landscape architecture by year 13 students. It does suggest, though, that once landscape architecture is selected, providers can potentially have quite an influence on the proportion of students who choose one institution over another.

The factor profile for choice of provider has a smaller range than the profile for choice of landscape architecture as a career (see figure 1). This more even distribution of factors that influence provider choice indicates no one particularly

strong reason exists for students to select one provider over another. While further investigation is required to understand this aspect of the landscape career path, it is possible students have decided that, now they are moving to tertiary study, they should perhaps take their studies more 'seriously' and therefore place more value on extrinsic factors.

A bigger range of career factors indicates broader consensus among the respondents on the reasons to choose a career in landscape architecture, with a focus on work opportunities, lifestyle reputation and family advice or support. It would be interesting to establish if such a profile difference also applied to students nationally who chose a more generalist programme, such as commerce or science.

Limitations

The low response rate (45.4 per cent) was a limitation to the study and may have introduced selection bias. A further limitation arises from difficulties in disaggregating data about year 13 subject enrolments from the Ministry of Education and New Zealand Qualifications Authority websites. The respondents had 40 subjects to choose from for their final year of secondary school in 2009, listed on the New Zealand Qualifications Authority website as being approved to count towards the requirements for university entrance. Each subject comprises a series of unit standards that students could choose from to make up the appropriate number of required credits. National-level subject enrolments were thus calculated by combining the unit standard enrolments that most closely related to each subject taken by the respondents, although the particular unit standards taken by each student for particular subjects can vary.

Conclusion

The finding that landscape architecture students choose their career path first and then consider which provider to use to achieve that goal means the professional landscape architecture organisation in New Zealand (NZILA) is in a position to have more influence on attracting prospective students to the profession than do providers. However, once the choice is made to become a landscape architect, providers have influence over which institution students choose for their studies. Programme distinctiveness, and the ways in which that message can be communicated to prospective students, is thus likely to have an effect on student choice.

What this means for NZILA is that landscape architecture should be highlighted as a career choice and information about the profession provided to year 12 and year 13 high school students, when tertiary education decisions are being made. NZILA has several options, including targeting those particular years of students by providing guest speakers to schools; encouraging NZILA members to support school initiatives to engage with their learning environments, such as supporting parent or teacher proposals to broaden the ways in which particular curricula could be delivered; or providing work experience opportunities.

What this means for providers is that more research into decision making by students in New Zealand is needed, perhaps using a survey instrument to establish why students choose landscape architecture, because, as noted by

Harvey-Beavis and Elsworth (1998), students' interests are critical in defining demand for tertiary education.

The suggestion that year 13 subject choice could be one predictor of career choice is not so clear cut, because providers do not require particular clusters of subjects for enrolment. However, the survey findings show those taking graphics, geography and design should at least consider a career in landscape architecture because respondents reported the usefulness of those subjects to their landscape programme. Alternatively, it could be argued anyone not taking history, chemistry or mathematics should also consider landscape architecture. This would likely involve quite large numbers of students nationally, however. Therefore, it may be more reasonable to suggest that a combination of those subject choice characteristics is more likely to be helpful; that is, students who are taking graphics, geography and design, but without history, chemistry or mathematics, should consider such a career. Whether this matching of subject choice and potential career is best accomplished by the school (for example, through careers advice) or the provider (for example, by liaison staff or better-targeted publicity) needs further investigation. It would be interesting to survey those who choose these particular subject combinations in high school to establish if anything else distinguishes them as a group. This information could then help NZILA or providers to highlight the opportunities for these students to consider a career in the landscape architecture profession.

Figure 2 shows it may be important for providers to examine the relationship between subject choices in secondary school and career choice. Establishing the number of year 13 students nationally who have a subject profile similar to that found for the respondents would be a useful next step. Bringing landscape architecture to the attention of this group, if it were possible to do so, could broaden the options they may consider for tertiary study. It is clear NZILA has a more significant role here than the providers. However, programme distinctiveness and the ways in which that message can be communicated to prospective students by providers are still likely to influence student choice.

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Barriers to the Adoption of Online Design Education within Collegiate Landscape Architecture Programmes in North America

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The field of landscape architecture has yet to see the broad adoption of online education, and it is theorised that this is because of a failure to adequately address the concerns of faculty. This paper reports the results of a Delphi study that identified the critical barriers holding back landscape architecture faculty in North America from adopting online education. The findings indicate that faculty are most concerned about how the social component of traditional studio learning can be translated to an online environment. Faculty are also sceptical about the lack of precedents and believe they do not receive adequate compensation for online teaching. The study's findings suggest that previous research with online education in design fields has failed to address many of the primary barriers faculty identified, which may mean a reorientation of the research agenda is necessary.

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The past two decades have seen increased interest and investment in an online approach to higher education. Universities increasingly see online education as a means of adapting to the changing economic and competitive landscape in higher education as they seek to expand their presence, invest in technological innovation and respond to budgetary constraints (Christensen and Eyring, 2011; Yuan and Powell, 2013). Simultaneous with this expanding interest in online education has been a tremendous growth in the adoption of technological innovations in communication and programming. Such technologies have led to the development of more sophisticated online collaborative environments in which instructors and students are able to interact, work and communicate in modes that come increasingly close to those found in traditional face-to-face learning environments (García-Peñalvo et al, 2011; Hew and Cheung, 2013; Lokken and Mullins, 2014).

Despite the rapid advances, innovations and demonstrated efficacy of online education, it remains comparatively nascent in the fields of landscape architecture, architecture and interior design (Bender and Good, 2003; Li, 2007). The lack of adoption of online education, hereafter referred to as distributed design education (DDE), specifically in the field of landscape architecture is puzzling. One aspect of the field's recent past that would seem to support DDE is the nearly two decades of research on using virtual design studios (VDS) to facilitate learning and collaboration in design activities via online environments. The underdeveloped state of DDE is all the more perplexing considering the current student capacity of landscape architecture education, the growing landscape architecture market worldwide and the potential for DDE to contribute to pedagogy and curriculum.

EDUCATION

Furthermore, given the demand for landscape architects is projected to increase, it is likely the existing educational system cannot graduate enough students to meet the growing demands of the market (Commission for Architecture and the Built Environment, 2010; Grantham, 2011; Landscape Architecture CEO Roundtable, 2007; Smulian, 2010). It is expensive and difficult to expand existing landscape architecture programmes because they require considerable physical space and low student:teacher ratios for studio classes (Hunter, 2012; The UK Architectural Education Review Group, 2013). Moreover, because online education is gaining popularity in the curricular, structural and budgetary approaches of universities, it is likely the design fields will face greater pressure from colleagues and administrators to develop and offer an increasing number of online courses within the design disciplines (Christensen and Eyring, 2011; Lokken and Mullins, 2014).

Purpose

Previous research has identified many of the affordances and constraints of DDE. The research has demonstrated that DDE can be used to teach a design curriculum successfully, in both lecture and studio format classes, and to facilitate collaboration between students, instructors and practitioners (Bender and Vredevoogd, 2006; Ham and Schnable, 2011; Kvan, 2001). DDE provides many possibilities that are particularly well suited to design education. For example, with DDE, it is easy to preserve and catalogue design iterations, to share analyses and design concepts between many parties, and to collaborate with geographically dispersed students, faculty and practitioners (Dave and Danahy, 2000; Ham and Schnable, 2011; Park, 2008). Given the many successful precedents, it is hypothesised the slow adoption rate of DDE stems not from pedagogical or technological shortcomings of the method itself but, rather, from a lack of readiness among landscape architecture faculty to adopt DDE.

Most of the DDE research has focused on describing technical practices and identifying the affordances and constraints of DDE. However, the attitudes and needs of faculty in regard to DDE have rarely been analysed. Considering the state of the research, it is possible that the factors most important to faculty have not been identified and the failure of researchers to do so and address these factors is holding them back from adopting DDE. This research aims to redress this gap by asking: What are the critical barriers that prevent landscape architecture faculty from adopting online design education? Once these barriers are identified, researchers and educators will be better equipped to design successful DDE tools and pedagogy that are attractive to educators and therefore more likely to be adopted.

Theoretical perspective

The educational pedagogy of the modern design studio is rooted in the methods of the nineteenth-century French art school, the École des Beaux-Arts. Pedagogically the École des Beaux-Arts functioned in a similar manner to craft guilds. Apprentices laboured under the watchful eye of a master, and learnt their craft through observing and copying the master, working up from basic tasks to more advanced tasks (Anthony, 1991). Under the influence of luminaries such as Walter Gropius (Rogers, 2001), Christopher Alexander (1964), Ian McHarg

(1969) and Herbert Simon (1996), the design process came to be seen as a rational approach, crafted in terms such as design problems, solutions and alternatives (Alexander, 1964; Dorst, 2003). Despite this shift over the past century to a rational, process-focused approach in design education, the basic pedagogical tenets of design education, namely the design studio, have remained relatively constant (Bender, 2005; Broadfoot and Bennett, 2003). This pedagogy assumes that students learn best in an environment that provides access to instruction and modelling from a master, and where they are free to observe, collaborate with and learn from their peers.

The studio provides a rich learning environment in which students must confront the complexities of realistic design situations and, by so doing, advance their understanding and skills. The separation of the physical design studio from design education, as may occur in DDE, is a common concern mentioned in DDE research (Saghafi et al, 2012a; Silva and Lima, 2008). However, DDE might also be seen as a continuation of the movement toward teaching the design process, because it de-emphasises the creation of design artefacts and the physical studio environment, and allows for the careful exploration and critique of the design activity itself (Saghafi et al, 2012b).

Methods and data

This study had two phases. The first identified the constraints of DDE through a meta-synthesis of the existing research on DDE. This involved the open coding of the literature to identify the constraints. The list of codes was then analysed to consolidate similar codes, which were then used to create a list of constraints (see table 1). The constraints were further grouped into four thematic categories: pedagogical, social, structural and institutional.

The second research phase used a Delphi study to identify the critical barriers that work against landscape architecture faculty adopting DDE. A Delphi study comprises a series of moderated survey rounds distributed to an expert panel. The panellists provide a readily accessible source of expert opinion that the researcher can draw on to produce informed and defensible group conclusions (Baker et al, 2006).

Because the study's target population was educators at accredited landscape architecture schools in the United States of America and Canada, the expert panel was recruited, first, from educators who participated in the Design Teaching and Pedagogy track of the Council of Educators in Landscape Architecture (CELA) Annual Conference in 2011, 2012 or 2013. In addition, notifications were sent to the department heads of every accredited or candidate landscape architecture programme in the United States. Because many qualified individuals may not have presented at the CELA conferences, potential panellists were asked to refer other individuals, or design professionals, they believed were suited to participate in the panel. Recommended individuals needed to meet at least one of the following criteria to be included in the panel.

1. They currently teach a design studio class at a Landscape Architectural Accreditation Board (LAAB), American Institute of Architects (AIA) or Council for Interior Design Accreditation (CIDA) accredited or candidate programme.

2. They have taught a design studio class at an LAAB, AIA or CIDA accredited or candidate programme within the past five years.

As a result of this process, invitations were sent to 191 individuals. Of those, 43 agreed to participate on the panel (40 original invitees and 3 referrals). This participation rate is consistent with reported Delphi surveys in other fields (Fischer, 1978; Ono and Wedemeyer, 1994; So and Bonk, 2010).

The first round involved a prepared survey constructed from the findings of the meta-synthesis. The survey listed the barriers to adopting DDE and briefly described each barrier for context. To allow panellists to precisely express their position, they were asked to rate the importance of each barrier on a seven-point Likert scale. In addition, they had space to comment on each particular barrier. Suggestions for further barriers were also collected during the first round. From this process, two suggestions from the panel in the first round met the inclusion threshold of 5 per cent and were included along with the 22 original barriers in the second round.

After the first round, the second-round survey was constructed using the same barriers (plus the two new ones) and data collection methods as the first round. However, in the second round, panellists were also shown their previous response on the Likert scale for each barrier, as well as the panel's mean, standard deviation and any submitted declarative statements for each barrier. The statements were

	Coded constraints
1.	Lack of face-to-face interaction; lack of communicating non-verbal cues
2.	Time and resources needed to develop and teach online courses
3.	Technical constraints or difficulties
4.	Issues with faculty adopting technology
5.	Students need to be proficient with technology
6.	Building rapport and a sense of community takes longer or is not possible
7.	Advanced technologies may be too expensive
8.	Perceived incompatibility with studio method
9.	Difficulty with collaboration
10.	Unreliability of some internet resources
11.	Faculty spent too much time online
12.	Faculty opposition
13.	Limited adoption by faculty
14.	Requires motivated and organised students
15.	Feelings of isolation for students
16.	Potential negative impact on creativity
17.	Fears that technology will replace faculty and/or staff
18.	Lack of precedents
19.	Students may need to purchase new technology
20.	More scaffolding needed to give students direction
21.	Cultural conflicts with collaborators
22.	Lack of interaction with a physical site
23.	Unsuited for difficult design subjects
24.	Difficulties conducting juries
25.	Perception that technologically produced designs are inferior
26.	Students focus on learning technology instead of the design process

Table 1: List of constraints to distributed design education as identified from a meta-synthesis of the literature

included unedited, except in cases where the comments may have revealed an individual panellist's identity. The third round followed an identical format.

Scheibe et al's (1975) stability measurement formula was used at the conclusion of the third round to determine if the distribution for each particular barrier was stable, and if further consensus was likely to be achieved (Schmidt, 1997). This analysis showed that 23 of the 24 barriers had reached stability, suggesting further consensus was unlikely to be achieved on these barriers. It was therefore decided to end the Delphi after the third round.

Results

The barriers were ranked using the mean score of the panel's responses (see table 2). Graphing the mean score of each barrier revealed natural breaks in the data, allowing the barriers to be divided into four categories: *critical*, *important*, *less important* and *not important* (see figure 1). While initially falling outside the critical tier, the seventh-ranked barrier was included as critical because it shares a close thematic relationship with the critical barriers ranked 4 to 6.

The survey results suggest that the critical barriers holding back faculty from adopting DDE are a lack of confidence in the medium (barriers 1 and 3), issues with financial compensation (barrier 2) and issues related to social interaction (barriers 4 to 7). Examining the written comments from the panel on each barrier

Barrier	Mean	SD	Category
Instructors believe the studio method cannot be replicated using DDE	5.61	1.033	Critical
Faculty do not receive adequate compensation during the development phase	5.30	1.105	Critical
A lack of precedents for DDE	5.05	0.999	Critical
Building rapport with others is difficult	4.96	1.364	Critical
Students feel socially isolated from their peers	4.91	1.443	Critical
Lack of face-to-face interaction	4.91	1.379	Critical
Critiquing student work is difficult	4.78	1.506	Critical
Designs produced solely on a computer are inferior	4.70	1.941	Important
Upfront costs may deter development	4.70	1.329	Important
DDE constrains a student's creative process	4.65	1.722	Important
Only motivated and organised students can succeed	4.61	1.196	Important
Faculty have theoretical or pedagogical opposition	4.57	1.376	Important
Faculty struggle to adopt necessary technology	4.52	1.41	Important
Students spend less time and energy on DDE projects	4.52	1.123	Important
It is difficult for students to collaborate	4.48	1.675	Important
Teaching consumes unacceptable amounts of faculty time	4.32	1.323	Less Imp
Faculty concern that DDE will decrease tenured positions	4.30	1.579	Less Imp
Internet resources may be unreliable	4.14	1.699	Less Imp
Private concern DDE will threaten personal job security	4.09	1.505	Less Imp
Faculty are unwilling to adopt necessary technology	4.04	1.397	Less Imp
Ongoing costs deter continued offering	4.04	1.147	Less Imp
Necessary technology is too expensive for students	3.70	1.329	Not Imp
Necessary technology is too expensive for programmes	3.61	1.27	Not Imp
Required technology proficiency is unreasonable for students	3.22	1.347	Not Imp

Table 2: Ranked results of the barriers to adopting DDE, as identified by the Delphi study

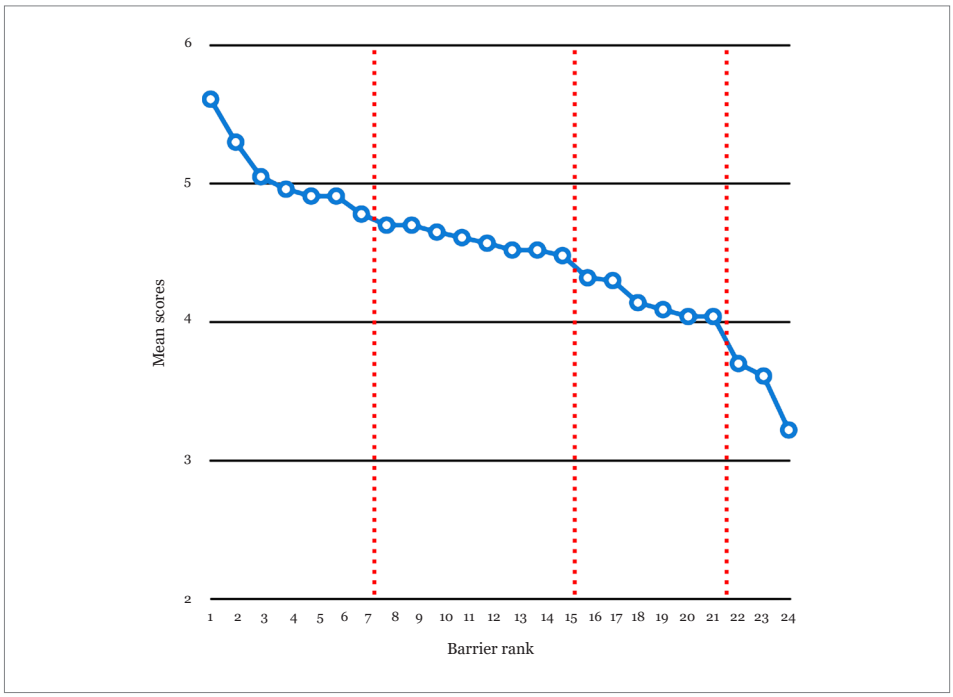

Figure 1: Mean scores of the barriers, grouped into the four categories

provides insight into the key factors the panel considered in their evaluation. Next we examine the panel's responses for each critical barrier and discuss the implications of these results.

Critical barrier 1: Instructors believe the studio method cannot be replicated using DDE

The most common theme in the comments was doubt about whether the physical and social interactions of the studio space can be translated into an online format. Panel members expressed concern about the loss of physical interaction as a means of conveying and converging on information and design ideas. Several comments referred to an intangible quality of the studio, a *something* that is not replicable outside the physical confines of the studio.

> There is something lost when students can't look across to others [sic] desks and see their works and/or iterations, overhear conversations, or participate in impromptu pop-up discussions and topics.

Several panellists discussed how technology can facilitate many of the types of in situ communication that occurs in the studio, but considered that elements of the learning process are either lost or degraded in a digital form. For instance, one panellist wrote: 'I think that it could be done technically and logistically, but I think that the process and the experience would lose something important'. Closely related to this idea are concerns about technical constraints or difficulties, and how these impact on communication and learning in a graphic-intensive design process.

The comments also reveal that some panel members are unfamiliar with successful examples, or do not know if the available technology could support DDE. This unfamiliarity with DDE tools and with the existing precedents suggests faculty have broader concerns related to the dissemination of research related to DDE. (See barrier 3 for a more thorough discussion.)

This barrier presents a unique challenge when compared with the other six critical barriers, because it is concerned more with an overarching concept (the entire studio method) than with a specific facet of DDE or studio teaching, such as critiques, social rapport or technology access. That this barrier was ranked as the most critical implies either that current forms of DDE are insufficient to replicate the traditional design studio or that many landscape architecture educators may have an underlying bias against or misunderstanding of DDE. If the first explanation is true, the solution is to conduct more rigorous research to identify the exact deficiencies of DDE and ways of overcoming them. If the latter applies, two approaches may be proposed to address this barrier.

The first is to assume that this barrier can only be addressed by resolving the specific concerns of the other six critical barriers. The second is to assume that this barrier represents an underlying bias against or misunderstanding of DDE, in which case the appropriate solution is to improve education about the affordances, constraints and potential uses of DDE. Bender and Good (2003) have come to similar conclusions about the need for substantial faculty education on DDE. Logically, because it is already necessary to develop methods of reducing the other critical barriers, the second strategy should be applied as a further way of addressing this barrier. Educators need to be better informed about all aspects of DDE and they need opportunities to both observe and experiment with DDE.

Critical barrier 2: Faculty do not receive adequate compensation during the development phase of online courses

Discussion on this barrier mainly revolved around insufficient monetary compensation for faculty members when they develop online courses. One panellist stated, 'My university encourage [sic] faculty to develop online courses but fail to provide adequate compensation.' Another expressed similar frustration over administrators lobbying for course development, but providing no monetary backing.

The lack of additional compensation is critical to faculty because of the time they must commit to develop an online course. Even a panellist unaware of the time commitment required recognised the potential problems such a project presents to faculty: 'Don't know for sure, but if time off from studio/lectures are [sic] not given for developing then, YES [this is critical].'

Several methods could mitigate this barrier. First, administrators could increase their investment in development costs to make DDE course development more attractive to faculty. Several comments from the panellists indicated that universities seem more willing to invest in programmes and infrastructure than in the human resources needed to develop online courses. Given all of the other demands placed on faculty, the lack of financial compensation is a significant disincentive to develop DDE courses.

A second approach would be to reduce the amount of time and energy a faculty member needs to commit to developing DDE (Lawhon, 2003). For example, some of the work could be offloaded to others, such as instructional designers. This approach, combined with modest increases in compensation, can make DDE course development much more attractive to faculty.

The problem of a lack of investment is compounded by concerns over intellectual property rights. Many faculty are protective of their course material, as it often represents a substantial investment of their time and research efforts. Many may fear that their work will be taken from them and freely distributed without credit or compensation. Guarantees of intellectual property rights need to be defined at all levels of a university in a clear and transparent manner in order to give faculty the proper assurances (Godschalk and Lacey, 2001). Faculty members may be less concerned about compensation during the development phase if their university makes a clear provision on how each of them will receive ongoing compensation from the use of their course content. In this model, faculty would essentially be paid a royalty fee for use of their content. However, because many academic institutions may need to adjust their current intellectual property policies to accommodate such a model, it is uncertain whether this approach would be adopted widely.

Critical barrier 3: A lack of precedents for DDE deters programmes from committing to developing such courses

The most common theme of discussion for this barrier was that few precedents for DDE exist. Several expressed a desire to 'see successful examples of studio design being taught online'. Panellists also wanted to see longitudinal studies documenting the impacts of DDE on 'intellectual growth and creativity' over several years. These comments suggest that panellists were concerned about not only documentation of DDE in practice, but also the rigour of the assessment of those cases.

A couple of comments indicate that panellists did not know which journals would publish papers on DDE precedents and studies. This finding suggests that part of this critical barrier is a critique of the way information on practical experiences with DDE is disseminated. This component is unsurprising, as the meta-synthesis found the majority of DDE literature is published in journals and conference proceedings related to technology and education, rather than the design fields.

For other panellists, the lack of precedents was not a concern because they were satisfied with precedents set in similar education fields. Furthermore, one panellist mused, 'lack of precedents have not deterred other explorations in design pedagogy'. Another stated that precedent is not the problem, but rather a 'lack of an understandable and motivating push to [adopt DDE]'.

Taken together, these responses suggest that dissemination of information about DDE precedents through traditional methods (journals and conferences) has been relatively ineffective in reaching landscape architecture faculty. To address this shortfall, steps should be taken to disseminate DDE work in non-traditional methods. For example, DDE experts might offer guest lectures or trainings, and departments could encourage faculty to explore DDE practices by conducting distance collaborations (Bender and Good, 2003). As discussed under barrier 1, involving faculty more closely with DDE may be beneficial. Moreover, instead of having only one or two faculty members pursuing DDE, department administrators may want to make it a concerted effort, involving many faculty members, so that the whole faculty is exposed to and understands DDE.

Comments from the panel also make it clear that faculty wish to see more rigorous research on DDE, such as through long-term longitudinal studies to better assess DDE's impact on the educational development of students and the achievement of teaching objectives. This study's evaluation of the literature also reveals that much of the current research on DDE uses deficient research methods. Therefore, more rigorous and targeted research should be conducted in order to instil greater confidence in the existing precedents for DDE.

Critical barrier 4: Building rapport with others is difficult in a DDE environment

This barrier is the first of four critical barriers that deal with social factors, indicating a significant concern about whether the various social dynamics of design education can be translated into a DDE environment. As this barrier identifies, the most common concern was whether technological tools can support the rich forms of communication necessary to build rapport. Panellists expressed the view that 'there is a disconnect between [people]' when using technology to communicate, and that individuals are unable to develop the 'deeper and more meaningful connections' that can be made face to face. Another concern was how students will learn to communicate with their future clients and the public if they come from a DDE environment.

Countering the theme of a technology gap was discussion on how modern students collaborate. Some panellists felt that students are digital natives who find it as easy to build rapport in an online setting as face to face. One panellist stated that building rapport online is the 'preferred method' of modern students and, given their heavy involvement with social media, it is possible that 'rapport of this kind has come into its own in education'.

In between these two sides of the debate are comments that building rapport is no more or less difficult online than it is face to face, and that building good rapport in a face-to-face environment is not guaranteed. Such comments suggest that building rapport and communicating effectively are more about the characteristics of the individual students and the scaffolding that the course offers.

This barrier might be addressed using both systematic and pedagogical methods. Systematically, the technology and software used to facilitate interactions between students should foster *rapport building*, rather than just information transmission. Pedagogically, the instructor should introduce course activities that provide scaffolding for rapport building in a DDE course, which may not have been necessary in a face-to-face course.

Despite the critical ranking of this barrier, some of the comments suggest that it may be more important for faculty than for students, who have grown up using social media and share and collaborate freely in an online environment. Panellists concede that some factors may not translate as well to a DDE course, and that communicating may be more difficult, although it is generally possible and effective. While these are concerns, it is likely that as technology continues to advance, facilitating rapport building will become less of a technological issue and more of a pedagogical one.

Critical barrier 5: Students feel socially isolated from their peers and may suffer from a lack of social interaction with them in a DDE environment

This is another barrier that suggests panellists are concerned about the social ramifications of DDE. Concerns related to this barrier are best understood in the context of the physical environment of the studio, where students are free to observe and interact with their peers. Social isolation, in design pedagogy, has more substantive consequences than simply reducing the amount of social exchanges between students: it represents a reduction in the quantity of ideas that are shared, and, by extension, in the quality of designs that are subsequently produced (Dutton, 1987; Schön, 1983).

For this barrier, the most commonly discussed topic revolved around modern students and how they socialise. Despite its high overall ranking, many panellists were dismissive of this barrier, stating that 'students don't care' about being isolated, and that the large majority of modern students regularly communicate and socialise via social media. In contrast, however, many panellists stated that some of the most important learning in the studio occurs organically between peers, and that students isolated in a DDE environment cannot enjoy a similar social experience. Even though a student might appear to be more connected than ever via digital devices, some panellists believed that DDE 'may really isolate them further'.

As Hutchins (1995) theorises in the horizon of observation model, it is critical that learners are able to observe each other, especially their more advanced peers, in order to learn and master more advanced skills. Lave and Wenger (1991) also demonstrate that observation of others is critical to learning and enculturation. In the studio, this observation often takes the form of socialising between students, as they move between each other's desks to talk about their designs and other topics. The need to address social and creative isolation is therefore clearly supported theoretically and by the results of the survey.

The ways of mitigating this barrier seem to be closely tied to those for building rapport. Solutions need to be both systematic, through improved communication tools, and pedagogical, by introducing course activities that encourage students to regularly socialise. For inspiration on addressing both the systematic and pedagogical facets, researchers might look to Luther et al's (2012) work on the open source project management system Pipeline, as well as to existing commercial social and sharing networks.

Critical barrier 6: Lack of face-to-face interaction prevents verbal and non-verbal communication in a DDE environment

As for the previous two barriers, a common concern with this barrier was the constraints that technology places on the communication process. While some panellists acknowledged that verbal and non-verbal communication can be facilitated online, they were concerned about the 'limitations of technology to replicate all of the factors involved in communication'. These limitations impact on how students communicate and, therefore, on what type of culture they form among themselves. Panel members expressed a belief that students benefit immensely from the culture of the studio environment, which 'replicates real world situations of design practice'.

Several panellists shared personal success stories of having students communicate effectively without face-to-face interaction, and also pointed out that new technologies permit many forms of face-to-face communication. They recognised that 'DDE could facilitate effective communication but may be [sic] not the same type of communication that happens [in the studio]'. Out of such concerns arises a discussion of the pros and cons of any potential changes, such as impacts on the time it takes to communicate, the ability to include more stakeholders in the communication process, and the ability to record and revisit conversations later.

Many of the panellists suggested that it is possible to use various communication technologies (VoiceThread, video chat, etc) to overcome this barrier, but that these tools will not produce a communication medium as rich as face to face. This issue of depth and quality was a prominent point of discussion among the panellists, and the overall feeling was that this barrier could be overcome to a degree – but not to the full extent to achieve the same benefits as in a face-to-face studio. However, the panel's comments suggest that even though physical face-to-face communication is preferable, a lack of it is not insurmountable. It is likely this barrier will become less of a concern as technology improves and students gain the ability to communicate in a manner ever closer to face-to-face interactions.

Critical barrier 7: Critiquing student work is difficult in a DDE environment

Panellists were concerned that what is already 'a difficult process in a face-to-face environment' would become more difficult in a DDE one, and that often 'technology complicates simple communication'. The concern appears to be not that technology cannot be used to conduct a critique, but rather that using it makes the process more difficult. In response to these initial concerns, several panellists shared personal experiences of successfully critiquing students in a DDE environment.

Several commented on specific factors related to implementation (issues of scale, system variables, assessment and workload). They worried that one-to-one critiquing might be possible, but that group critiques would be difficult. Another concern was that many different variables would impact on how effective DDE critiques might be and on how well student progress can be assessed during the critique process.

The literature largely ignores this barrier: only one article identifies difficulty with critiquing student work as a constraint of DDE. However, this omission is unsurprising, as most of the DDE projects reported in the literature described student–student collaboration, and few reported details of the teacher–student relationship.

In a moderately strong correlation, panellists who had experience with online teaching were less likely to consider this a critical barrier (r_{pb} = 0.450). It is interesting that this, of all the social barriers in the study, is the only instance where online teaching experience is significantly correlated. It is also the only social barrier that is specifically concerned with the teacher–student relationship.

While some panellists had clear concerns about the impact of DDE on the critiquing process, others strongly supported DDE critiques. Several believed

that one-to-one critiquing is not a problem, as long as the communication system supports multiple representations and enables a view of the development process. A couple of panellists provided examples of how they facilitated online critiques using VoiceThread or other technologies. One even stated they prefer to critique a digital file over a hard copy. Other panellists pointed out that these tools, and the practice of distance critique and collaboration, are already being used extensively in private practice, so it is appropriate that design education should also train students to design and critique in a DDE environment.

Discussion

When the seven critical barriers are considered together, several common features are apparent. Four of the seven are social barriers, suggesting that panellists were very concerned about how the social nature of the physical design studio can be replicated in DDE. Particular concerns for many panellists were how to replicate peer learning, rapport, and the mechanics and authenticity of communication.

Across all the critical barriers, four topics stand out. The most common topic of discussion is the technical constraints and the gap between what is possible in a physical design studio and what is possible with DDE. Panellists were especially concerned about the impact of technology on the communication process. Lack of precedents for DDE is the next most common topic in the comments. Although several panellists provided examples of how they successfully used DDE techniques, none of the panellists appears to have published or presented on such experiences, and so these successful examples have remained unknown to the larger academic community. The third most common topic is that faculty receive insufficient compensation for developing DDE courses. The fourth topic concerns the changing characteristics of the student population. Many panellists felt today's students are digital natives who regularly socialise and collaborate online. These panellists share Prensky's (2001) opinion that modern design students differ from previous generations as they have grown up under technology's constant influence, so concerns about their abilities to collaborate online are unfounded.

An important finding of this research is the existence of a disconnect between the critical barriers identified by the Delphi panel and the focus of existing DDE research. No statistically significant correlation was found between the rankings of the most common constraints from the meta-synthesis and the barriers from the Delphi. As figure 2 shows, the critical barriers are especially misaligned with the most common constraints according to the literature: the top seven barriers are ranked respectively in the literature as 9th, unranked, 20th (tie), 4th, 14th, 1st and 20th (tie). Only two of the critical barriers are in the top quartile of the most commonly identified constraints from the meta-synthesis. Conversely, three of the critical barriers were in the lowest quartile of the meta-synthesis.

It is important to remember that the third-ranked barrier is a lack of precedents in DDE research, suggesting that panellists were largely unaware of the existing body of work on DDE, and therefore it can be assumed they reached their conclusions independently of a knowledge of existing DDE research. Consequently, as noted above, the findings clearly point to the existence of a disconnect between the research and the barriers faculty identified, indicating that DDE researchers need to re-evaluate their research agendas so as to more

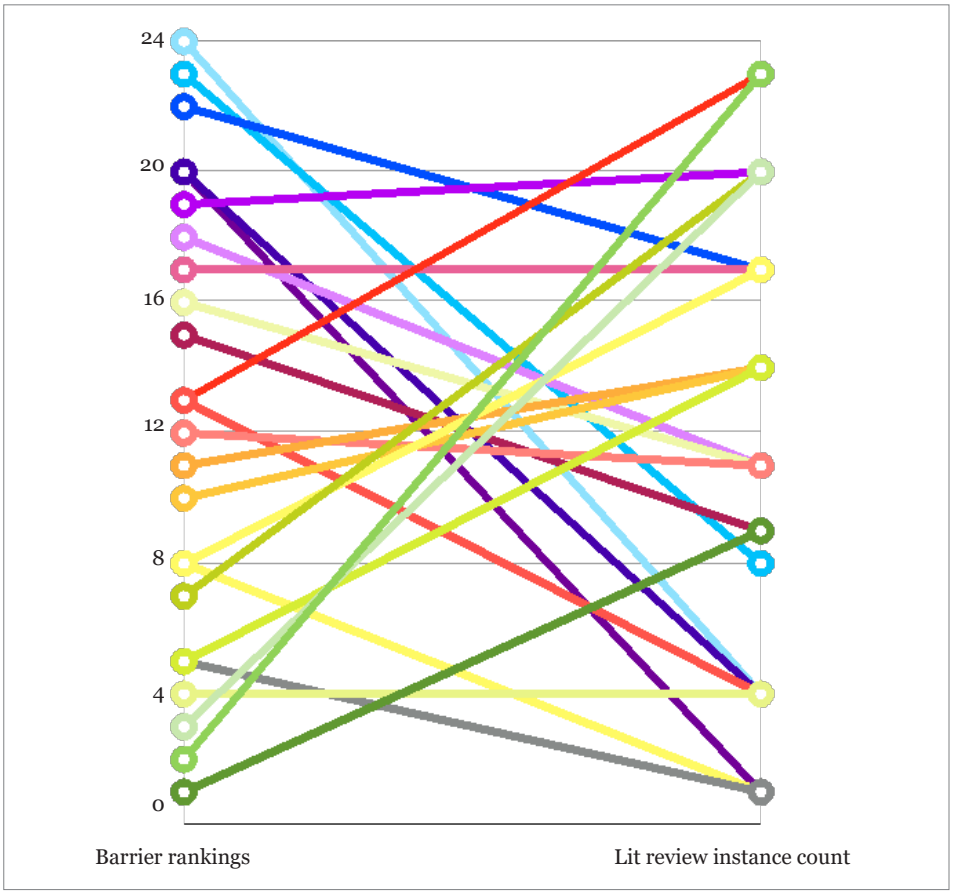

Figure 2: A comparison of panellists' final barrier rankings and the most common constraints as identified in the literature

The barrier rankings are presented on the left while the instance count on the right shows how many times the meta-synthesis found each constraint was mentioned in the literature. The highest-ranked barriers begin at the bottom of the chart.

closely align with the concerns of faculty. Much of the current research focuses on technological, structural and institutional topics, with only limited attention to social factors.

Conclusion

As online education becomes more important to university administrators, it is likely that design programmes will face increasing pressure to adopt some form of DDE. This study has suggested a direction for the focus of research and development efforts in creating DDE courses that not only are effective, but also increase the likelihood that faculty will adopt them. In addition, research on DDE needs to be more rigorous, especially with comparative studies of the efficacy of DDE versus traditional studio pedagogy. An interesting companion to this study would be to examine the motivations of faculty who have adopted DDE, and to explore how best to demonstrate and support successful experiences of DDE. That social issues are among the critical barriers also suggests that future research needs to focus on not only facilitating the social processes of the studio, but also mimicking its complete social character and the multiple ways in which students learn in the studio environment. Future research should seek to reduce these barriers in developing DDE, to avoid the risk of developing teaching methods that are unpalatable to the design faculty who might otherwise use them.

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Landscape Architecture Studio in a Large, Complex and Remote Location: The Learning Experience of StudioMx

CARLOS V LICON AND CAROLINE LAVOIE

Studio projects offer students opportunities to shape and test their design skills. These challenging projects require them to develop knowledge and skills to address increasingly complex situations, ultimately preparing them to be professionals with insightful, creative design strategies. In a studio project, fourth-year undergraduate students in landscape architecture at Utah State University had to structure and map their understanding of a large urban area in northern Mexico for possible planning and design interventions. The students worked on integrating urban systems at the metropolitan scale and illustrated their findings through mapped concepts in a studio called StudioMx. After reviewing a selection of studio methodologies and processes operating in a global context, this paper describes the structure of StudioMx. With the focus on large urban systems in an unfamiliar location, the studio project's goal was to stress the need to frame analyses and design approaches in creative and abstract ways before investing efforts in a detailed design outcome. The learning objectives were to increase students' awareness of the design thinking process and to explore creative ways of conveying design approaches.

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KEY WORDS
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Design thinking process
Large-scale systems
Mapping
Representation
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EDUCATION

Design education in a global context

In landscape architecture and environmental planning curricula, key terms such as *globalisation*, *internationalisation*, *multiculturalism*, *cross-cultural education*, *student exchanges* and *service-learning programmes* are becoming commonplace. Cross-disciplinary dimensions in various forms of teaching and research, often through service-learning projects, are now present in most of the landscape architecture programmes in the United States, Europe and Australia (Bull, 2004; Forsyth et al, 1999; Hou et al, 2005; Myers et al, 2005). In all of these projects, the common learning objectives focus on heightening students' awareness of cultural differences in thoughts, values and worldviews for planning and design processes. Sensitivity to cultural differences associated with values different from those of the students is crucial. Myers et al (2005) suggest that this perspective has the potential to transform students, both personally and professionally. This transformation may in turn increase sensitivity to another culture's reality and thus introduce a different framework of thinking that enriches the design process. However, given travelling internationally is not always possible, students in their future professional lives may work on projects in unfamiliar cultures and sites that they cannot visit. Yet they still need to find ways to understand those cultural perspectives and propose design solutions to issues in these unfamiliar contexts.

The case study in this paper documents observations and examples of how students represented their design approach in a studio project. The learning objectives were to increase students' awareness of design thinking process and

to explore creative ways of conveying design approaches. A group of 22 students in their last year of the undergraduate programme at Utah State University, USA enrolled in StudioMx. As their final studio, it offered one last opportunity to shake up and make them question their design-solving strategies. Here they could articulate a design focused on identifying, selecting and mapping metropolitan systems to build a conceptual description of the Monterrey metropolitan area in northern Mexico (figure 1). Maintaining the metropolitan scale and considering more than one system (that is, water, transportation or socioeconomic status) helped reinforce the need to represent complex phenomena through abstract graphic statements.

Most students had highly limited information about, as well as limited experience and personal knowledge of, the place. Because one of the instructors had had a short stay in the area and the other had lived there, they were able to provide some basic background information. To create a studio setting and a design exercise in which students could build their own questions and frame answers, the studio task:

- was on a large scale, which is an unfamiliar scale for undergraduate students in landscape architecture to work at;
- used a remote study area with limited information; and
- emphasised using interpretation and representation to create a framework rather than programme-defined solutions.

Expanding the boundaries of studio models: a brief overview

Like other learning studio environments, a design studio expands students' knowledge, abilities, creative capacity and critical skills in different directions. Through multiple collaborative and creative efforts to get the most from the studio model, studio educators gain a wide array of views and contributions. For our studio, we found particularly valuable the work on several alternative studio structures, emphasising a cross-cultural perspective and creatively using mapping and drawing to represent system thinking and scenario creation.

An undergraduate landscape architecture design studio in Utah State University provides students with reliable and concise information about programme needs, site location and conditions, and a set of qualitative and performance-based goals. The students then build their understanding of the problem, develop some concepts and unfold the design implications of these ideas as they each develop a series of products aimed at clarifying different levels of descriptive knowledge and control of the proposed solution. As the requirements increase in complexity and in the number of factors to consider, students address multiple issues and develop a consistent design methodology for future problem solving. In the process, they also build theoretical positions and value-driven attitudes toward place, technology and the role of the designer in a larger socio-economic context.

More specifically, learning design, according to Davies and Reid (2000), grows from acquiring knowledge and techniques from experimenting and then applying them to solve problems. Ultimately it is a journey of self-discovery through reflection and integration. This studio at Utah State University aims

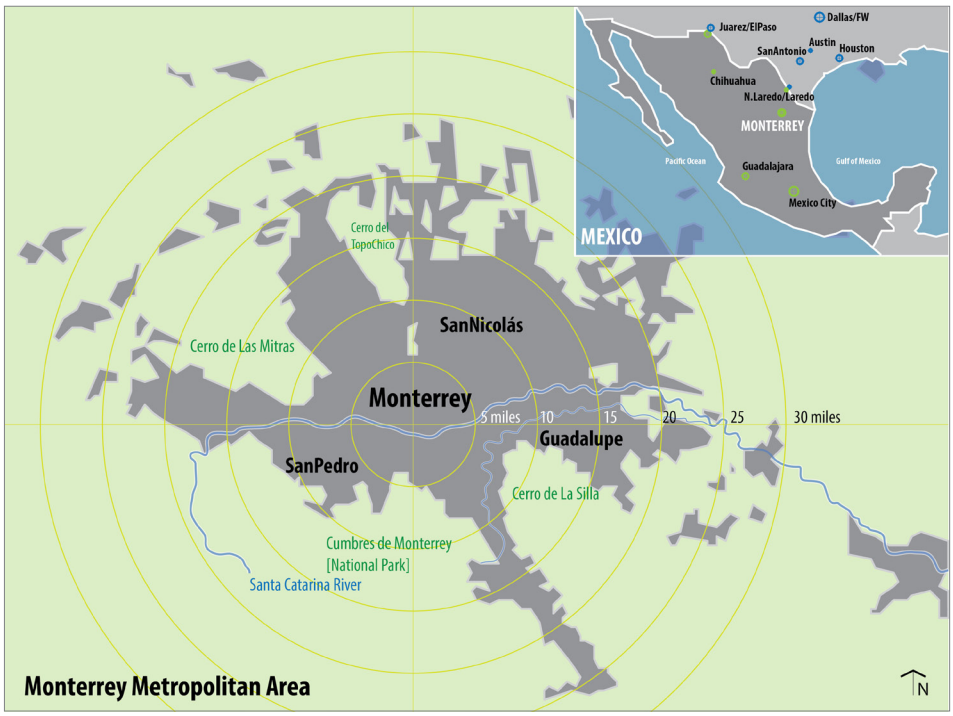

Figure 1: Located in north-east Mexico, Monterrey is the third-largest urban centre in the country. The metropolitan area includes nine municipalities with a combined population of four million. A further 300,000 people live in nine surrounding municipios, adding to the functional metropolitan area. (Map adapted from CEDEM, 2006; INEGI, 2013.)

at this introspective action. Broader goals in StudioMx were to establish the importance of articulating an approach as part of the design process and to create awareness of how it is critical to determining outcomes.

On studio structure

Armstrong and Robbins (1999) developed a studio course using abstract forms of representation and incorporating debate and discussion to induce a conceptual shift for their students in design thinking. They set up their studio process using a dialectical process of reflection – emphasising Schön's (1983) *Reflective Practitioner* together with the use of 'abstraction and metaphor to represent complex issues' (Armstrong and Robins, 1999, p 59). Of particular importance in StudioMx was the creative abstraction of ideas, concepts and representation as a way of conveying new understanding of design thinking. Moreover, StudioMx addressed the students' individual appropriation of the analysis process as value-laden, where students are, as Armstrong and Robbins (1999) suggest, 'taking discrete aspects of the problem and transforming them through abstraction' (p 62).

In a studio focused on service learning, Forsyth et al (1999) introduced their students to new territory that targeted a community group with a cultural background and value system different from their own. One of the strengths in that studio was the working relationship it established with the Latino youth. As a community service learning project, it focused on products for students and the community.

Both studios described above emphasise value-driven approaches as critical elements in a design process. StudioMx facilitates the discussion and representation of the values students have as designers through the selection and mapping decisions the teams make to describe the abstract and complex array of metropolitan systems.

On cultural differences

StudioMx was conducted on a larger scale than most of the cited projects, but it also aimed to increase awareness of cultural differences. Even through its remote location in Mexico, the USA-directed studio highlighted potential perception issues and cultural preconceptions for students. For example, they might perceive a spatial correlation between geographic features, including slope, flooding or earthquake vulnerabilities, and mapped issues of crime, poverty, income, traffic or employment concentration.

Hou et al (2005) explored cross-cultural dimensions through virtual and face-to-face interactions in the Global Classroom Project, where students learnt by 'developing models of design collaboration and communication skills across cultural, physical, and technological barriers' (p 127). StudioMx puts this concept to work by promoting team collaboration and critical thinking for discussions on creating concepts, interpreting knowledge and refining proposals.

StudioMx was not structured to offer an on-site cross-cultural experience. However, the project location created a transcultural dimension for student learning and linked to cross-cultural studios because exploring unfamiliar territory can stimulate self-awareness and reflection on ideas about design, space, culture and the role of a designer. This design exercise involved examining interpretations contained within specific cultural, technical and geo-spatial boundaries.

On mapping and representation

Representation involves a selective process to reveal layers of information and bring deeper understanding of the landscape expressed by drawings, maps, collages, paintings or other means of storytelling. Using different approaches and methods, design studios aim to broaden the dimensions of relationships and systems. With dioramas and collages, Clarke (2005) searches for alternative modes to represent dynamic relationships of multiple landscape processes. In the large-scale, post-mining landscapes of the American West, Berger (2002) explores representational systems to reveal and envision the future of reclaimed landscapes. As he puts it, such representation 'allows one to find hidden relationships and processes rather simply "image" them' (p 11). In addition, he emphasises the role of mapping as a dialogue between landscape, reader and mapper, as well as the role of subjectivity in such relationships. Similarly, mapping helped StudioMx students establish a dialogue with the site and to explore relationships among identified features and systems.

Walliss and Lee (2001) also highlight the use of mapping as a discovery exercise in a design studio in the Flinders Ranges, Australia, where '[t]he notion of the map as an emerging reality became central to their studies; the map (executed prior to making), where aspects of spatiality, temporality and materiality must be discovered and described in meaningful ways through various techniques of drawing' (p 45). They approached landscape as a text, arguing that landscape acquires meaning based on the notion of choice from reading the landscape through mapping. For these authors, this form of 'new representational literacy … acted as a catalyst for re-reading and re-mapping the mythological and iconographic landscape of the Flinders Ranges' (p 53).

Drawing as a representation can be another practice for visual research that helps in discovering and experiencing the landscape (Kabir, 2012; Lavoie, 2005). For Lavoie (2005), drawing is a mode not only of representation but also of perception, interpretation and reflection. Similarly, for Kabir (2012) drawing is a means of seeing selectively, establishing a visual dialogue and building shared understandings by communicating and creating relationships through participatory drawing. In StudioMx, in addition to being an instrument for communication and dissemination, drawing was an important research and exploration tool.

On dynamic systems and flows

The notion of urban environments as a complex array of social, environmental and infrastructural systems (Kennedy et al, 2012) helped StudioMx establish a foundation for identifying and selecting elements to formulate a description of an urban area. The studio aimed to demonstrate that urban environments are multidimensional, multicultural and built by complex systems that require a multifaceted and creative process of synthesis (Clemmensen et al, 2010). Furthermore, Findeli (2001) proposes adopting a systems view of the design process, in which the role of the designer, and by extension the designed outcome, is an intervention aimed at changing the state of the system under consideration instead of moving from a problem to a solution. Lyster (2012) builds systems by looking at territory and public space based on time rather than distance. This approach highlights the dynamics of the urban environments over more static spatial perceptions. Our studio encouraged Lyster's ideas on temporal systems and flows as a way of building spatial knowledge in landscape urbanism. The focus on natural and artificial flows can open new opportunities and paradigms to conceptualise urban environments. This approach also requires new ways of representation, where 'approaching the city through flow rather than form necessitates new ways to represent the city beyond conventional methods' (Lyster, 2012, p 55).

StudioMx process

> To map is to take the measure of the world. Taking measure involves, on the one hand, selection, translation, and differentiation, and on the other, visualizing, conceptualizing, recording and representing. Thus mapping is first and foremost a projection of order, of a particular order, of a particular logic and way of seeing. (Akkach, 2002, p 16)

The studio is similar to other studios in its sequence of analysis, development of concept and selection of alternatives and in its synthesis toward a prescriptive statement addressing a design problem. For StudioMx, however, with some variations in content, the creation of a design statement was also about creating a design problem and, in doing this, designers needed to be clear about how they framed their design process. Building an explicit process–outcome connection is, then, an opportunity to discover the importance of design thinking before thinking about the design outcome. The students' choice of issues, patterns and systems required an explicit process for analysis and a more deliberate choice of representation strategy, which would have a direct impact on what they could produce.

The studio project was implemented in three main phases (see process framework in figure 2): first, a base mapping phase of documentation and analysis; second, a phase of representing issues and suggesting strategies (again through creative mapping); and third, an intervention phase, where students were encouraged to be more prescriptive in their recommendations. The first task was to create and represent a remote recognition of the place. Because no site visits were possible, the students had access only to secondary data. They could refer to a geographic information systems (GIS) series of maps provided by the Centro de Desarrollo Urbano y Territorial del Tecnológico de Monterrey (Centre for Urban and Regional Development (CEDEM) at Monterrey Tech). In addition, through videoconferencing with the Centre, the students were able to discuss with local researchers some of the most important planning issues in the Monterrey metropolitan area. Flooding emerged as one of the critical areas of concern, having the greatest impact on the area's safety and function.

The outcome of this studio project demonstrated that mapping and representation can help students understand interactions of metropolitan systems among and within different scales, building awareness of urban, metropolitan and regional systems. Using representation as a tool for analysis, students were encouraged to be creative in their analysis and communication. Releasing the students from geographic tacit agreements gives mapping the possibility of becoming what Harmon and Clemans (2009) describe as 'shorthand for ready metaphors: seeking location and experiencing dislocation, bringing order to chaos, exploring ratios of scale, charting new terrains' (p 10). The studio was structured in a way that would allow students to discover new thinking terrains, ideas and arguments that were not based exclusively on layers of information, but also developed through establishing relationships between systems. Lectures and readings for the studio focused on the following interrelated themes, aimed at stressing new roles of maps and representations typologies:

- mapping as a measure and a concept (Akkach, 2002; Lyster, 2012);
- mapping as media and knowledge (Cosgrove, 2008; Waldheim and Berger, 2008);

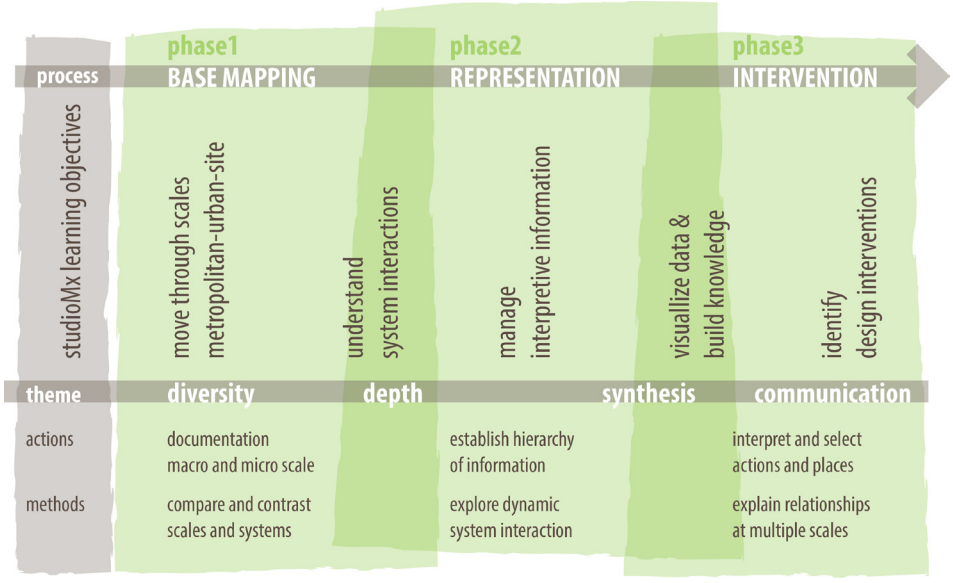

Figure 2: StudioMx framework showing three phases with a sequence of five learning objectives. Each phase is supported by its own actions and methods. Students work through the process in a changing continuum of thematic emphases that evolve from dealing with diverse and complex information, to exploring selected topics more deeply, to synthesising and communicating understanding, concepts and possible paths of design actions.

- mapping as an interrelated and aggregated structure (Harmon and Clemans, 2009; Kennedy et al, 2012); and
- mapping as reflection and abstract representation (Armstrong and Robbins, 1999; Walliss and Lee, 2001).

Phase 1: Base mapping

For this first phase of the StudioMx process, students presented a simplified version of their understanding of the metropolitan area of Monterrey. This analysis involved a high degree of interpretation of existing information. In this first face-off with the data, they had to identify, describe, assemble and combine at least two systems in the metropolitan area. Some of the themes the students chose combined two or more of the following features:

- water, including water supply and wastewater disposal;
- transportation, especially commuting patterns and the relationship between housing and employment centres;
- socio-economic status, the spatial distribution of wealth and the physical characteristics of illegal settlements;
- land values and proximity to downtown and other business centres;
- density and land use as a guiding factor in recent urban growth;
- growth and the incorporation of small surrounding towns;
- landform and surface drainage;
- infrastructure and its vulnerability related to road capacity, potable water sources, health, and medical service providers; and
- natural disasters such as flooding, earthquakes and landslides.

The use of mapping as an analytical tool helped students understand and develop familiarity with the scales involved, identifying systems and exploring interactions, sometimes with a speculative intention. At this stage, mapping had an exploratory intent and helped generate questions about relevant emerging issues. Visual comparisons helped students to discover patterns and connections (see examples in figures 3 and 4). To make these comparisons, students had to move back and forth through different scales and graphically articulate their observations to explain perceived principles and conflicts. Through group and one-to-one discussions and reviews, teams gradually focused on the diversity and depth of their chosen systems that capture issues of concern. To establish references and contrast views, students developed a critical review of readings on mapping as a descriptive and investigative task of representation. Among their references were Berger (2002), Brown and Morrish (1988), Clarke (2005), Corner (1990, 1994), Harmon and Clemans (2009) and Jacobs (1991).

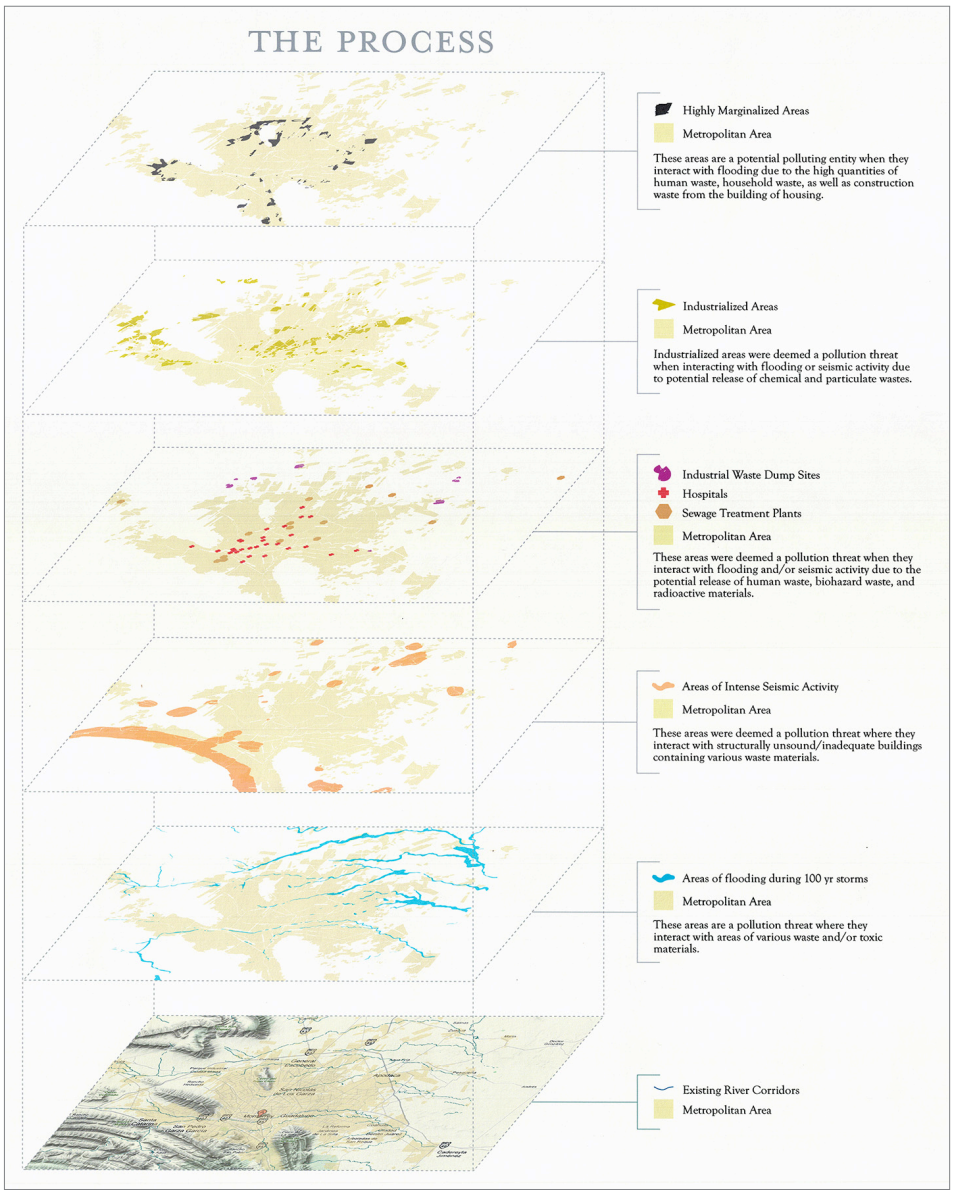

Figure 3: Example of student description of analytical process, showing a selection of spatial patterns for Monterrey, Mexico. Each layer represents a qualified statement of interrelated systems at the metropolitan scale.

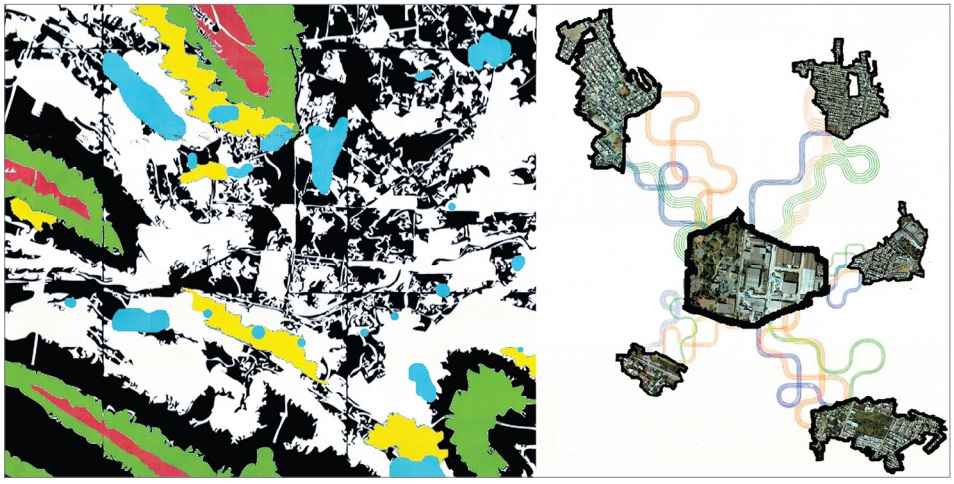

Figure 4: Examples of student work for phase 1, showing maps that explore: spatial patterns of pollution sources and flooding risk associated with landform and informal settlements (left); and issues of metropolitan fragmentation and connectivity (right).

Phase 2: Representation

Representation helped students to discover mapped expressions of observed features, identify issues and find potential interconnection between systems (figure 5). In this second phase of StudioMx, they produced a graphic narrative of their acquired knowledge of the place. Because the students were unfamiliar with the area, they had to accept that the message they articulated through their maps was interpretative and somewhat subjective. In a series of iterations, students tested different formats and combinations of systems to convey a synthesised idea. To avoid frustration or confusion due to any lack of additional specific information, the focus was on the synthesis of the discovered issues, patterns and ideas.

Phase 3: Intervention

For the final phase of the StudioMx process, students mapped the various systems on which they chose to focus. They were asked to propose a framework for intervention that could be applied at a smaller scale, but would highlight relationships between different systems they had previously identified at metropolitan scale. This proposed intervention captured their understanding of the larger-scale issues expressed through a piece of the larger complex mosaic for the systems analysed (figure 6). It provided an avenue to give formal shape to emerging and abstract findings, observations and suggestions.

However modest or limited, this design and planning intervention effort was an effective learning experience that built the explanatory statement of purpose and enhanced the students' understanding of the interpretive nature of the design process. In addition, students improved their collaboration and communication skills, as well as their technical abilities and critical thinking, through this intervention phase. As patterns became visually clear, the students' understanding of the place evolved and their synthesis became a more direct message with stronger prescriptive power.

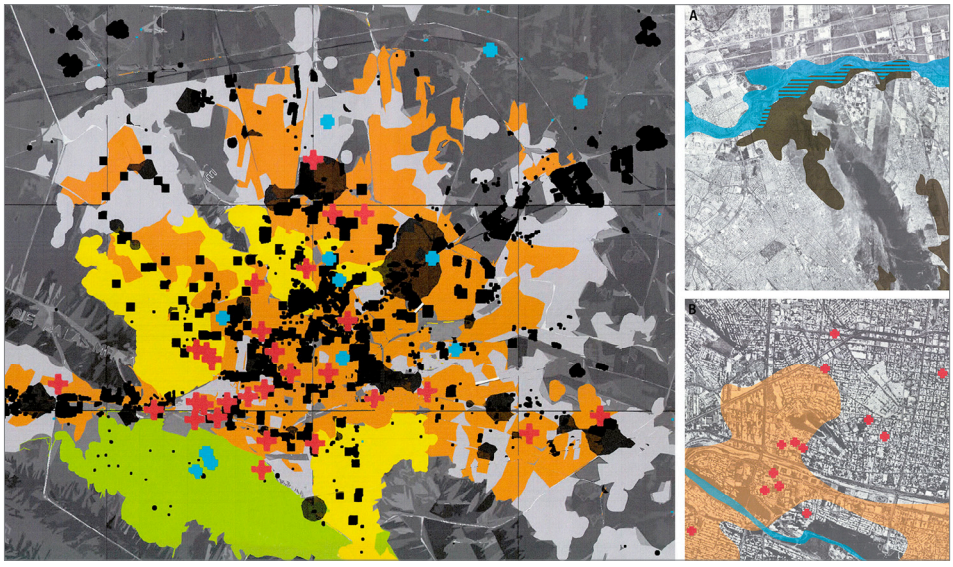

Figure 5: Examples of student work for phase 2, searching for spatial patterns of associated features in the metropolitan area of Monterrey, Mexico. These maps represent different versions of an urban system's vulnerability: socio-economic status and proximity to health hazards (left map); recent flooding events of informal settlements (top right); and accessibility to health facilities in flooding events (bottom right).

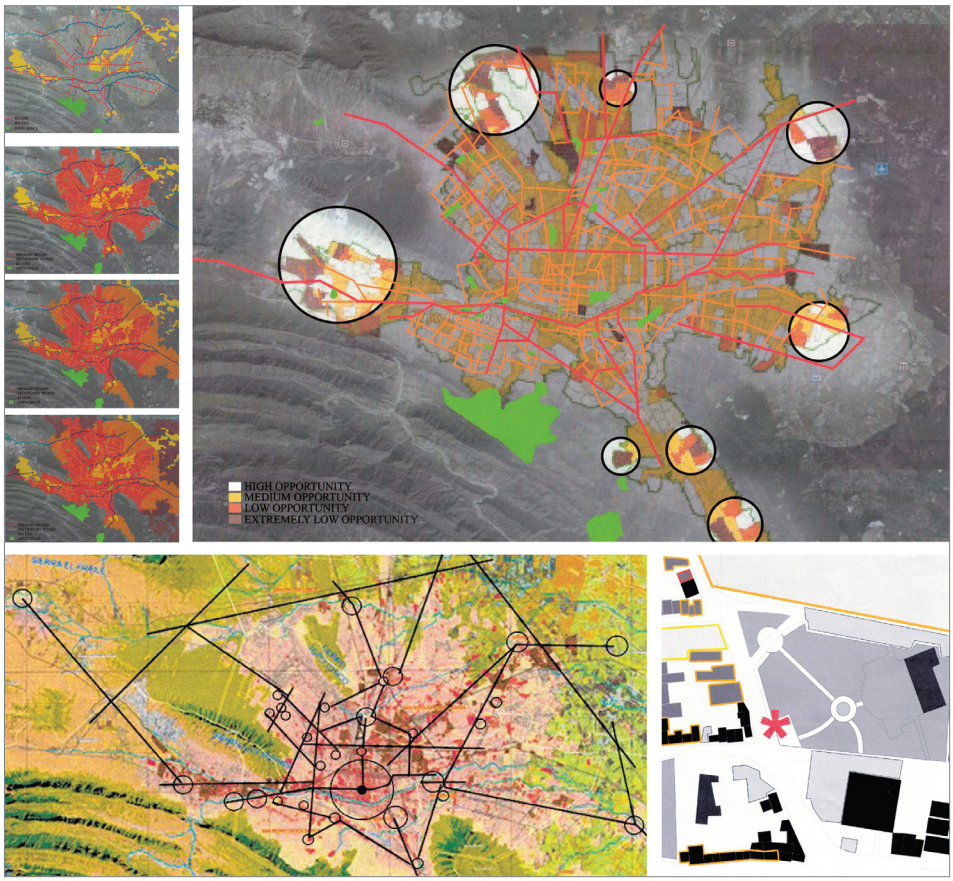

Figure 6: Two examples of students' proposed intervention strategies from phase 3 of StudioMx. The bottom images focus on nodes and networks to identify strategic transportation connections. The top images identify urban recovery possibilities based on urban growth patterns and open space access.

Findings

The learning sequence for StudioMx expected students to create an informed vision of the place by developing a way to navigate and understand systems (that is, connectivity systems) and their elements (nodes, hubs and so on). They had to rearrange and manage their ideas, and finally elaborate visual statements and suggestions to address the opportunities found through their analysis and interpretation. The large scale, the distance and the different cultural context of the case under study helped the students reflect on and be more critical of their design and planning approach rather than quickly move to produce a solution. During studio sessions, students realised they needed to summarise and represent their ideas and conclusions graphically, to avoid losing their grasp of the topic due to the potentially overwhelming scale, distant location and abstract complexity. Instructors were careful not to force students to rely on preconceived ideas; rather, in the tasks throughout the whole process they guided students to produce work that was more the result of a deliberate representation of the analysis and a creative mapping exercise.

Three themes emerged from the students' work with increasing interpretive responses. The first stayed focused on the physical attributes of the place such as conflicts over urban land use. The second was a theme that gathered ideas around a single and more complex issue, such as traffic or flooding. The third theme included more abstract topics such as health, connectivity and poverty and explored ways of connecting them with concrete physical attributes.

The studio project created the need to build a concise yet powerful representation of the problem. StudioMx challenged the students' tendency to rely too heavily on the accessible aerial photography online. Early on, students learnt that it was not easy to represent the scale and the problems by an aerial photo alone. In terms of analysis and deliverables, some teams quickly defined an issue, while others had to explore and test several approaches until one or more emerged as viable.

With time limitations inherent in StudioMx and with an original purpose of creating an opportunity for self-awareness of the design thinking process, students spent less time in the intervention phase and more time on thinking about how to represent their formulated understanding of the place to engage others in their discussion of findings. This hands-on, task-based approach, particularly in the initial mapping phase, was highly effective in promoting critical thinking and higher-level discussions.

Because they had to overcome the initial difficulties of changing scales and creating interpretive and abstract design statements, students articulated their design process more consciously and explicitly. They included mapped ideas with a variety of abstract concepts. The final, intervention phase was aimed at turning these collections of abstract concepts into communicable and more prescriptive strategies. Most of the projects in StudioMx stayed at an abstract level as the emphasis was on the design thinking process.

As represented in figure 7, to progress through the learning objectives the student teams had to, first, develop control over the scales of the project (the metropolitan, the urban and the site-specific scales) and then build their understanding of systems interaction. These two learning objectives defined the first third of the studio process and established the first level of mapping as an exploratory tool. Selectively managing the information and visualising these interpretations of data defined the two learning objectives for the representation phase of the studio process. How the students chose to transfer their knowledge and understanding of the place into more specific actions, and how they chose to communicate these recommendations were measured in the final phase of StudioMx.

The evaluations show different levels of achievement for the first two learning objectives. Out of nine teams, six had great difficulty in establishing a position in the initial phases of the studio; the other three grasped the intentions of the exercise quite well. Most of the teams demonstrated more control in defining metropolitan systems. In the second phase, two teams ranked higher than the rest in terms of interpreting and visualising their analysis. Two other teams struggled with the format and approach of the exercise. The final phase of the project showed a more defined separation in achievement level among the teams. Even though these interventions were sketched in a very general way, two out of the nine team projects submitted (T2 and T8) emphasised the exploratory analytical part, and three (T2, T5 and T8) emphasised the prescriptive final stages of the project. The latter three teams ranked higher in all phases of the project.

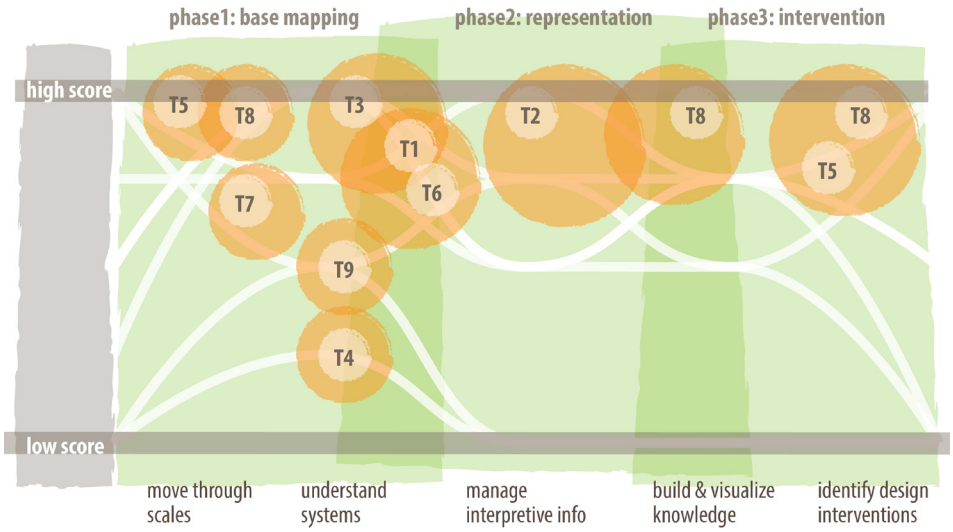

Figure 7: Students' progress through learning objectives. The circles represent each team's highest-scoring objective. Phase 2 (representation) shows the highest levels of performance.

Resilience as a framework

As expected, students had different ways of expressing a common theme when they were identifying issues and later when they were developing mapping representations. In particular, their proposals differed in their expression of the idea of resilience, as the approach for analysis and as the concept driving goals. Resilience captures planning interests in systems recovery and reorganisation after disturbing phenomena (Godschalk, 2003; Walker et al, 2004). Anecdotally, some students commented that, because they were really impressed by the damage caused by past flooding events in Monterrey, they made this the dominant focus of their analysis. Resilience also provided a good thematic anchor concept. Students discussed how to adopt and adapt to the new realities of violence and the efforts to recover and rebuild public spaces. They were able to see, through the studio, that resilience may be particularly evident in a place like Monterrey, where local pride and capacity drive efforts to reduce the fragility and vulnerability of places, communities and systems.

Conclusions

As landscape architecture students learn and develop designer skills, this type of international studio project offers not only delivery opportunities, but also critical and introspective opportunities to temper their approach to become confident designers with trust in the process. Studio courses are a unique learning tool that allow students to explore ideas collaboratively and creatively, without the expectation of a predefined response. As well as having to deal with uncertainty in a more explicit format, through StudioMx students experienced the core nature of design as a decision-making process loaded with interpretation, representation and subjective statements.

As a learning environment, this studio setting provoked our thinking on the nature of different studio settings. In any studio learning environment, we must ask, how do we provide our students with technical challenges and at the same time establish powerful avenues for formulating problems creatively? Through a creative and open studio process, design instructors can encourage students to take risks with and test ideas, while challenging preconceived ideas of place,

scale and culture. Students learn about their own interactions, attachments, approaches and expressions. It is through this type of design challenge that they will ultimately become empowered to build their own questions and frame their own answers with a bold imagination, heightened awareness and critically informed actions.

This paper contributes to the body of studies extending spatial and contextual boundaries of design education and is a potential case study for future studio teaching. Building a strategic process to conduct design efforts in urban environments with multidimensional, multicultural, complex and interrelated systems is not easy: students struggle to make progress and establish their own process clearly. In this sense the proposed studio structure may help to enhance a reflective process that we hope can continue throughout students' professional lives.

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Building Experiencescapes in Christchurch

FRANCESC FUSTÉ-FORNÉ

The words *recovery*, *landscape* and *experience* come together in this paper's examples of how experiences are articulated in the landscapes of Christchurch, New Zealand, after the 2010 and 2011 earthquakes. This paper describes the city in its early stages of recovery when community and urban design processes helped create a sense of place as art and creativity brought life to Christchurch. Examples are projects that rethink the city landscapes and transform them into experiencescapes. Street art, events and festivals act as pathways to experiences for the locals in their daily life and for visitors as well.

> Make Christchurch a place to tell each other stories.
> (Future Christchurch, 2014)

> What enables a devastated metropolis to rebuild its physical fabric and recover its social fabric and cultural identity? (Campanella, 2006, p 141)

Future planning and long-term investment in Christchurch, New Zealand are important issues for both media and researchers as the city faces the task of rebuilding after its 2010 and 2011 sequence of earthquakes. Recovery processes enhance the value and identity of a place by transforming, rebuilding or adapting urban landscapes so that they become authentic experiencescapes. It involves an interdependence between people and place that, as Hayman (2015) suggests, 'is fundamental to human settlement, and like any relationship, requires an investment of time and energy to ensure an ongoing synergy' (p 11). It follows that a sense of and an attachment to place are part of the recovery process (Silver and Grek-Martin, 2015). Moreover, the modern city, Campanella (2006) observes, 'has an almost magical capacity to rebound even from catastrophic destruction' (p 141). This includes New Zealand cities struck by natural disasters, which 'suffered appalling loss and were profoundly altered by catastrophe, yet each survived and even flourished' (Campanella, 2006, p 142). In this context, community organisations have played a significant role in the civic activities that contributed to the success of these recoveries (Shaw and Goda, 2004).

Another important consideration for recovery is that a city is made up of more than buildings alone: its social and cultural components give a place much of 'its defining essence and identity' (Campanella, 2006, p 142). For this reason, social spaces facilitate recovery in both the short and long term: 'the restaurant, the pub, the nightclub, the movie theatre, the mall and the internet-based social networking community, to name a few examples, can be the site of meaningful social interactions' (Chamlee-Wright and Storr, 2014, p 656). Moreover, tourism

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Innovation
Landscape
New Zealand
Tourism

strengthens a city's pulling power and, in recovery, can become a means of promoting the city's interests – 'a vital mode of interaction between political leaders making decisions about resources for disaster recovery' (Pezzullo, 2009, p 30).

Being innovative and offering unique experiences are two of the main challenges cities around the world must address to achieve success, whether or not they are facing a recovery challenge. Every city needs to offer some evidence of 'what' its differences are and 'how' it is different. Planning for these experiences has similarities to a screenplay: both involve building a show, a story in which consumers are protagonists. The possibilities for creating an innovative and unique environment are endless – it may involve something as simple as a sculpture or a coffee. The goal is not only to offer something that visitors will enjoy, but also to improve the daily experience of local community members, who walk and buy in the same streets and shops as the tourists. The examples in this paper show the value of the experiencescapes in the city of Christchurch. Most relate to street art (Gates, 2015) because 'the things people were constantly surrounded by – lovely architecture, history, green spaces, cobblestone streets – had the greatest effect on their happiness' (Delistraty, 2014).

Places, rebuilding and experience of the landscape

The transformation in living circumstances that a disaster brings disrupts residents' sense of place and space in relation to a particular area. In this context, restoring meaningful places is crucial to recovery, and sense of place is a critical factor to consider when making decisions during this recovery process (Cox and Perry, 2011). As the literature highlights, people give 'meaning, identity, and connectedness ... to their places of personal significance, even when (or perhaps especially when) these places are threatened by environmental change' (Silver and Grek-Martin, 2015, pp 33–34). Previous research also demonstrates that people remain attached to place despite living in an objectively high-risk area (Billig, 2006). One explanation may be that they 'are more motivated to stay in and improve or protect places that are meaningful to them' (Manzo and Perkins, 2006, p 347). Another may be that when people work together on a shared goal of rebuilding their area, their sense of community and attachment to place grow stronger (Suomalainen, 2015, p 90). Moreover, in working towards this shared goal through 'grassroots activism, horizontal organization, and place-making practices', they may find opportunities for 'a new kind of urban life' (ibid, p 91).

Within this context, cities play a significant role in the formation of urban experiences. A growing body of literature is exploring people's attachment to non-residential places – that is, recreational places such as landscapes (Fishwick and Vining, 1992; Kaltenborn and Bjerke, 2002; Stedman, 2006). As Lewicka (2011) asks, 'Are non-places (shopping malls, homogenized entertainment sites, etc.) capable of triggering attachment, and does place attachment change along with changes that places themselves undergo?' (p 209). This paper takes these questions a step further by examining people's attachment to experiences – even understanding them as new landmarks.

Each crisis is different, depending heavily on time, and social and economic threats. In response to crisis, the resilience of each city, along with the enterprises within it, is likewise unique. However, as Campanella (2006) argues, what lies at

the heart of resilience anywhere is people: 'A business is only as resourceful as its employees and management. A city is only as resilient as its citizens. Resilient citizens have enabled urban resilience throughout history' (p 143). That resilience, moreover, involves more than the capacity to rebuild physical structures. As noted above, 'it is about reconstructing the myriad social relations embedded in schools, workplaces, childcare arrangements, shops, places of worship, and places of play and recreation' (Vale and Campanella, 2005, p 347).

Rebuilding place

When a city's communities and infrastructure are damaged, rebuilding can be an opportunity to improve designs, facilities and services (Leitmann, 2007, p 149). Although, as recognised above, the nature of recovery is different for each disaster, what recovery processes have in common are long-term changes and needs that the local residents alone cannot address: 'Disasters require more revenue, political support, and physical labor than the residents who return; they require broader political will' (Pezzullo, 2009, p 29).

In their study, Silver and Grek-Martin (2015) reveal the roles that sense of place can play in both immediate disaster response and long-term recovery. As they define it:

> Sense of place is an affective concept that combines emotions, impressions, beliefs, memories, and experiences with a place. An individual's sense of place is constructed by their personality, their life histories, their values, and their interactions with that place. (Silver and Grek-Martin, 2015, p 32)

To Silver and Grek-Martin, sense of place becomes a lens through which we can 'explore the multiple layers of meaning that people attribute to their important places' (ibid).

During the recovery process, it is important to be aware of 'not only what happened, but also what is being done and is left to do' (Pezzullo, 2009, p 35). Research on urban resilience in New Orleans soon after it was devastated by Hurricane Katrina in 2005 points to the vital role of grassroots involvement: 'Only with strong citizen involvement at the grassroots level will the rebuilding of New Orleans yield a robust and inclusive metropolis, rather than a theme-park shadow of its former self' (Campanella, 2006, p 141). This observation is reinforced by the experience of Kobe, Japan, where Shaw and Goda (2004) note that rebuilding and rehabilitation were continuing nine years after the 1995 earthquake. Following the earthquake, Japanese society saw two major changes: 'an increase in voluntary and non-government activities, and the enhancement of cooperation between local government and the residents' association' (Shaw and Goda, 2004, p 16).

Although each example is unique, both of those above indicate how anyone involved in a recovery must be aware that:

> ... the cityscape is more than just a physical place, it also occupies places in the mind of its visitors and inhabitants, to which they have linked their own identities, experiences, culture and memories. When a building or landmark is demolished, the physical anchor to these things is removed. (Barber, 2013, p 15)

Consequently, people feel a need to build again, to recover, to remember, to 'articulate meaning out of the uncanny familiarity' (Bennett et al, 2013, p 4).

A way of achieving such meaning is to use tactical urbanism – that is, to use small-scale urban interventions to drive long-term change. With such interventions, local people can 'experiment with their urban landscape, without the risk associated with larger projects' (Barber, 2013, p 18). While recognising that an infinite variety of tactical urban interventions is possible, Barber offers as examples street festivals, guerrilla gardening, chair-bombing, pop-up shops, adbusting, weed-bombing, parklets, food trucks, block-wide rejuvenation programmes and public performance and art. Such projects have major positive social effects on any community, and in particular on those recovering from disaster (ibid, p 34).

In addition to the community's role in mobilising labour for recovery, tourism is a significant driver in restoring a sense of place. It is not simply a concern with the economic contribution of tourism; Pezzullo (2009) argues it also has a role 'in fostering rebuilding, performing cultural memories, and providing political critique' (p 35). In the rebuild of Sichuan after its earthquake of 2008, for example, a vital component was cultural tourism, which supported rural villages to rebuild in order to cater to city visitors coming for weekends and holidays (Abramson and Qi, 2011, p 518). Furthermore, after a disaster, the distinction between tourists and residents blurs in that an area can become unfamiliar to both: on returning after an evacuation, residents may 'discover the place they once called "home" is radically changed' (Pezzullo, 2009, p 35). It might also be argued that the post-disaster environment itself captures tourists' interest and draws them to the area as they seek out 'dark destinations' (Amujo and Otubanjo, 2012, p 101); this paper, however, does not examine this idea further.

Landscapes to experience

Vivid landscapes are created through hybrid projects, in which knowledge centres (such as schools or universities) work collaboratively with cultural institutions, individual businesses and local people. This approach represents an opportunity to transform cities through everyday activities. Places themselves have a transcendental role in connecting local identity with products and services offered. In this sense, the power of experiencescapes in producing feelings of identity can be very strong and even help to redefine the complete sense of a city. As Johansson and Kociatkiewicz (2011) put it, such experiencescapes can create 'soundbites' that frame and present the 'soul' of a city (p 394). This phenomenon is of particular interest in cities facing post-disaster recovery.

According to O'Dell (2005), an experiencescape is a space of pleasure, enjoyment and entertainment. Experiences occur in a wide range of 'specific places, such as stores, museums, cities, sporting arenas, shopping centers, neighbourhood parks and well-known tourist attractions. At the same time they do not need to be limited to any single place' (O'Dell, 2005, p 15). The whole city can become an experiencescape, a landscape that is strategically designed. Places therefore are part of the experience economy: here they become experiencescapes or 'places in which experiences are being staged and consumed' (Lorentzen, 2009, p 836). Moreover, both tourists (Urry, 1995) and citizens (Glaeser, 2001) consume those places.

Pine and Gilmore (1999) argue that products and services in themselves are no longer sufficient to satisfy consumers: their success depends on the experience that they create for the consumer. As an experience, the place becomes a stage, 'perceived as a venue, a factory of atmospheres and events rather than the site for fulfilment of mere basic service desires' (Ek et al, 2008, p 124). The product becomes the experience (Azevedo, 2009; Gonçalves Silveira and Barretto, 2010). Creating experiences means designing actions, events, products and services that customers no longer consume passively but instead interact with in a much more emotional way, as well as physically, intellectually and spiritually (Mossberg, 2007).

Growth of cities is strongly related to the development of new and competitive experience products or, in other words, innovation (Jernsand et al, 2015). In this changing environment, it is necessary to keep abreast of trends and models that pioneering experience cities around the world establish (Cortadellas, 2011). Two such cities are Frederikshavn and Aarhus in Denmark, which demonstrate that nowadays more than ever the wellbeing of local society is a crucial consideration in planning, as is optimising the impacts of tourism. A successful experiencescape should be achieved through a blend of all the elements that make living in or going to a city worthwhile, all the elements that compound its landscape: art, culture, trade, tourism, eateries, heritage, urbanism and leisure. Likewise, aspects such as the economy, tourism, culture, society and environment should be considered in combination.

Because experiences in the tourism industry are produced and consumed simultaneously, they offer particularly strong economic advantages for local development. As Kiib (2008) suggests, to be successful, strategies for developing experience projects must recognise the special features of a destination. The experience economy is defined not just by what is sold, but also by the way it is sold (Lorentzen, 2007); customers perform as visitors or active spectators, suppliers as the actors, and sites as the stage. Consequently, 'people redirect their lives in experiences projects, which means [leading] a daily life but with an increasing focus on aesthetic and enjoyment dimensions' (Fusté-Forné, 2015a, p 202). It is important to restore both aesthetically and culturally significant aspects of the landscape in order to move forward. As a participant in one post-disaster recovery said, 'if we can heal the landscape, we can help to start to heal the people' (Silver and Grek-Martin, 2015, p 40).

In the modern environment, the tourism syndrome, which is characterised by temporality – that is, a loss of sense of belonging to the places a person is visiting – affects everyone's life in some way. As Bowring and Swaffield (2004) state, the dramatic rate of innovation and use of information technology have transformed the senses of space and identity for hundreds of millions of people worldwide. For example, big brands (such as Coca-Cola and McDonald's) have carried out initiatives where they challenge people and transform some public spaces into a different daily experience through events such as games. Most of these events are also linked to local development and sustainable actions (Fusté-Forné, 2015b). It is important as well to integrate digital technologies into the process of designing an experience because those technologies allow cities to 'talk' to people. We need to be immersed in a permanent landscape rebuilt so that

the whole city environment continues to be innovative, interact with people and let everybody enjoy the experience. The next section discusses examples from Christchurch that are expected to have this power.

Experiencescapes in Christchurch, New Zealand

In 2010 and 2011 Christchurch, the largest city in the South Island of New Zealand and the main centre in the region of Canterbury, experienced a destructive earthquake sequence during which damage to buildings and land was devastating and widespread. In the earthquake on 22 February 2011, 185 people died and thousands were injured.

In response, the government established a new government department, the Canterbury Earthquake Recovery Authority (CERA), on 1 May 2011, which was to be responsible for overseeing the first five years of recovery (Morgan et al, 2015, p 1).[1] One of its actions was to produce a master plan for rebuilding the central business district (CBD) of Christchurch almost 18 months after the February 2011 earthquake. This master plan or 'blueprint' built on the Christchurch City Council's earlier plans for the city, which had involved considerable engagement with the community and stakeholders. During this process, the rebuild was 'posited as a unique opportunity to revitalize the CBD and outer suburbs by creating a future city, to correct past urban design failings and to construct a dynamic and attractive place for residents and visitors' (Orchiston and Higham, 2016, p 3).

The 2010 and 2011 earthquakes also had a major impact on the Christchurch tourism industry. International visitor nights fell from 3.2 million a year before the earthquakes to 1 million a year, and recovery thereafter was slow (Bradley, 2013). It was therefore all the more important to support the recovery of the tourism industry by 'protecting and rebuilding a positive destination image, reassuring potential visitors of the safety of the area, and re-developing the functionality of the destination to help local travel and tourism industries to recover their business' (Huang et al, 2008, p 220).

In the years that have followed the earthquake sequence, the central city has begun to recover through processes that extend beyond central and local government efforts. A large part of the recovery has been thanks to a variety of projects and experiences, ranging from the use of shipping containers as stores and cafeterias, to murals painted on the walls, to sheep sculptures spread throughout the streets of the inner city. Through the Christchurch City Council's 'Share an Idea' initiative, the people of Christchurch submitted up to 106,000 ideas for the redevelopment of the city. The response shows how the rebuild has come from the people and demonstrates an extraordinary potential to reimagine Christchurch. As Wesener (2015) argues, it was after the earthquakes that 'Christchurch's vacant spaces came into existence … Parallel to the "official" rebuild discourse, temporary uses have emerged on vacant post-earthquake sites including community gardens, urban agriculture, art installations, event venues, eateries and cafés, and pocket parks' (p 1).

One particularly important urban regeneration initiative is Gap Filler. Facilitating temporary projects, events and installations, it was one of the first initiatives to bring an experiential component back to the city after the earthquakes. A central feature of Gap Filler is its use of participatory processes to

involve everyone in creating their own city – including local community groups, artists, architects, land owners, librarians, designers, students, engineers and dancers. On its website, Gap Filler (2015) explains that the initiative:

> ... proves that the regeneration of the city does not rely solely on large-scale developments by the private or public sectors. Great things can be achieved with community power and resourcefulness; we can be flexible and swift in adapting to our changing city, meaning our projects will always provide contemporary reflection on the state of society. Ultimately, Gap Filler aims to innovate, lead and nurture people and ideas; contributing to conversations about city-making and urbanism in the 21st century.

This description is a good example of what post-disaster planning means and where it must stem from. It is vital to involve people in the future planning of the city because, as Gawith (2011) expresses it, 'they then talk about what is happening and get excited and committed to the rebuilding' (p 128).

Gap Filler and another initiative, Greening the Rubble, are the two most popular community recovery efforts started immediately after the September 2010 earthquake (Wesener, 2015, p 6). However, they are only two of several examples of networked projects that have established a foundation for developing many subsequent experiences. These examples, involving both tactical urbanism and creative placemaking, demonstrate 'the very real effect that even the smallest urban intervention can have on the well-being of a city, be they social, environmental or economic' (Barber, 2013, p 37).

Public street art

Don Miskell, General Manager, Planning and Design, CERA, affirms the official vision for Christchurch to be 'a great city to live in, to work in, to visit, and to play' (Future Christchurch, 2014). Creating a city for people is central to that vision: speaking for planners and designers, Miskell says, 'we have to put ourselves in the place of the people who we want to attract, and to live or visit or study, or shop, set up business or invest in the central city'. The need to focus on both locals and visitors is strong because they share an enjoyment of the space. In addition, underlining the importance of experience, Jason Mill, Director of Pivnice Architecture (ibid) notes Canterbury and Christchurch offer a unique 'recreational lifestyle', allowing an individual to undertake a wide range of activities on the same day. For example, thanks to the location of the city, someone living or staying there could go snowboarding in the morning and surfing in the afternoon.

The best-known experience projects in Christchurch are the Re:START Mall and the murals. For the mall, up to 36 shipping containers have become shopping experiences, including bars, cafeterias, clothes shops and even a post office (figure 1), like a whole community in itself. The murals too have emerged as a very important *partner* for people walking through the streets of Christchurch. A multitude of huge murals on walls across the central city – including images of elephants, a ballerina and lips – have redesigned the city's profile. Some are located on the back walls of historic buildings, such as the ballerina on the back of the Isaac Theatre Royal.

Figure 1: A food shipping container. (Photo: Author's own.)

Until early 2015 the Christchurch Stands Tall sculpture trail was another public arts project in which businesses, community groups, charities, education

establishments and individuals participated. It consisted of fibreglass giraffe sculptures (49 large, reaching 2.5 metres high, and 50 smaller ones) standing tall on the streets, parks and public spaces of the city (Christchurch Stands Tall, 2015). Other sculptures were of urban sheep spread throughout the city centre, enhancing the local identity of citizens through this link to an animal that has become such a well-known feature of New Zealand. Innovative street seating provides further examples of street art. Near Christchurch Casino, some park benches are decorated as piano keys (figure 2), and a huge green sofa (figure 3) stands out alongside Cathedral Square. As the headline in a newspaper article by Meier (2015) expresses it, 'Public art brightens city and improves our mood'.

Such diverse and eye-catching street art is also a significant tourist attraction. George Shaw, co-founder of the Rise Festival, describes it as 'a magnet for people to come to the city … a megaphone to talk to the rest of the world' (Future Christchurch, 2014). In post-quake Christchurch, Shaw observes, 'around every corner there is a fabulous piece of art work for people to enjoy'. It is not only individual sculptures that stand out in Christchurch boulevards and terraces, but also whole streets. For example, New Regent Street (figure 4) – a 1930s street of Spanish Mission-style buildings – is an attraction for tourists in its entirety, while also functioning as a central location where local people can spend time in their daily lives.

Events and festivals

The number of festivals taking place in the city has been increasing since 2011. The Festival of Transitional Architecture (FESTA) has been celebrated in 2012, 2013 and 2014. More than 30 FESTA events were scheduled each year, ranging 'from transitional vacant space projects to immersive futuristic installations, sustainable projects and hands-on workshops' (FESTA, 2015). Another event, Oi You! Rise Festival, featured exhibitions covering more than 1,000 square metres, 15 murals painted around the central city and community events (Street Art Limited, 2015). For example, *On the Street* offered an interactive view of Kiwi street and graffiti art. After opening at Canterbury Museum, its main venue, in late December 2013, it ran for three months, over which time the museum had over 248,000 visitors, more than for any other event previously held there (ibid).

Clearly, buildings such as the museum have been an integral part of such events. Dr Anna Crighton, President of Historic Places Aotearoa, recognises buildings as 'a really good example for telling the story of our city … It's a tangible reminder of what we have, it is a tangible reminder of the craftsmanship that used to happen, and so to go back to the 1870s and get a tangible reminder of the beginning of our city is really huge' (Future Christchurch, 2014). It is about

Figures 2 and 3: Street art seating (left) and street art sofa. (Photos: Author's own.)

Figure 4: New Regent Street. (Photo: Author's own.)

keeping the city's story alive. With that, too, comes a sense of custodianship, as with the project of restoring the Isaac Theatre Royal in which a major concern has been to recover the old glory of the theatre. Neil Cox, the theatre's chief executive officer, talks of wanting to return that feeling of 'wow, that's fantastic' when people walk through its doors (ibid). Similarly, the Arts Centre, the largest collection of heritage buildings in New Zealand, plays an important social role. It is intended to be a place for creative people, for entrepreneurs who are able to produce ideas and, definitely, design.

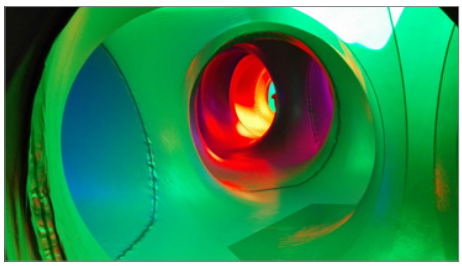
During four weeks in the winter of 2015, Christchurch Arts Festival showcased a programme of arts and entertainment across the city, in both historic buildings and open spaces. The purpose of the festival was to:

> ... lead the city out of winter and into the lightness of spring. It's a Festival promising a burst of creative energy, vitality, amusement and adventure. Featuring an exciting programme of cabaret and magic, high quality theatre and dance, that sits alongside a diverse offering of classical through to contemporary music and a range of community events. (Christchurch Arts Festival, 2015a)

An example of how the festival brings the city alive through the arts is the luminarium that forms an inflatable artwork called *Arboria* (figures 5 and 6). In *Arboria*:

> ... the visitor first encounters one of the three 8 metre high domes, each one dominated by a single colour – red, green or blue. Each dome bears its own stylised leaf motif rendered in graphic simplicity ... Travelling on the visitor will arrive at the first substantial tree – a combination of cones and spheres that give rise to a brightly luminous tree trunk and branches that reach over their head. There are three of these tree-like structures that triangulate the magnificent main dome. This 10 metre high dome takes its inspiration from the Chapter House of York Minster and one can see an interpretation of the original tall Gothic windows and the arching columns that culminate in radiant rib vaulting. (Architects of Air, 2015)

It is a structure that emerges as a kind of labyrinth, made only of plastic, which has the power to captivate people of all ages.



Figures 5 and 6: Luminarium, the inflatable artwork Arboria: *external view (left) and internal view (right). (Photos: Author's own.)*

Another example from the Arts Festival is Rama Tuna: 'Inspired by Ngāi Tahu stories and customs surrounding mahinga kai – traditional food gathering practices and use of natural resources – Rama Tuna brings alive the excitement of going eeling with rama or fire torches' (Christchurch Arts Festival, 2015b). Rama Tuna highlights the cultural sense of belonging that Māori people have to the Avon River as a traditional mahinga kai (food-gathering) site for eeling in Christchurch.

Scape Public Art has been installing public art in Christchurch throughout the year since 1998. It describes these artworks as providing 'a unique point of difference for the city. Ambitious and high impact, they enhance the urban centre and raise the profile for public art in Christchurch' (Scape Public Art, 2015). Scape Public Art also held a biennial festival in the city in 2015. This festival is supported through a network of partnerships, and it is a showcase for national and international contemporary artists, together with emerging locals. Art and business collaborate closely in creating artworks for the festival (ibid). One of the most impressive projects is Antony Gormley's sculptures (see figure 7 for his Avon River work), which are set to bring the world to the city as they 'have potential to put Christchurch on the global artistic map. Public art experts say Gormley's work has attracted tourists and helped revitalise towns across the globe' (Meier, 2015).

All of the projects mentioned above, even the temporary or experimental projects, have the power to change the city in the long term. They are able to create new experiencescapes that allow the people of Christchurch, and Cantabrians broadly, to lead a very different life but in the same place, in a brighter city. 'Adding colour, creativity and events to Christchurch, these projects aim to breathe life back into the city, test new ideas and improve the environment' (Future Christchurch, 2015).

Concluding remarks

> Out of the aftermath of the earthquakes, empty spaces may end up offering a new sort of safe haven one might never have considered ... Consequently, empty vacant spaces, open to the sky and far removed from large buildings, served as more preferable sites for activity than more traditional structures, and thus paved the way for Christchurch's burgeoning transitional space movements. (Barber, 2013, p 15)

Crucial factors in the success of the wide range of recovery projects described in this paper that have contributed to post-disaster renewal are citizen participation, community-based organisations and planning of regular events. The Christchurch Stands Tall sculpture trail, a project that required widespread cooperation and community involvement, is one example of street art that has changed the city,

Figure 7: Antony Gormley's sculpture on the Avon River. (Photo: Author's own.)

demonstrating how public art contributes to place, community and experience. After a disaster, the response slowly moves from the public sector (such as CERA and the Christchurch City Council) to private and community participatory initiatives or associations founded 'by locals for locals' (Cox and Perry, 2011). Through local initiatives, it is possible to maximise opportunities for residents by producing a design that improves the quality of residents' lives. Spaces are also designed and managed to provide liveability or urban comfort (Tavares, 2015).

The literature to date covers disaster recovery extensively, yet comparatively few studies deal with the role of sense of place and place attachments in the recovery process specifically (Silver and Grek-Martin, 2015, p 33). This is a gap for future research to fill, given that 'the way in which the public perceives place can have a very real impact on communities at large' (Barber, 2013, p 14). Another gap for empirical research is to explore how locals and visitors are (differently) affected by artworks and festivals, and to what extent experiencescapes cause place attachment. One further research opportunity may be to analyse the intersections between identity, preservation and temporary site-specific installations.

Experience projects come from the sum of local initiatives and creativity, so the ideas are developed by integrating them into local organisations. These projects are symbols of a new urban landscape profile and conveyors of local identity, as some of those involved in producing the sculptures and festivals themselves have recognised. Looking at what has been achieved since the devastation of the 2010 and 2011 earthquakes, Bergman (2015) observes:

> … the city is experiencing a rebirth with creativity and wit – thanks to the ingenuity of its hardy residents – and is welcoming tourists back again. Though much of the central city has yet to be rebuilt, entrepreneurs and volunteers are finding surprising ways to make temporary use of empty lots and bring life back to the downtown.

This paper has documented many of the community-based initiatives that developed in response to the Canterbury earthquakes, showing how such initiatives contribute to a new experience of the city. They are relevant in terms of urban planning, creative placemaking, public participation, and moving a city towards the future in an experience economy framework. This role, together with

the design of experiences itself, helps to improve trade in the region, diversify activities and create new cultural attractions, entertainment opportunities and tourist activities. In Christchurch, 'what began as a locally-minded endeavour was able to generate international appeal, and in doing so, contribute to the economic life of the city, without an initial profit motive' (Barber, 2013, pp 35–36).

Building experiencescapes means transforming the city public spaces with works of art. It means communities moving forward together. It means to 'stimulate the imagination, broaden the cultural horizons and provoke us into thinking of contemporary art beyond the stereotypes' (Scape Public Art, 2015). Consumers of today do not simply want to purchase products and services (as they are able to do so in a common mall or online). They are delighted to live experiences and emotions that are well integrated in a combination worthy to remember, and to tell each other about them. A connection between leisure, fun and art can be a recipe for success and happiness. As Lianne Dalziel, Mayor of Christchurch, states, 'public art is something that is available to everyone' and 'sculptures will make Christchurch special. Let them make your heart sing' (*Press*, 2015).

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NOTE

1 As planned when the agency was set up in 2011, CERA was disestablished in April 2016, marking some shift in responsibility for recovery from national to local agencies.

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The Garden of Entangled Paths: Landscape Phenomena at the Albany Bulb Wasteland

KARL KULLMANN

Over four decades, the Albany Bulb in the San Francisco Bay Area, California, United States of America metamorphosed from a dumpsite to a thicket harbouring a clandestine community. Since the forced decampment of this spontaneous society, the site has endured as a living ruin that continues to inspire the explorative impulses of visitors. While residual structures and decaying scrap-sculptures represent the tangible face of the site and its heterotopic past, more nuanced underlying landscape phenomena ground this cultural legacy. In exploring these phenomena, this paper offers a counterpoint to the tendency to engage with wastelands programmatically and pictorially while overlooking the influence of the corporeal landscape. The emergent nature of these phenomena suggests that the agency of design might circumvent typically fraught interactions with undesigned waste-scapes by assuming characteristics of the gardener.

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KEY WORDS
Disorientation
Thicket
Topography
Paths

Over several decades, urban wastelands arose as a topic of substantial interest to the spatial design fields. This focus is partially a consequence of increased supply, as globalised manufacturing led to the proliferation of de-industrialised and de-urbanised sites in developed economies. From an environmental viewpoint, the 'closure' of the global map (Bann, 1983) and shifting perceptions of nature attributed wildness value to sites formerly disregarded as badlands (Rink and Herbst, 2012). The appeal of wastelands also reflects the recognition that many of the sanctioned public realms in suburbanised cities make inadequate contributions to city life (Sennett, 1993, 1996). In this context, unsanctioned examples of successfully appropriated wastelands appear to suggest alternative conceptions for re-engaging with public space.

Kevin Lynch (1990) defines wastelands as sites that retain innate potentiality but are 'presumed valueless' and 'held unused without accounted cost' (p 172). Similar to Martin Heidegger's (1977) concept of 'standing reserve', the words *unused* and *potential* in Lynch's definition capture the divergence between the present and the future in urban wastelands. This illuminates the transience of wastelands, which inhabit what JB Jackson (1980) describes as an 'interval of neglect' (p 102). While the duration of this interval is contingent on the complex interaction of many factors, the potentiality of wastelands is most acutely vulnerable to being extinguished by redevelopment. For this reason, Peter Connolly (1996) argues that a potent role for design is to assist in 'neutralizing threats' to a wasteland's existence.

In his discussion of *terrain vague*, Ignasi de Solà-Morales Rubió (1995) provides clues as to how design may best fulfil this neutralising role without freezing wastelands in time or acting as an instrument of control. De Solà-Morales

(1996) calls for a new conception of 'landscaping' to perpetuate wastelands as free open spaces 'filled with alternative, individual non-structured activities and connections' (p 14). While de Solà-Morales does not elaborate on mechanisms for achieving this, the concept of 'weak design' suggests tactical approaches that seek to remain sensitive to the subtle material and cultural nuances of wastelands (see de Certeau, 1984). Nature Park Schöneberger Südgelände in Berlin by Planland/ÖkoCon is an example of weak design. Towards the objective of maintaining the overgrown character of a derelict railway switchyard, the park magnifies existing elements and experiences that convey novel interactions with residual infrastructure (figure 1).

Although Südgelände is a distinguished example of weak design, the spatial design fields are more likely to contribute to the demise of the potential of wastelands. As the prototypical project for repurposed post-industrial wastelands, Landscape Park Duisburg-Nord in Germany's Ruhrgebiet exhibits elements of both weak and strong design. The design by Latz and Partner retains, adapts, cuts and grafts the infrastructure of a decommissioned steel mill to facilitate novel circulations, activities and gardens. Although the park is compelling as a romantic ruin, the degree of control implicit in the compartmentalised programmes and robust boundary wall institutionalise the original wasteland qualities that the designers sought to retain. The High Line promenade in Manhattan by Field Operations takes this process a step further. Reverence for the wasteland qualities of the derelict elevated railway motivated efforts to save it from demolition: the constructed design seeks to retain the existing waste-scape character. Yet those efforts unwittingly contributed to the eradication of that waste-scape because, in facilitating the circulation and programming expected of an urban space, the designers had to eliminate the time-layered vegetal patina. The result expunges the melancholic nuances of the existing state by substituting an urban wildness with its simulation (see Bowring, 2009).

The fraught relationship between design and wastelands results from the core mandate of design to create the utility that distinguishes it from artistry (see Vartan, 2013). Moreover, an underperforming site is vulnerable to general social sensitivity about decline and narrow economic definitions of appropriate

Figure 1: Gravel path between overgrown railway tracks, Nature Park Schöneberger Südgelände, Berlin-Tempelhof, Germany, 2014. (Photo: Author's own.)

use (Birrell, 1990). For this reason, designers have tended to focus on existing and potential uses for wastelands and to introduce the apparatus required to support those programmes (Kullmann, 2015). As a consequence, the landscape phenomena inherent in wasteland sites have generally been secondary to programmatic concerns. Most often, landscape characteristics are consumed superficially through the romanticised depictions of overgrown decay that are now pervasive in design discourse (see Herron, 2012). The picturesque aesthetic framework that underpins these representations has been extensively critiqued for cultivating associations between vision and power (Evans, 1995; Sennett, 1993) and perpetuating passive and scenographic conceptions of landscape (Corner, 1999; Czerniak, 1998, 2001; Herrington, 2006).

Research objectives: Reading the ground

This paper redresses the tendency in design discourse to engage with wastelands programmatically and pictorially, while overlooking the contribution that the corporeal landscape makes to a visitor's experience. This objective is achieved through undertaking a phenomenological[1] interpretation of landscape characteristics at the Albany Bulb wasteland site, located in the San Francisco Bay Area, United States of America.

Most discussion of the Albany Bulb has been directed towards the culture and politics of otherness, the ethnography of the occupiers' stories and, in particular, veneration of the numerous artworks and other structures on the site (see Moffat, 2015). While important, the object-bias of focusing primarily on cultural artefacts and individual narratives overlooks features of the underlying landscape that are equally significant to the emergence and current experience of the Bulb. This paper argues that the popularity of the Albany Bulb as an exotic destination is substantially contingent on the disorienting aspects of these specific landscape-based phenomena. The objective in expressing these phenomena is twofold: (1) to decode a deeper understanding of the general appeal of the Albany Bulb in its present undesigned state; and (2) to consider the transferability of these features from the Bulb to other sites situated in differing contexts using the agency of design.

Case study site: Cultivating the Albany Bulb

Many islands and peninsulas in San Francisco Bay were originally distant landmasses drawn in from across the ocean on the subducting Pacific Plate (see McPhee, 1993). Consequently, Alcatraz, Angel Island, Tiburon, Marin Headlands and landlocked Albany Hill all exhibit discordant foreign geological profiles (figure 2). Within this context, the 30-hectare Albany Bulb is distinctive. As a former landfill site, the Bulb does not fit with the tectonic and hydrological processes that shaped the rest of the Bay. However, the Bulb is also localised in the sense that it is the accumulation of construction and garden detritus from the East Bay. The resultant undifferentiated subsurface has barely begun the process of leaching, sifting and sorting that will eventually stratify it over a geological timeframe. While this characteristic is common to newly formed ground, the Albany Bulb has a finer grain than most reclaimed sites because of the relatively small and haphazardly located units of deposition. As a consequence, typical

Figure 2: Albany Bulb in the context of San Francisco Bay. (Image: Author's own.)

subsurface profiles are a complex patchwork of garden waste, rock, brick, concrete, asphalt, rebar, wire, metal, plastic, timber, rubber, clay and slag (CRWQCB, 1982).

Although amassed in small increments, the overall outline of the Bulb was guided by a 1970s city master plan for an archipelago comprising numerous artificial islets (Rimov, 1969). Of this vision, only a single formation was created, which remained connected to the eastern shore of San Francisco Bay (figure 3). While technically a peninsula, the heavily bulbous form distinguishes the Albany Bulb from more orthodox peninsulas that tend to narrow towards the outermost point. In such instances, peninsulas typically exhibit declining biodiversity along their length, as the long, narrow form progressively limits the interconnectivity of ecological networks (Forman, 1995, p 108). The peninsula-effect is reversed at the Albany Bulb, as general diversity increases with distance from the main shoreline. In this regard, the morphology of the narrow neck operates more as a transitional link, with the main Bulb functioning culturally and naturally like an island. For this reason, the German term for peninsula – *halbinsel* (half-island) – is a more fitting description.

Influenced by both the half-island morphology and the intricacy of the underlying fill, the history of the Albany Bulb since the 1980s is ecologically and culturally complex. In 1984, following 25 years of Bay-filling, these activities ended, enforced by a court decision that reflected a shift in community opinion. At that time, the Bulb was left as an incomplete industrial earthwork. From this point of maximum ground making and shaping, the site succumbed to environmental degradation related to its toxic substratum. Methane venting caused the ground to burn in numerous locations, while erosion exposed concrete, rebar and other slow-degrading construction materials from just beneath the surface. Uneven subsidence further deformed the Bulb from a smoothly graded landform to an uneven topography riddled with holes.

Despite this contamination, flora and fauna gradually colonised the site. The urban garden waste that had since been re-exposed carried biotic stowaways in the form of seeds and bulbs of both exotic and endemic flora. Over time, this seed-bank evolved into a haphazard weed ecology comprising both familiar garden plants and wild species. Nurtured by the mild foggy microclimate, heath

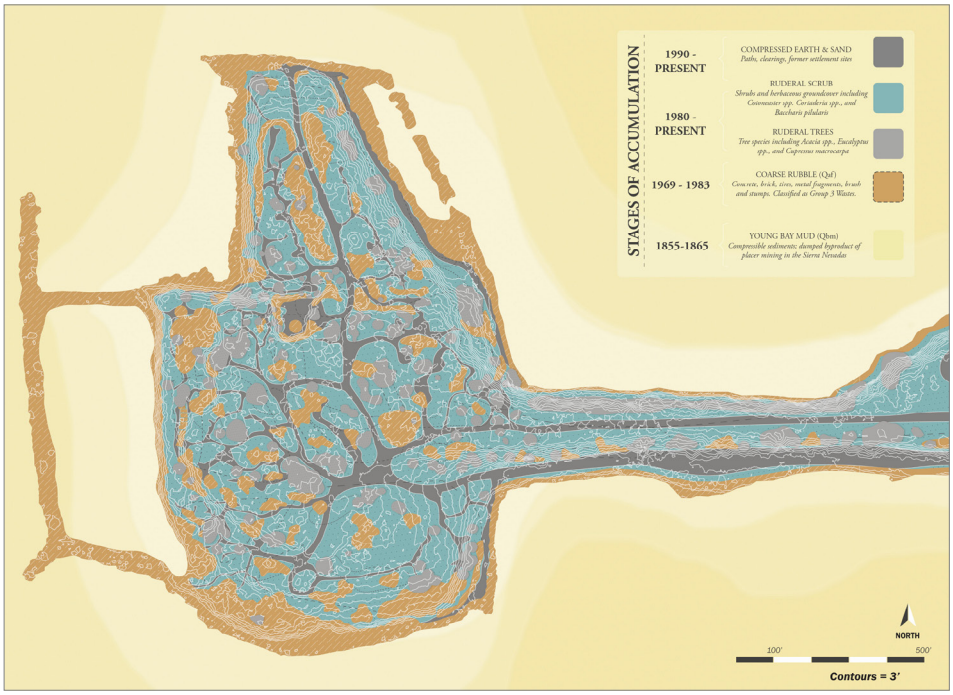

Figure 3: Landscape accumulation map of the Albany Bulb. (Image: Lauren Bergenholtz. Reproduced with permission.)

of acacia, fennel and broom formed the canvas for stands of date palms and Eucalyptus, interspersed with blackberry thickets, and occasional plum trees and grapevines (author's survey, 2013). By the early 1990s the process of ecological succession achieved a vegetal height and density sufficient to protect humans from the elements and, importantly, from view (Google Earth history, July 1993). Concurrently, human colonisation of the Bulb gathered pace as itinerant people built progressively more elaborate and firmly embedded camps. The isolated offshore location and transitional nature of the narrow neck that leads out to the main Bulb particularly appealed to those who saw their place as lying outside of normative society.

By the mid 1990s, inhabitation had rapidly grown to a dispersed community of approximately 50 campsites hidden among the heath and interconnected by a web of narrow paths that became second nature to the locals who trod them, but remained disorienting to outsiders. A barter economy was established, as was a small free-to-all library. A home-grown art scene flourished, with numerous sculptures created from the flotsam and jetsam that littered the area. Two Bulb residents fabricated an unpermitted waterfront castle that faced-off against the mainstream world of San Francisco across the Bay (figure 4). Another resident constructed an unseaworthy vessel that was shipwrecked on the shore before it could be launched (McCabe and Rozen, 2003).

In 1999, following municipal concerns about illegal construction, lack of sanitation, threats to safety, substance abuse and the implicit exclusion of the general public, the entire clandestine encampment was forcibly removed. Emerging from tidelands over a compressed timespan of 40 years, new land was created, naturalised, colonised, cultured (insofar as it supported the emergence of a place-specific society) and vacated. In the time since the enforced decampment, the Albany Bulb has endured as a noble ruin of its 10-year history as a heterotopia,[2] with residuals such as abandoned structures, deteriorating artworks and complex

Figure 4: The castle ruins at the western edge of the Albany Bulb, with San Francisco, the Golden Gate and Marin Headlands visible across San Francisco Bay, 2013. (Photo: Author's own.)

path networks (figure 5). This untamed circumstance of slow decline resulted from a combination of reticent legal custodianship due to unsafe conditions on the Bulb, the deadlocked ambitions of opposing vested interest groups, and community activism to save the Bulb from being rationalised into open sports fields, parking lots and boat-launching facilities.

The evolution of the Albany Bulb contrasts with the transition of the neighbouring Berkeley landfill site to a park. Roughly synchronous to the Albany landfill, the Berkeley landfill also accommodated some homeless camping, scrap-sculptural installations and a nascent non-profit revegetation initiative. Nonetheless, the ground conditions of the two fill sites differ substantively; whereas the Albany landfill contains construction and garden waste, the Berkeley landfill primarily comprises household refuse. For this reason, the Berkeley landfill was sealed with a clay cap in 1991. Over this tabula rasa, a master plan directed grass seeding, an informal circulation system and some residual thickets in deference to the initial revegetation efforts. While the open space that resulted (later named César Chávez Park) shares a similar sensation of topographic expansiveness with Richard Haag's design for Gasworks Park in Seattle, the act of capping severed the 'interval of neglect' that characterises the evolution of the Albany Bulb.

Since its inclusion in the state park system in 2005, the Albany Bulb has loosely functioned as an undesigned public space suited to passive recreation. In this capacity, the Bulb has become popular among residents of the adjacent East Bay cities, both in terms of its existence value in the psyches of those who rarely use it but cherish its presence, and as a hidden world for discovery and retreat by those who do make the journey. This allure can be partially explained by the Bulb's role as an adventure island that indulges the exploration fantasies of all age groups. Moreover, the existence of wildness in an urban context – even when founded on artificial or toxic foundations – has romantic appeal to many urban-dwellers who may at times feel constrained by the routines and regulations of the city (see Berleant, 1998).

Figure 5: Sculpture made from found objects situated in the north-western area of the Albany Bulb, 2012. (Photo: Author's own.)

Interpretation: Three phenomena

While residual structures and decaying scrap-sculptures represent the tangible face of the Albany Bulb, more nuanced landscape phenomena[3] ground both the Bulb's heterotopic past and its present explorative allure. Here, these phenomena are distilled into three fundamental motifs and explored following the phenomenological approach that David Seamon (2000) defines as *radical empiricism*. This approach seeks to comprehend the fullness and complexity of a phenomenon through grounded, direct, first-hand involvement and experience. The change in perception this method facilitates potentially liberates the landscape from reductive predetermination into familiar types (see Spiegelberg, 1982). I undertook the first-hand experience mandated by this approach over the six years from 2008 to 2013 (inclusive), and corroborated it across other media, comprising aerial imagery, photography and literature.

Phenomenon 1: Entangled paths

The Albany Bulb consists of three circulation systems: (1) a gravel road along the neck and around the plateau area of the main Bulb; (2) an intermittent path around segments of the shoreline; and (3) an intricate web of narrow desire-line paths in the interior. This section focuses on the web of narrow paths that constitute the most distinctive feature of the Bulb's circulation. The characteristics inherent in this complex network are explored in contrast to an enduring legibility model and the circuit that is the common system in many orthodox urban parks and gardens.

Paths are integral to the consumption, production and representation of space. From an ecological perspective, paths enable physical matter and genetic material to move efficiently, while concurrently protecting the surrounding environment from the random movements of fauna (Forman, 1995). Even in the absence of clear physical routes, both animals and people have been demonstrated to construct and follow cognitive paths that comprise complex interactions of vision, proprioception and memory. In an urban context, paths enable a city to be legible and orienting. As originally articulated by Lynch (1960, p 96), these

'habitual or potential lines of movement' are the most potent mechanism for ordering the whole city. Lynch concludes that paths should have specific qualities, including topographic gradients and signage that discern one direction from the other, clear destinations, a visual hierarchy of scaling, incremental markings to indicate position, and physical or visual connection to surrounding elements and landmarks. Moreover, to avoid disorientation, the geometry of paths should ideally be straight, or contain a few 90-degree turns so that path users keep a general sense of orientation. For Lynch, these design criteria should collectively illuminate the overall cognitive image of a given circulation structure.

While Lynch's six-decade-old, but still widely influential, path-based legibility model specifically addresses the meta-structure of cities, it has come to be equally applicable to the internal structures of public spaces. Driven by expectations of economic accountability and programmatic activation, parks and gardens increasingly mirror their urban contexts as settings for activities and events (Kullmann, 2015). Consequently, the design layouts of contemporary urban parks, gardens and plazas typically follow a scaled-down urban legibility template. Places that fail to conform risk being relegated to the sideshow spectacle of the maze, or marginalised as poorly conceived *angstraum*.[4]

The dense entanglement of minor paths in the interior of the Albany Bulb does not follow the legibility template, while also avoiding the more humorous or negative connotations of mazes and marginalised spaces. Originally forged through the thick vegetation by the Bulb's first fossicking colonisers, the path-trails solidified as others followed (figure 6). As a consequence, the trails are literal embodiments of the act of exploration, inscribed without the clarity and foresight of planned design. In contrast to Lynch's path legibility rubric, the paths that result have no hierarchy, are riddled with complex changes of direction, are not tied to a progressional logic of landmarks or vistas, are often bereft of significant destinations and frequently either fade out or bounce back from impassable landforms. Moreover, the open-ended explorative trails of the Bulb do not fulfil Lynch's (1960) assertion that the image paths create 'must be good enough to

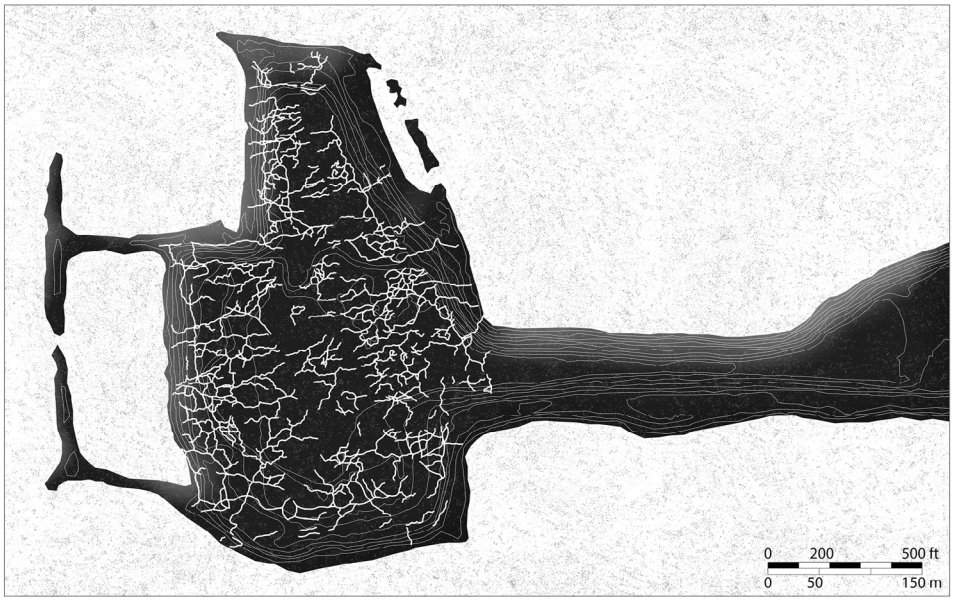

Figure 6: Map of the Albany Bulb showing the network of narrow trail-paths. (Fieldwork and cartography: Author's own.)

get home' (p 9). A path that takes a person home assumes an extant domicile to which to return; it omits those who are searching for a new home, as many of the path-makers at the Albany Bulb were doing.

Moreover, paths that return home create circuits. Robert Harbison's (1977) observation that the circuitous path 'gratifies homing rather than adventuring instincts' (p 18) is historically illustrated at Stourhead, England, where the inner circuit around the lake choreographs views and revelations before rhetorically returning the walker safely home. The circuit also endures as a feature in many contemporary parks. Here, the circuit has the advantages of being finite and readily quantifiable, as well as automatically delivering the walker back to their point of origin without requiring them to make any of the cognitive decisions about when to turn around, as they must typically do on non-circular paths. In theory, the walker can suspend their faculties of orientation and proprioception and hand their physical journey over to the path, which in turn frees up cognitive space for thinking or daydreaming.

The disadvantage of the circuit path is that in general it is not truly explorative. Circuits encapsulate finite worlds, whereas open-ended paths extend the walker into potentially unknown territories. The unknown route can occur even in a contained area, as exemplified by the entanglement of paths at the Albany Bulb that weave and fold in a complex way over each other to create the impression of unlimited permutations. Unlike a circuit path, a walker on an open-ended path must continually reaffirm to themselves how far they are prepared to venture before turning back. At the Bulb, this point of cognitive inflection is tangibly rendered in the landscape; *diminishing paths* are created when more people start a journey down a path than those who complete it (figure 7). As vegetation encroaches and the way narrows, more and more walkers harbour doubts and decide to turn back, effectively compounding the narrowness in a feedback loop. A path's mandate is to lead somewhere, and so for a walker to decide that a path goes nowhere and to retreat is to undermine its fundamental purpose. This situation generally invokes unease, because in our spatial cognition we are beholden to the authority of the path – and the signage that often accompanies it – and prefer to hand over responsibility to that authority.

Conversely, overcoming negative risk/reward assessments and continuing along a diminishing path in the face of these doubts can lead to unanticipated revelations. The Albany Bulb path network is full of such instances, whereby the narrowing of a path may be interpreted as a filter that edits out those who are not yet ready to make a particular discovery. Those who are ready – perhaps on the second or third visit – are often privy to significant disclosures that include discovering the concrete castle, the tent library or a ragged precipice. Conversely, many similar paths are just as likely to lead to rubbish piles, bush toilets or dead-ends as they are to find revelatory vistas. The navigational outcomes are therefore unpredictably variable and contrast with the automation of the circuit path. When compounded with the difficult terrain and obfuscated lines-of-sight that challenge bodily alignment, the conditions for detached mind-from-body thinking that are associated with the level loop path are absent. Rather, as the artists Arakawa and Madeline Gins (1979, 1997) explore extensively, the experience of movement in the physical world becomes integral to the walker's thought-path.

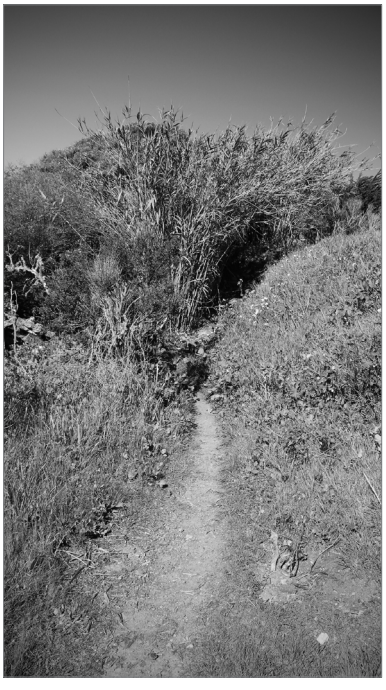

Figure 7: Trail diminishing in width situated in the western area of the Albany Bulb, 2013. (Photo: Author's own.)

This concept of integration between thinking and physical environment (as opposed to Modern mind–body dualism) is a two-way experience; that is, the symbiotic thought-path relationship is shaped not only by the topography of the path but also by the trajectories of cognition. In this regard, Jacques Derrida (1986) suggests that the language of thought can also be compared to the pioneering 'clearing of a path' (p 195). Moreover, because language shifts, the path moves too (contradicting Zeno's paradox of the immobility of a path). Like the people, thoughts and language that move along them, the paths at the Bulb may also be interpreted as being constantly on the move. The paths are physically mobile, in the sense that they are constantly deformed by the interaction between human bodies, ground and vegetation; and also semantically mobile in deference to the feedback loop between thoughts and actions.

Phenomenon 2: Deformed ground

Topographically, the Albany Bulb exhibits three primary landscapes: (1) the narrow elevated neck that provides access between the main Bulb and the mainland; (2) the shoreline comprising intertidal concrete rip-rap backed by low cliffs; and (3) the interior plateau comprising undulating terrain with occasional outcroppings of concrete and rebar. This section focuses on the interior plateau, where deformity is explored for its capacity to test orientation and cultivate useful wear in the landscape.

Over the four decades since landfilling activity ended, uneven subsidence has deformed the plateau from a smoothly graded surface to an amorphous topography riddled with depressions (figure 8). The porous nature of the uncompacted substratum supported this deformation, permitting rainfall to percolate directly down without running off and merging with the rivulets and streams that are typical of the Bay Area. In these more common landscapes, the converging structure of waterlines imbues the terrain with innate legibility and orientation, so that through its linearity and flow a river acts as a natural 'catching' feature when approached from side-on, and as navigational thread when followed alongside. From a navigational point of view, tracking a linear waterway is similar to following a clear path in that it is simple to establish and

Figure 8: Deformed hollow topography in the inland area of the Albany Bulb, 2013. (Photo: Author's own.)

maintain direction. Just as the circuit path 'gratifies homing instincts' and allows a walker to cognitively switch off and take leave of their senses, a dendritic water system gratifies convergence and resolution by taking multiple start points in the headwaters and concluding with a single, authoritative river. This concept has practical application in wilderness areas where standard survival training instructs lost walkers to follow water downhill to maximise their chances of finding a settlement (see Alloway, 2000).

In landscapes with structures that are not formed by water, orientation and wayfinding are more complicated. The absorbent substrata associated with limestone, sand, volcanic and landfill terrain tend to create complex surface topographies that are difficult to comprehend and follow. This condition is demonstrated on the main plateau of the Bulb, where the deformed topography of knolls and depressions presents a particular challenge to navigation. Here, a walk downhill will terminate prematurely in a hollow landform from which all exits are counter-intuitively back uphill. The hollow, concaved landforms manipulate a walker's sense of space by substituting the distant real horizon with a nearer artificial horizon that is constituted by the edge between the rim of the hollow and the sky (see Gibson, 1986). This creates a more internalising world that heightens the sense of the sky when visible, but also accentuates the nearness of details in the immediate context.

While engrossed in the physicality of negotiating the uneven ground and mentally mapping the complex topography of the Bulb, a person is predisposed towards losing track of their location within the larger context. When a walker pauses to look up from their preoccupation with the complex features of the ground, they are likely to discover a disjunction between their assumed progress and actual spatial location. This gap that they experience before re-orientating to landmarks within the larger landscape, as Arakawa and Gins (1996) describe it, is a state of being 'more body and less person' (p 34). Being 'more body' refers to the heightened state of the non-visual senses – touch, in particular. In the rough environment that results from deformed ground, touch is oriented downwards towards physical surfaces, which in turn transfer resistance back to the sensing body. For Richard Sennett (1998, p 19), this friction between the body and materiality of rough terrain fosters creative expression. Following Sennett, roughness may therefore be interpreted as underpinning the voracious degree of creativity that has occurred at the Albany Bulb in the form of artworks, sculptures, constructions, poetry and stories.

A caveat, however, is associated with touch, in that physical contact does impact on the environment onto which it is directed. Accordingly, in the management of wilderness areas, direct touch has generally been devalued as a negative consequence of careless tourism. In the place of touch, looking has typically been considered a more unobtrusive sense for interacting with an environment, even though vision has been extensively associated with impassiveness, distancing and asymmetric power (see Evans, 1995; Foucault, 1979). While the practical and ecological rationale for limiting physical interaction and encouraging distanced looking in highly visited wilderness reserves is well established, the Albany Bulb is fundamentally different; with landfill underpinnings, the Bulb does not have a 'pure' or 'natural' state to actively preserve or restore.

Freed of this negative association, the effects of touch can be interpreted as having positive impacts in the sense that wear and deformation of the landscape shape culturally useful spaces over time. For example, at the Bulb the process of wear holds back the heath thicket and makes meeting spaces legible. Wear also deforms the ground under the pressure of human feet, eroding paths down into the ground through use to reconfirm their route over time. On paths that encounter slopes, the pressure of toes pushed into steep ground creates footholds (Templer, 1992). In several places at the Bulb, this process of wear has over time evolved into useful steps, unconsciously creating what Guy Rothery (1912) termed 'modified land stairs' (figure 9).

Figure 9: Steps worn into a hillside by feet on the north-eastern edge of the Albany Bulb, 2012. (Photo: Author's own.)

Phenomenon 3: Urban thicket

In contrast to typical public spaces that are cleared and open, the Albany Bulb is distinctive for the dense heath vegetation that covers the interior of the site (figure 10). Much of the thicket is interspersed with clearings originally created for campsites and other cultural uses, and is incised by the network of very narrow trail-paths described in relation to the first phenomenon. This section discusses the disorienting nature of thickets and explores mechanisms for moving and navigating through them.

As inherited from medieval traditions, the closed, dark, repetitive space of the thicket is synonymous with the deviation of becoming lost. In contrast to the clear sightlines and visual landmarks of the open landscape, the vegetal entanglements of the thicket fragment views and confuse potential routes. Gaston Bachelard (1964) observes the sense of immensity that results, noting that even though this bodily impression often openly contradicts geographical reality, it does not take long 'to experience the always rather anxious impression of going deeper and deeper into a limitless world' (p 185). Yi-Fu Tuan (1977) concurs that even if small, the thicket gives the appearance of being limitless to the person who is lost within it. The heath-thicket of the Albany Bulb follows this impression of Cartesian space-defying expansiveness. Covering seven hectares, the thicket zone is roughly equivalent in area to Dolores Park in nearby San Francisco. However, when immersed on the ground, the thicket appears far larger than the visibly open and defined expanse of Dolores Park.

Tuan questions the nature of what it means to be lost and feel completely disoriented in a dense and apparently limitless thicket. Although space is still organised in relation to the body so that regions remain to the left, right, front and back, these bodily orientations appear arbitrary without external points of reference as an anchor. From this state, it takes only the faintest of recognisable landmarks to set the orienting faculties back in motion, which Tuan (1977) illustrates as 'a flickering light appear[ing] behind a distant clump of trees' (p 36). At the Bulb, Tuan's forest campfire motif is substituted with occasional clearings within the thicket and glimpses of landmarks, San Francisco Bay and the Berkeley Hills. With the partial orientation that is then temporarily established, a walker may continue to be lost in the sense that they do not know exactly where they are, but spatial–bodily relations such as left and right resume their meaning.

That the walker re-establishes temporary orientations on seeing a flickering light or fragmentary distant view implies a self-referential and vector-based form

Figure 10: Immersive thicket in the inland area of the Albany Bulb, 2013. (Photo: Author's own.)

of navigation that is contingent on distant goals. However, conceiving of navigation in this Kantian manner – in which the world is oriented and comprehended in relation to the sides of the body – perpetuates the conception of the space in between the walker and their goal as inert and without qualities or differences (Kant, 1929). Rather, following Heidegger (1962), the body-based axial directions are not projected onto a neutral and directionless Cartesian space. Instead, the environment is innately conferred with qualitative clues to orientation that operate in communication with the body's referenced sense of direction. The resultant orientation emerges from an amalgamation of the body and the finely textured features of its proximate landscape. For Gilles Deleuze and Felix Guattari (1987), this body-based and landscape-oriented relationship is manifest most acutely in motion so that a walker negotiates the apparent limitlessness of immersive space through the continual discovery and rediscovery of an appropriate direction. This tactical and immediate form of navigation orients the walker in many little ways within a general disorientation.

When a walker is immersed in a thicket with everything close at hand, space loses its visual construction. Under these circumstances, the eye assumes a more tactile role to cope with the constant variation of landmarks and linkages (Deleuze and Guattari, 1987). Close vision becomes body-based in the sense that when judging distances and textures, its purpose is not to visually control or indulge a scene, but to guide the immediacies of movement. In this regard, the eye becomes more *responsive* to its environment and less *predictive* in the manner of distant vision that gives advance warning as future events enter a person's event-horizon. This responsiveness is a key experiential feature of the Bulb; when moving around the thicket using close vision to tune in to the texture of the immediate landscape, a walker is likely to be more present in the here-and-now, and less likely to be preoccupied with calculating future strategies or reviewing past decisions. To move about in this reactive and temporally untethered manner is potentially a cathartic experience for the individual walker.

Discussion: The designer as gardener

The three landscape phenomena of entangled paths, deformed ground and urban thickets underpin the distinctive experiences of the Albany Bulb. While these phenomena emerged from the convergence of unique biophysical site conditions, they also resulted from complex interactions with cultural factors. The most instrumental of these is the lack of a master plan[5] to direct the evolution of the Bulb over the 25 years since filling activity ended. In the absence of an overarching vision (such as the one applied to the neighbouring Berkeley landfill), humans have interacted tactically and immersively with the phenomena of the Bulb. This organic process leaves the Bulb as an incomplete and open-ended project, which in many respects resembles the ongoing process of cultivating a garden (see Johnsen, 2004).

To be sure, an ultimate vision is typical of most gardens, whether premeditated on paper as for the great Baroque gardens or subconsciously conceptualised in the mind's eye of a homemaker working on their residential garden. However, even where a master plan does exist, gardens tend to thwart it. They do so, first, because of the ambiguity between unconscious 'nature' and its garden-based representation, whereby the garden is the product of creative embellishment and yet is diluted by its construction out of the very same materiality as the world at large (Girot, 1999; Hunt, 2002). Moreover, garden master plans are undermined by the assumptive role of conscious human intervention and control, with the expectation that a garden will be the end result of human work, even though the forces of growth continuously undo that work (St-Denis, 2007). As Harbison (1977) notes, a gardener 'takes what is there and begins to bend it to his will, but it is always getting beyond him' (p 4). Harbison implies that gardens can never truly fulfil a creative master vision 'because they are literal worlds in which artifice strains against senseless growth' (ibid).

In contrast to Harbison's interpretation of gardens as thwarting creative vision, another view is that the evasive verdancy of gardens is the essence or source of creativity. As the poet Edward Young (1759) wrote in the eighteenth century, 'an original may be said to be of a vegetable nature, it rises spontaneously from the vital route of genius; it grows, is not made' (p 7). At the Bulb, the cultural agents who interact with Young's vital genius are effectively gardeners who propagate, select, shape, trim and beat down the thicket, and excavate, collect and rearrange the stony surface. Like a home owner, each agent works to a vision that, even if unconscious, overlaps with other visions to form a multi-authored patchwork master plan of ambitions, achievements, distractions and disappointments.

The emergent nature of this creative placemaking at the Bulb obscures clean distinctions between the creativity of the original residents and the visitors that followed. Merging this creator–user binary into a unified *gardener* role leaves the Bulb open to more active participation in generating many possible readings, and indeed opens up the possibility of visitors physically modifying the place themselves. Fitting within the terms of Umberto Eco's (1989) 'open work', such a relationship compels the observer–participant to choose their own 'points of view, connections, directions, and other possible forms that coexist' (pp 85–86). Open works are exemplified in those complex forms that undergo

a continual metamorphosis from different angles. Although Eco refers to in-the-round sculpture, the immersive landscape phenomena that characterise the Bulb (entangled paths, deformed topography and dense thickets) also facilitate open metamorphosis.

External threats

While engrossed as gardeners, creator–users are less able to address the external forces that are certain to periodically intrude on the Bulb and other urban wastelands. The agency of design has a role in mediating and neutralising these existential threats (see Connolly, 1996). To achieve this without smothering a wasteland's openness by imposing systems of control, designers may also partially emulate the activities of gardeners. The designer as gardener is able to operate strategically within the wasteland, cultivating, amplifying, facilitating, grafting and obscuring existing features and phenomena. Simultaneously, the designer–gardener is capable of subverting planning conventions by creating a *perforated* master plan. Under this guise, the master plan appears to fulfil its obligation to order and 'complete' a site, but in actuality remains a loose scaffolding riven with holes for other gardeners to fill in as they go.

Both gardens and wastelands are heavily influenced by their edges, where maximum exchange and leakage occur in the urban setting (see Forman, 1995). Therefore, the vulnerable interface between the wasteland and its context represents a potent zone through which a designer–gardener may work to neutralise external threats. Although few sites are actual half-islands like the Albany Bulb, many urban wastelands effectively function as islands because of boundary conditions that insulate their interiors. For example, at an abandoned post-industrial site, the boundary may take the form of a partially derelict fence punctuated by breaches that facilitate covert access for inquisitive urban explorers.

Nevertheless, reinforcing the fragile perimeter conditions of a wasteland need not include imposing or repairing a physical barrier. To do so risks sealing a site off from openness and imposing controlled entry points. Instead, the designer–gardener can draw on the legacy of garden framing. Despite the etymological link between gardens and physical enclosure (Hunt, 2000; St-Denis, 2007), the frame is intrinsically more a layered threshold than an absolute barrier that segregates a quiet garden from noisy city life or that divides cultural representation from natural wildness. At its most effective, the frame is a semi-permeable membrane that filters the transition of energy and information, which in addition to physical access includes visual connectivity, sound, ecologies and subcultures. By ensuring a semi-permeable edge, the designer is able to firmly delineate a wasteland from its urban context without completely incarcerating and suffocating the site.

Transferability and fabrication

The designer–gardener approach suggests a method for cultivating and delineating other urban wastelands. Although unlikely to replicate the distinctive qualities of the Bulb, other sites probably will contain alternative compositions of endemic landscape phenomena that are ripe for cultivation. Nevertheless, while wastelands are relatively common in post-industrial cities, designers usually work on sites that have been – or will be – cleared of nuanced phenomena in

preparation for, or during the process of, development. Therefore, the greater challenge is whether complex landscape phenomena such as those articulated at the Albany Bulb can be authentically fabricated on sites that exhibit few if any emergent phenomena.

When working in this context, the designer–gardener ideally begins by preparing the ground, from which all other phenomena will emerge. However, in contrast to the haphazard landfilling that shaped the Bulb, ground shaping placed under the purview of the designer becomes susceptible to stylisation to meet social assumptions of what constitutes acceptable landscape appearance. Moreover, the realities of compressed construction schedules and the expectation that new urban public spaces will be immediately and fully functional conflict with the time lag that is fundamental to emergent processes (see Barnett, 2013). OMA and Bruce Mao's winning 'Tree City' proposal for Downsview Park in Toronto, Canada illustrates these limitations. The scheme proposed a loose framework of many wandering paths and circular stands of trees, set over an agricultural-scaled enterprise of site grading, soil improvement and annual seeding of progressively more robust flora. Although the framework was suggestive of a compelling process-driven model for urban parks (Kullmann and Weller, 2000, cited in Czerniak, 2001), its vagueness was ultimately negated by orthodox processes of site grading that disintegrated the scheme into a mundane landscape park (see North, 2012).

Tree City falls within a longer legacy of contemporary landscape design, which is to inadvertently invoke the mundane or kitsch when attempting to manufacture complexity and openness. In some instances, however, this process is shown to be successfully accelerated by heavily articulating initial conditions where few or none existed formerly. The Site of Reversible Destiny in the Gifu prefecture of Japan is one such project, exuding sensory roughness and navigational complexity on a formerly grassed area of town parklands (figure 11).[6] In this instance, the artists Arakawa and Gins (1997) exploit the overtures of the project by ambiguously positioning it between the theme park, interactive sculpture, and garden. As a continuation of the artists' explorations into rewiring perceptual assumptions, the deformed topography acts as a kind of training ground for recalibrating visitors' proprioception and orientation.

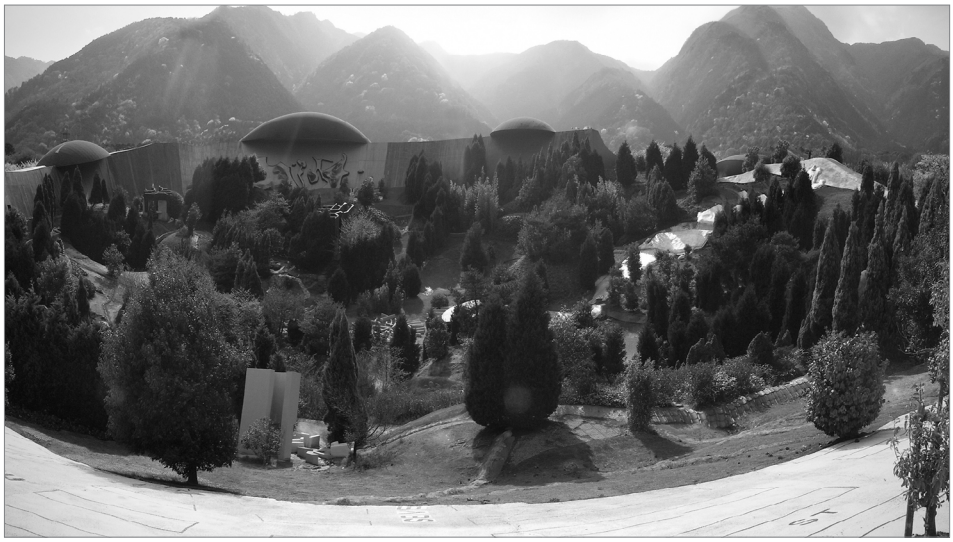

Figure 11: Fabricated complexity at the Site of Reversible Destiny, Yoro, Japan, 2008. (Photo: Author's own.)

In an inversion of the Albany Bulb's convex half-island morphology, a semi-permeable frame is created around the site by concave topography that constrains outward view without impeding physical passage. While the passage of some time was required for Harbison's 'senseless growth' to take hold and distort the structure of the original construction, this interval was considerably shorter than the Bulb's multi-decade journey. Nonetheless, similarities between the spatial effects created by landscape phenomena at both sites suggest the possibility of consciously fabricating immersive complexity in blank urban sites.

Conclusion: Propagating complexity in public spaces

The Albany Bulb presents a unique set of emergent characteristics that underpin its allure as a place. In addition to the romantic appeal of the narrative associated with its brief heterotopic past, residual structures, artworks, urban wildness and offshore setting, the Bulb exhibits: (1) complex open-ended path networks of diminishing width that support mind–body interaction; (2) deformed ground at both the textual and topographic scales that challenge proprioception and navigation; and (3) dense immersive thickets that cultivate reactive, non-visual orientation. Together these phenomena create an open work that is accessible to interpretation and modification by visitors.

The popularity of the Albany Bulb demonstrates that greater complexity and ambiguity have a role in certain public spaces. To be sure, flat empty spaces such as sports fields and piazzas are well served in many urban situations. However, in many instances, designs optimised for legibility and effortless use perpetuate urban environments that have been criticised as 'flat, droning, and listless' (Carter, 1993, p 91) and 'dull [to the] sense of touch' (Sennett, 1998, p 20). To offset this rarefication of modern cities, Sennett calls for public spaces that initiate 'visceral resistance, commitment and expression' (ibid). Just as Arakawa and Gins' Site of Reversible Destiny may be interpreted as a mind–body training ground, urban spaces of resistance, commitment and expression act as training grounds for negotiating the accelerating, disorienting and immersive qualities of contemporary urbanism (see Jameson, 1984; Virilio, 1997). While the Bulb's happenchance history of environmental processes and micro-decisions amply fulfils Sennett's challenge, most other potential sites within a city require active design intervention.

To create complex urban spaces, designers must think and act like gardeners. In contrast with the comprehensive transformation associated with the creation of most public spaces, each site grows unique, complex phenomena that are shaped by processes of cultural and vegetal emergence. For this process, the designer–gardener builds up the ground, establishes the scaffolding, delineates a semi-permeable frame and plants the seeds for growth. Like all gardens, failure is a possible outcome; for every successful Albany Bulb, other public spaces created from emergent wastelands may well be less successful. That is, the heightened risk that is inherent in visiting complex spaces is also reflected in the uncertainty as to whether a partially uncontrolled process will result in a compelling place. Nevertheless, trading off predictability for possibility is precisely what many suburbanised cities require.

NOTES

1 *Phenomenology* is defined here as the sensory experience of space and materiality, which is constructed from the first-person point of view and assumes an intimate relationship between person and world.

2 *Heterotopia* is Michel Foucault's (1979) widely adopted term for 'other' spaces that lie outside normative society but continue to interact with and subvert the overriding systems of control.

3 *Phenomena* are things or experiences as human beings experience them (Seamon, 2000).

4 *Angstraum* translates from German as 'worry space' or 'edgy space'.

5 In landscape and garden design, the master plan is the pivotal document for organising a site and directing works over time. These dual spatial and temporal components distinguish the master plan from the architectural site plan.

6 The Site of Reversible Destiny is located at 35°16'55"N, 136°33'1"E and can be circumnavigated with Google Street View.

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Australian Mythical Landscape and the Desire of Non-English-speaking Immigrants

NASIM YAZDANI AND MIRJANA LOZANOVSKA

Through their frequent visits to public green spaces in cities with white majority cultures, non-English-speaking immigrants draw attention to the way people from different cultural backgrounds perceive and use these spaces. By building on theories of landscape as a cultural phenomenon, this paper investigates new ways in which recent generations of immigrants to Australia are using urban park spaces. It focuses on cultural and mythical notions of Australian park landscapes and questions to what extent they contribute to the sense of inclusivity, or alienation, that non-English-speaking immigrants experience in using these spaces.

This paper examines the mythology surrounding the 'bush' and 'Arcadia' and how these are intrinsic to Anglo-Australian consideration of natural landscapes, landscape design and, therefore, urban park character in Australia. These characteristics, along with the influence of English picturesque design, have resulted in landscapes that illustrate the aesthetic of nature and facilitate sporting activities. However, how are these landscapes, which are culturally meaningful for insiders, perceived by newcomers? Non-English-speaking immigrants in Australian urban park spaces reconnect to their memories of place and cultural identities. They also show stronger preferences for passive activities and socialising, and express their selves and culture in relation to nature in urban parks.

Mythical notions of park landscapes that have evolved in Australian culture, coupled with the desire of recent non-English-speaking immigrants to use urban park spaces in ways counter to these notions, have given rise to dialectical attitudes towards Australian landscapes and their meanings. This paper suggests ways that these insights can be used to improve the design and management of urban parks so that they promote inclusivity and a sense of belonging for all park users in multicultural Australian cities.

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KEY WORDS

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Migration studies identify migration to and resettlement in a new cultural community as stressful (Hage, 2008; Lobo, 2013; Lu, 2010). The changes required adapting to the destination, when displaced from family and friends, familiar customs and surroundings, can lead to mental health problems and risk behaviours. The stress is exacerbated if migrants experience a gap between effort and achievement (Lu, 2010). Difficulties in establishing new social networks, and the loss of social support, result in feelings of loss and loneliness and may also exacerbate the negative impact of the stress process (Bhugra, 2004). Hage (2008) explains that the never-ending process of assimilation and the risk of being misrecognised and judged negatively are likely to result in fatigue among permanent migrants in white settler societies such as Australia.

Globalisation allows migrants to carry their 'imagined communities' with them, and to actively use the new communication opportunities to make and maintain their identities. The relational understanding of home as imagined

and lived focuses on how, for immigrants, places contain dominant meanings of identities because of their socially constructed nature (Lobo, 2013).

The evolving social structures and narratives of difference, identity, displacement and loss assist in reshaping and understanding local culture and place (Chambers, 2008; Murland, 2009). In her study on the problem of defining the migrant house in Australia, Lozanovska (2011) asserts that scholars believe migrants develop a mix of cultural practices from two cultures. This blending of cultural practices proposes the more contemporary theory of different identities and transcultural belonging (ibid). This binary condition is also multivalent according to factors such as age, generational differences and gender. Anderson and Gale (1992) argue that ethnicity is a concept that describes our belonging to a group and separates us from other groups of people, whereas culture defines people's perception of the world, behavioural patterns and preferences.

Rather than being a fixed concept or entity, culture is a dynamic mixture of symbols, beliefs, languages and practices created by people (Anderson and Gale, 1992, p 3). Daily life, which tends to be seen as natural, can be understood as a product of culture. Head et al (2005) suggest three notions of culture in their study. The first is the broad notion that links culture to mythical and irrational parts of human life. Second is the opinion that culture is separable from other dimensions of life, rather than being understood in all its dimensions. The third notion relates culture to a high level of difference, specifically linking it to indigenous or ethnic minorities rather than the majority culture(s). In this view all humans have some beliefs about the world and their relationship to it (ibid).

Drawing on theories of landscape as a cultural phenomenon, this paper investigates new ways that recent generations of immigrants to Australia have used urban park spaces. It argues that cultural identity affects the understanding and use of these spaces and investigates the sense of inclusivity or alienation that non-English-speaking immigrants experience in using these spaces. As the next section outlines, Australian landscape myths of 'bush' and 'Arcadia', along with the influence of English picturesque design, have resulted in landscapes that illustrate the aesthetic of nature and facilitate sporting activities, such as golf and cricket. In contrast, non-English-speaking immigrants in Australian public parks prefer passive activities, including relaxation, social gatherings and cultural celebrations, and reconnect to their memories of place and cultural identities.

Urban park landscapes are significant features of contemporary urban environments and are perceived as designed landscapes. Although they constitute a significant budget commitment on the part of local councils and some state governments, research on how they are used is limited (Veal, 2006). It is estimated that Australia has over 50,000 urban parks covering 3.4 million hectares (ABS, 1998). The Sydney survey data from Veal's (2006) study confirmed that urban parks have a higher rate of use among the population than any other type of out-of-home leisure facility in the study area. The growth in the non-English-speaking immigrant population in Australian cities draws attention to the ways they use and perceive urban park spaces. The question that then follows is, what are the implications of their experience for the design and management of urban parks in multicultural Australian cities?

According to the Australian Bureau of Statistics (ABS, 2012), recent arrivals in Australia include an increasing number of people born in Asian countries: 47 per cent were India-born and 35 per cent China-born, compared with only 11 per cent born in the United Kingdom. Census data also show 193,633 people born in the Middle East were resident in Australia in 2006, accounting for 4.4 per cent of the overseas-born population in the country. Almost 40 per cent of those from the Middle East were born in Lebanon, 16.8 per cent in Iraq, 15.7 per cent in Turkey, 11.6 per cent in Iran, 4.0 per cent in Israel and 3.6 per cent in Syria (ABS, 2008).

Research shows that immigrants' perceptions of Australian urban park environments, the focus of this paper, differ from those of the majority culture. These differences may relate to many immigrants' limited use of non-urban green areas in a new country. For example, Buijs et al (2009), in a study on cultural differences in landscape perception, found that Muslim immigrants in the Netherlands are less interested in non-urban, wild and unmanaged landscapes than in functional aspects of natural environments, including utilitarian values and intensive arrangement. It may be that this perspective arises because Islamic cultures lack a tradition of viewing landscape as scenery and because a divine task in Islam is to manage nature and to bring culture into wild areas (ibid). Such diverse 'cultures of nature' often result in conflict over land management decisions in multicultural countries, and several scholars have debated the implications of such differences for environmental management. Cultural analyses in association with perceptions and expectations of landscapes play a vital role in clarifying the sources of these conflicts (Head et al, 2005).

To understand how newcomers and established immigrants perceive cultural landscapes that have been imbued with a nationality's cultural and mythical meanings, it is crucial to begin by exploring the landscape myths and natural values of that nationality and their roots. Examining whether immigrants perceive or prefer those values requires a wider understanding of immigrants' culture, values, nature activities and preferences. This paper draws attention to the question: Is a multicultural society able to address its dominant culture of nature in planning urban parks and at the same time satisfy the ethnic minority communities with their settings?

Landscape, as Coates (1998) defines it, refers to places that are a combined product of human and bio-geological forces. Landscape is a way of seeing that has been primarily introduced into geography through the work of Cosgrove and Daniels (Cosgrove, 1984; Cosgrove and Daniels, 1988; Daniels, 1993). Specifically, landscape is a painterly way of seeing, due to the dialectical relationship between the rural landscape and painting, as well as the desire of wealthy classes of Europe to commission paintings and to make their properties look like landscape paintings of the eighteenth and nineteenth centuries (Duncan, 1995). The other major definition of landscape as a portion of a natural and cultural environment originated in the nineteenth century as the 'folk' landscape, which sought to encode rural peasants' cultural values on the land. Duncan (1995) also argues that the landscape not only reflects the culture but also has a crucial role in constituting it.

A broad range of academic disciplines has addressed attitudes towards nature and landscape. In landscape studies, trying to understand people's attitudes to

nature is a fundamental principle. One of the essential ways that people shape and make sense of experience and landscape is by using 'narrative'. Narratives and stories connect the tangible aspects of a place to the intangible aspects, including sense of time, event, experience and memory. Narratives offer ways of shaping landscapes and contribute to the formal concerns of design (Potteiger and Purinton, 1998).

Nonetheless, myths are messages passed through time and over the generations, which are used and reused. They embody people's values that influence their way of perceiving reality and subsequently their behaviour (Short, 1991). In this sense, myths have varying degrees of fiction or reality. A myth refers to events that are claimed to have taken place in time.

> But what gives the myth an operative value is that the specific pattern described is everlasting; it explains the present and the past as well as the future. This can be made clear through a comparison between myth and what appears to have largely replaced it in modern societies, namely, politics. (Lévi-Strauss, 1955, p 430)

National myths usually define the events that have taken place in a specific land and among a particular community.

As Rappaport (1995) defines it, *community narrative* is a story that is common among a group of people, and may be shared by them through social interactions and rituals. He also believes that settings have a story that is preserved and transmitted. On the other hand, *spatial narrative*, in the context of place-related studies and research, is a conceptual framework that links environmental patterns and science with the cultural knowledge of place (Silbernagel, 2005). Environmental patterns of landscape elements naturally form a language that plays a fundamental role in creating spatial narratives (Thayer, 2003).

To define the relationship between landscape myths, spatial qualities and the potential for non-English-speaking park users, the next section explores Anglo-Australian landscape myths of 'bush' and 'Arcadia' and their influences on urban park characteristics. Following this is an explorative study of non-English-speaking immigrants' use and perceptions of Australian public parks, and their preferences in these spaces.

Anglo-Australian landscape myths of 'bush' and 'Arcadia'

In Australia, the first Anglo-Australian settlers were more interested in reshaping the land than in understanding it, and sought to make Australia a 'new England' in the South Seas throughout the nineteenth century (Dunlap, 1993). Dunlap (1993) also identifies efforts to define a national myth and justify the new independent nation after Federation in 1901. In his view, it was from this time that Anglo-Australians found the mythical material in the bush, and Australian nature became a matter of national pride. The continuing cultural ties to Great Britain have been manifested in nature essays and stories, which were the start of an attempt at an emotional relationship with the Australian landscape as a 'home'.

According to Seddon (2006), the Arcadian setting has been romanticised endlessly in Australian culture and literature, along with the values and behaviours that it is perceived to legitimise. Associated with it is a set of myths and attitudes, including the golden age Edenic view and the pastoral imagery projected by the church, which have played a crucial role in dictating a particular

form of land use in Australia. Some of the early colonists brought Arcadian imagery to Australia, identifying Arcadia in eastern Australia where the indigenous people had preserved the land (ibid). Indigenous people's relationships with the land form an 'ontological belonging' (Dudgeon et al, 2010, p 33). Their spiritual beliefs connect them into the land and to all things of nature, which means they preserve nature intact and unimpaired. Indigenous people experience the land as a symbolic and spiritual landscape rather than only a physical environment (Dudgeon et al, 2010).

The English settlers overlooked the indigenous history and mythology of the natural landscapes, and even in the present time Australians have only a limited understanding of the intricate comprehension of the landscape possessed by their country's first inhabitants. Misconceptions about the environment at the time of British colonisation led to an understanding that the land of 'droughts and flooding rains' had always been an untamed wilderness. While the country's traditional owners were predominantly hunters and gatherers, in fact, they had been modifying the landscape for their own purposes for tens of thousands of years. Based on these misconceptions and their prior appreciation of landscape aesthetics, early colonial painters distorted their view of the Australian landscape with a veneer of romantic and nostalgic images of English landscapes (Murphy, 2015).

From the mid-nineteenth century, the view of Australia as a Garden of Eden was developed both in Australia and in Britain. Carol Lansbury (1970) demonstrates how writers such as Charles Dickens and Charles Reade transferred the myth of a happy rural life in England to Australia. For many Britons and Americans, Australia became the lost Arcadia (Short, 1991). According to Short (1991), the approximately 150,000 migrants who went to Australia from Britain between 1830 and 1850 were not only recipients of the myth but also effective propagators. In the 1860s this rural model was replaced by the symbol of the yeoman farmer in public debates, and individual farming families rather than rural society became the focus.

Painters and artists have depicted a range of Australian attitudes to their country: 'landscape painting has encompassed weird melancholy, romantic wilderness, pastoral idyll, bush legend, rural mythology, the confidence of a young nation and since the Second World War, new symbols of national identity' (Launitz-Schurer, nd, p 4; Taylor, 1992, p 133). The art historian Bernard Smith (1959) summarises the significance of landscape painting in the Australian landscape:

> For Europeans this country has always been a primordial and curious land. To the ancients the antipodes was a kind of nether world; to the people of the Middle Ages its forms of life were monstrous; and for us, European by heritage (but not by birth) much of this strangeness lingers. It is natural therefore that we should see and experience nature differently in some degree from the artists of the northern hemisphere. We live in a young society still making its myths. The emergence of myth is a continuous social activity. In the growth and transformation of its myths a society achieves its own sense of identity. In this process the artist may play a creative and liberating role. (p 166)

In the nineteenth century, artistic impressions reflected the European pastoral visions and increasingly the colonial pastoral visions from the 1830s. This view

became a national vision in the latter half of the century. Australian towns, cities and suburbs were not experienced as a personal environment before 1945, and often illustrated general ideas and attitudes. Most of the early colonial townscapes were constructed to provide evidence of civil progress and good government, and later in the second half of the nineteenth century, social life was given more prominence than the building fabric of the towns. Australian artists became more emotionally involved with their subject matter by the end of the century, while landscape painting was the dominant artistic genre from the 1860s to the 1960s. Landscape artists in Australia prospered by imposing an aesthetic order on the wilderness, which has been as influential as the pastoral and agricultural orders, and their deep love of natural landscape has assisted the movement for nature and urban environment conservation (Smith, 1976).

Both Glover and von Guérard have painted profound imagery of the Australian pastoral landscape.[1] Glover, however, emphasises general pastoral qualities as he was a conservative painter of romantic mountains and of pastoral Arcadias in London. Arcadia is a timeless theme in art as an agricultural paradise of nymphs and shepherds, in the pre-classical golden age. Von Guérard in the 1850s and 1860s painted even more interesting pastoral landscapes of white settlers and indigenous people. By 1865, the romantic era was passing and realism had arrived with Louis Buvelot, who settled in Melbourne. Although some of his paintings portray sheep in the pastoral landscape of the western district, he preferred to paint the intimate suburban farms near Melbourne (Thomas, 1976).

Evolving in parallel in the same era was 'Australian' painting. Tom Roberts (1856–1931) and Arthur Streeton (1867–1943) were two particularly important painters who concentrated on Australian themes in their landscape paintings. In *Sunny South*, a pastoral image of a hot Australian summer in Melbourne, Streeton attempts to show Australia as a hedonistic landscape (Short, 1991). This work likewise demonstrates a familiarity with and a sense of being inside the Australian landscape.

According to Daniel Thomas (1976), 'landscape art is deeply concerned with additions and adjustments to the landscape, not only physical but also emotional' (p 164). He believes artists adjusted their representations of the Australian landscape by overemphasising and exaggerating exotic palm-trees and jungles to fit nineteenth-century romanticism, so the crucial pastoral image that Europeans promoted in the 1880s became the dominant patriotic image for nationalistic Australians. An important turning point came with Tom Roberts' small painting, titled *The Sunny South,* in 1887. Showing a young man standing relaxed in a grove of tea-trees after bathing in Port Phillip Bay, it is one of the first paintings of European nudes in the Australian landscape, clearly conveying the idea that 'Australians did not feel alienated from their environment' (ibid, p 165).

The 'bush' served as inspiration for many Australian poets, novelists and short story writers in the nineteenth and early twentieth centuries. Notions of nostalgic willing, including the English writers mourning for the loss of the English Arcadia and nostalgia for a vanished frontier, were very popular in rural Australia in the late nineteenth century. Writers also started to claim that people were far happier in the bush than in urban spaces and to value the rural life above life in the city, which they saw as robbing people of their usefulness and sense of equality. The

incorporation of the bush into the Australian outlook not only reflected the introduction of new forms of industrialisation but also indicated that country folk were more exposed to city culture (Waterhouse, 2000).

By the nineteenth century, the new colony attempted to establish cultural ownership over the landscape and effectively removed indigenous people from it. In making landscapes, the settlers used European artistic conventions and western scientific terms; they did not consider what indigenous people saw in their country and ignored the meanings that the indigenous owners had given to the land (Fox and Phipps, 1994; Verrocchio, 2001). This meaning of the land or, as Dovey (1985) describes it, the 'authentic environment', is not a condition of the physical world but a situation of connectedness with the world. 'Authentic meaning cannot be created through the manipulation of form, since authenticity is the very source from which form gains meaning' (ibid, pp 33, 34).

Landscape painting was the dominant artistic genre from the 1860s to the 1960s; however, Australian artists gradually became more emotionally involved with their subject matter. Australian landscape artists imposed an aesthetic order upon the wilderness, which has been as influential as the pastoral and agricultural orders in natural and urban environment conservation (Smith, 1976).

In the twentieth century, a simpler conception of the bush replaced the complex, nineteenth-century understandings. Nostalgic celebration of the bush emphasised the progress and prosperity that rural Australia had brought to the nation. Moreover, transformations in rural and urban Australia altered the representations of Aboriginal people and Europeans who lived and worked in the bush (Waterhouse, 2000).

Landscape myths influenced Australian culture and understanding of landscapes not only via interpretations in art, but also via landscape-making and park characteristics. Arcadian attitudes to the countryside and the concept of the bush beyond urban limits have both influenced the characteristic of Australian parks as idealised natural landscapes and refuges from the challenges of urban life. Therefore, it was preferable for parks to have few symbols of urbanised settings to create a stronger sense of 'bush' and to illustrate aesthetic order upon the wilderness to develop idealised 'Arcadian' scenes. These cultural desires of park characters have resulted in the creation of tamed, yet wide natural landscapes. Subsequently, the influence of bush and Arcadia myths, and attitudes towards constructed natural landscapes among Anglo-Saxon Australians and first landscape planners (Saniga, 2012) have caused an extensive trend towards English picturesque and broad, natural open spaces in the design of Australian urban parks.

In 1992 Ken Taylor of the University of Canberra examined the Australian traditions of the rural vernacular, the bush and attitudes towards landscape among Anglo-Saxon Australians. He found that such traditions result in a deep attachment to an Australian sense of place. Underlying much of the nostalgia for the past, particularly the white European past, is an Australian character that rejoices in the ordinary – an attitude that has its roots in the British settlement of Australia as a penal colony and then as a rural Arcadia for free immigrants (Taylor, 1992).

In his essay, Taylor (1992) defines 'bush', a term used in Australia from the nineteenth century and still in everyday use, as both 'everything beyond urban limits' and 'wilderness of natural eucalypt forest and woodland' (p 128). These

two interpretations have worked in parallel and, as Heathcote (1976) suggests, they led 'to an almost Arcadian attitude to the countryside or "bush"' (p 212; see also Taylor, 1992, p 128). Heathcote's study reveals that much of today's relationship between landscape and society reflects the nineteenth-century views that the bush represents hard-working life away from the city in a lost Eden, where workers could be free from the urban working conditions of industrial Britain. As part of the Australian landscape narrative in relation to the bush myth, it may still persist among many Australians.

After the middle of the nineteenth century the number of bush songs and ballads grew, which, along with the contributions of Australian poets, writers and painters, strengthened national identity (Powell, 1977). This was part of a movement to create an Australian culture that associated the term 'bush' with the pastoral landscape and that became and has remained, metaphorically, part of an Australian iconography (Taylor, 1992). The tradition of poetry has also continuously enriched the sense of Australianness in the twentieth century. Judith Wright was one who contributed to the poets' vision of Australia through works such as 'South of My Days', which conveys pure Australianness:

> South of my days' circle, part of my blood's country,
> rises that tableland, high delicate outline
> of bony slopes wincing under the winter,
> low trees, blue-leaved and olive, outcropping granite-
> clean, lean, hungry country. The creek's leaf-silenced,
> willow choked, the slope a tangle of medlar and crabapple
> branching over and under, blotched with a green lichen;
> and the old cottage lurches in for shelter.
> (In Sadler et al, 1992, p 51).

Here, Wright is describing the pastoral landscape of New England, north of Sydney, where her forebears settled (Taylor, 1992). Taylor (1992) asks 'whether the myths will crumble with the effects of non-English-speaking immigrants over the past twenty-five years, the development of Indigenous history awareness, and the new urban attitudes towards rural Australia' (p 133). Given the existing widespread attitudes towards cultural landscapes and their meanings, and the great number of visits to historic places in Australia, Taylor concludes, such changes will not replace the cultural myths but rather will enrich and reinforce them.

The present paper asks, does the consideration of wide natural spaces in the design of urban parks derived from Australian mythical landscapes fit with contemporary patterns of demand for recreation in Australia?

In Veal's (2013) view, Australia's open space standards have never been based on any publicly documented rationale. Instead, they are largely drawn from British and American open space standards and were apparently established without any reference to contemporary patterns of demand for recreation in Australia. Nonetheless, Veal (2013) points out, 'while national standards for open space planning have long been subject to criticism, their use is still advocated in a number of Australian state planning guidelines' (p 224).

In his study of Australian urban open spaces or parks, using Melbourne as an example, Max Nankervis (1998) questions whether the open space developments are appropriate and in the best interests of social equity. Connecting urban open

space with outdoor sport as two concepts that arguably are integral to Australian identity, he claims that the 'politics of sport' has become part of the 'politics of open space', although nineteenth-century urban planners did not necessarily recognise the role of this sporting ideal. Thus parks, especially in the more distant suburbs, were less well landscaped and gradually became home to different kinds of sporting teams, mainly cricket and football. At the same time these open spaces were also being alienated as sites for public use and the problem of the parks' functions became obvious. Over time, certain notions about the use of these spaces developed (ibid). It is also important to note that prioritisation of sporting facilities in parks that have been influenced by the dominant English culture may not be in accordance with sport provisions desired by other cultures.

Although the urban park in landscape planning and urban literature is categorised as an urban 'open space' (Lynch, 1981; Woolley, 2003) or urban 'green space' (DTLR, 2002), designing such a park as a large, open space may discourage visitors from remaining there for long or engaging in social activities. Accordingly, park planners have a crucial role in defining ways of using park spaces more effectively. It is suggested that more user-led design of the parks both in their entirety and in their detail is needed (Tisma and Jókövi, 2007) to create spaces that foster inclusion among various ethnic groups in multi-cultural societies.

Non-English-speaking immigrants in Australian park environments

Parks and gardens play an important role in the life of immigrants, and different views of nature can be discovered by understanding different perceptions of these spaces. 'These spaces as public places provide opportunities for recreation, social gatherings, and the celebration of collective cultural values and events such as festivals for many communities' (Yazdani and Lozanovska, 2014, p 851). Much of the recent research on belonging and boundaries examines cultural geography, migration and identity. How can ethnic communities transfer their culture and adapt it to a new form of life? Or, conversely, how can they change the Australian way of life as their practices eventually influence other people, including previous immigrants?

Non-English-speaking migrants' perceptions or expectations of Australian urban landscapes may not fit with the design and management purposes of these places in various ways. In her chronological study on Latvian immigrants and their expressions of Australian landscape, Daukste-Silasproģe (2013) asserts that for Latvians who came to Australia from Germany or Italy, Australian landscape serves as a background against which their vision of the world and feelings are revealed in this distant land. Latvians' expressions of Australian landscape in literary texts clearly show that they distance themselves from the new environment and are not able to make a connection to the new place. The nature of Australia creates the sense of alienation because it offers no similarities to Latvian natural spaces. Latvian philosopher Pauls Jurevičs describes the experience in this way:

> ... the neighbourhood here is so dull, so blank, so poor that my heart wrings with pity. Indeed, about 5/6 of Australia is flat land, most of it is outback but in some places it is slightly covered with grass or shrubbery ... such nature is strange for us especially ... for its drought ... watching the nature, we start to realise that people

> here lack the tenderness and the spirituality and definitely the lyricism which are aroused in us by emanation from our sweet, inspiring nature. (Cited in Dauksté-Silasproģe, 2013, p 63)

Some important ethnographic studies of Macedonians and Vietnamese in Australia have demonstrated that the cultural beliefs and practices in these two groups grow out of the understanding of nature in both Australia and their own country. Because of Vietnam's high population and agricultural base, its inhabitants come to understand that landscape is a place for social relations and human engagement, full of smells and sounds. For the Macedonians too, the landscape is a place for socialising, but distinct from any notion of a 'wilderness'. In both immigrant groups, understanding the park depends on a cultural history, which is involved daily in integrating people with the environment (Head et al, 2005). The majority of Macedonians insisted that the Australian bush is bereft of smell to them. It is argued that, for ethnic communities, social gatherings are a priority value (Thomas and Wales, 2002).

In their study, Thomas and Wales (2002) also reveal how we might better address the cultural complexity of contemporary Australia, and how parklands and other open spaces play an important role in consolidating the feeling of being Macedonian in Australia. One of the significant issues with parklands is that they can be a place where people can be together, speak their language, drink their grappa, sing and dance. The Macedonian landscape continues to influence the younger people's perception of the environment, and the sensory stimulus such as the sense of smell is mediated by cultural experiences (ibid).

A study of Arab immigrants and the urban environment along Sydney's Georges River compares environmental knowledge and practices that immigrants bring from their homelands with their experiences in Australia. Arab immigrants have come to Australia from countries such as Lebanon, Palestine, Syria and Iraq, and many have settled in the industrial, working-class suburbs along the northern bank of the Georges River in Sydney. They are frequent users of a series of parklands along the river, and use the river itself for relaxation, fishing, jet skiing and other recreational activities. Arab Australians have brought their environmental cultural knowledge of their homeland to build attachment to their new homes in the local conditions and the sociopolitical tensions of contemporary life. They also use park spaces in various religious ceremonies such as Eid-ul-Fitar in Ramadan (Goodall, 2012).

People who migrate grieve for their losses for many years, including for losses of family, friends, rituals, culture and even the physical environments they knew. Such memories can affect their lives and also the lives of their children (Goodall, 2012). Accordingly, it is clear that parks and public green spaces are important places where immigrants across different ethnic groups can engage in passive activities such as gatherings of family and friends, cultural celebrations and festivals. Goodall (2012) likewise reports how cultural difference shapes environmental relationships in the Georges River area in urban Sydney. It demonstrates that people bring with them, and also pass on to their children, memories of the place and environment that they experienced in the past.

As these studies highlight, many migrants use Australian parks in a different way from the domestic visitors. They engage in a process of placemaking and

undertake regular, passive activities like picnicking in park spaces. The same park space can have different meanings to various groups of people (Byrne et al, 2013). These findings demonstrate distinctive patterns of park visitation by non-English-speaking immigrants. Such patterns include: an attraction to 'garden' parks; a high value of water in parks; different meanings of landscape elements; bonding with the past; cultural, religious and social activities; cultural festivals; and large-group picnicking.

Returning to Taylor's (1992) question of 'whether the myths will crumble with the effects of non-English-speaking immigrants', it seems that it cannot be easily answered. It is evident that as a result of their distinct attitudes to natural spaces and their meanings, non-English-speaking immigrants understand, perceive and use Australian parks in particular ways based on their own background, past experience, ideals and culture.

Etymologically, the words *garden*, *orchard* and *park* refer to a space enclosed by a fence, hedge, wall or embankment (Van, 2002), and parks have been considered enclosures since they first appeared. Therefore, parks have a special function in urban environments as places for peace and rest, where nature meets culture, and as social places, where people come to meet each other (Tisma and Jókövi, 2007). Many older parks have fences and gates to provide a sense of security and enclosure. This concept of enclosure describes parks as places that are self-sufficient and introspective, and places that interrupt the continuity of ordinary, everyday spaces (Foucault and Miskowiec, 1986; Tisma and Jókövi, 2007).

The concept of a 'walled garden' – enclosed to provide a place for relaxation, spirituality and love – dates back to Persian paradise gardens in the sixth century BC. These gardens were places to connect individuals with divinity and heavenly glories (Anderson, 2011; Hunt, 2011; Khansari et al, 1998; Rogers, 2001). The Persian garden is an environment for being away from routine life, experiencing life among others, considering aesthetic pleasure and abilities, and experimenting with ideals drawn from the paradise myth. Based on the characteristics of the Persian garden, similar spaces have since been created in various countries around the world, particularly in Iran and elsewhere in the Middle East (Faghih and Sadeghy, 2012; Hunt, 2011; Sardar, 2009; Yazdani and Lozanovska, 2016). This kind of garden is a place with a magnificent perspective, in which natural elements such as water and plants are used intelligently to affect all human senses and feelings, as well as a place for many public activities such as playing games and music and even holding philosophical debates (Ramyar, 2012). A number of contemporary urban parks in Iran represent some of the Persian garden's icons and layout. Narratives that are embedded in these landscape patterns can affect the community's perception of natural spaces in society.

The present study suggests that the concept of 'enclosure' derived from 'paradise myth' – a powerful landscape myth in Eastern culture – may affect non-English-speaking immigrants' perception and use of urban parks, particularly in relation to the tendency towards passive activities (Yazdani, 2015). Migration provides a context for culture to meet nature in a relationship that is shaped by Arcadia and bush myths, and based on open space. In investigating these ideas, the discussion now turns to Iranian immigrants in Melbourne, drawing on focus group interview data.

Before 1979, service workers, particularly in the oil industry, made up the majority of migrants from Iran to Australia. Migration then diversified and increased over the following decades. In 1981 Australia began a special humanitarian assistance programme for those Iranians seeking to escape religious persecution in Iran. By the end of the decade, which also saw a major war between Iran and Iraq, around 2,500 people had arrived under this and other refugee programmes. During the late 1980s and 1990s economic and political circumstances prompted many professionals to leave Iran for Australia. In the latter half of the 1990s, many Iranians also came under the Skilled and Family streams of the Migration Program. According to the 2011 Census, 34,453 Iran-born people now live in Australia (DIAC, 2014).

Participants in the focus group interview were recent Iranian immigrants living in Melbourne, who were asked to describe how they feel about Melbourne's parks and the activities they undertake there. Ali, who migrated to Australia with his family in 2010, responded in this way:

> I have a good feeling in parks, because they are very natural. It feels like you are not in the city; you are in a virgin nature far from the urban area ... they are very different from Iran's parks, which are designed for special recreational purposes, but I think here parks have been just separated from other urban areas and left undisturbed ... we just go there for picnicking and having BBQ with our friends usually at weekends. Although, there are not enough places for such purposes but if you are lucky you can find some shelters or benches to get together.

Physical, social and cultural components make up the surroundings of humans, and each component affects people's lives, their attitudes towards the built environment and their expectations of designers. What architects create is a 'potential environment' for human behaviour, and what people use is their 'effective environment'. Predicting the effective environment of people is a crucial role for design professionals when configuring the built environment in a particular pattern (Lang, 1987, p 75). Yet how is it possible to predict the effective environment of a particular group of users in a multicultural society such as Australia if the environment is configured based on a culture and patterns that are inexplicable to them? Mina, who is from Isfahan, Iran and has been in Australia for five years, asserts that:

> Melbourne's parks, unlike Iran's ones, look like forest to me with lots of ups and downs. I think parks in Iran require much more maintenance due to the harsh weather, but here the fauna and flora in parks are different. For example you can rarely see colourful flowers, flower beds, shrubs, or tracks with rows of cultivated trees on sides in Melbourne's parks.

Lang (1987) argues the physical environment consists of the 'geographical setting, the social of the interpersonal and intergroup organisations that exist, the psychological of the images that people have in their heads, and the behavioural of those elements to which a person responds' (p 77). In this view, individuals' surroundings consist of the real world, while the phenomenological world, which people perceive consciously or unconsciously, affects their behavioural patterns and emotional responses. In the quote above, Mina explains the real world of Australian parks as 'forest', meaning she sees park spaces as very wide, natural

and undisturbed. At the same time, her phenomenological world contains 'colourful flowers, flower beds, shrubs, or tracks with rows of cultivated trees on sides', bringing to mind the pleasure of being enclosed in a beautiful place with colourful flowers or in a fabulous track with shady trees (figure 1). For her a park landscape without flowerbeds and rows of cultivated trees seems unmanaged, and the intended effect of designers of picturesque landscapes cannot be perceived.

Shirin from Tehran observes that:

> Melbourne's parks are beautiful and natural. There are less man-made and designed structures in the park spaces; no gardens, flowers, water features or planned entertainments or recreational facilities ... it would be good if there was a chance of using parks at night. It would have been used more often and [for] longer hours ... I miss the social activities and being with friends and family in Iran's parks as well as the flowers, trees, and some entertainments like 3D cinemas and markets.

Two female participants express similar feelings:

> I think all of the Melbourne's parks are the same, natural, clean, quiet, and no changing happened during these four years that I have been here ... dogs must be on lead while most of the time their owners don't care about this issue which makes the park environments unsafe for me. I think it should be a restrict rule for this matter.

> They [Melbourne's parks] are so natural and wide. They are like a beautiful heaven during the day, nice and quiet, but they are scary at nights ... Iran's parks can be used at night. Lots of people bring their dinner to the park and have dinner there with their friends and family. There are lots of sport facilities as well.

It is observable that, in order to convey a more rural landscape, park designers have preferred to create spaces that exclude the axes, circles, squares and other geometric patterns that visibly represent the city. Artificial lights may have been excluded from the majority of urban parks for the same reason, although political or security issues may have also influenced planning decisions. Creating open spaces with a relatively undisturbed 'natural' appearance, despite the presence of some constructed necessities, illustrates a picturesque ideal in landscape design and is well suited to sporting activities (see figure 2). Conversely, passive recreation and particularly social activities in urban parks demand enclosed spaces and specific constructed settings.

Enclosure in landscape design not only helps the performance of lines, forms, textures and colours, but also has a specific psychological effect on the person in that confined space (Dahl and Molnar, 2003). Dahl and Molnar (2003) identify volume as one of the basic aspects of enclosure that plays on the subconscious of people who are enclosed. That is, the degree of comfort that we feel in a space is directly related to the 'volume' or the amount of emptiness around us. Maximum volume inspires an initial sensation of awe but will soon degenerate into discomfort as we recognise the vast volume that surrounds us.

In their study on placemaking in parks around Sydney's Georges River, Byrne et al (2013) found that the phenomena of praying in parks and using parks as venues for fast-breaking meals during Ramadan are patterns evident in Arab–Muslims' visits to the parks. These immigrants prefer a 'garden park' to a 'bush park' and identify the river as a key attribute that attracts them to the park (ibid,

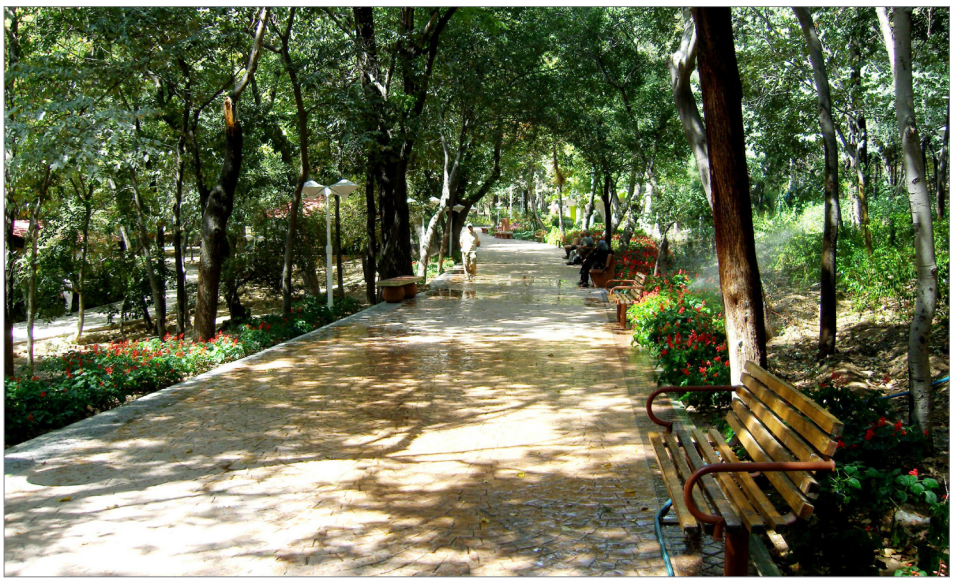

Figure 1: Qeytarieh Park, Tehran, Iran. (Photo: Nasim Yazdani.)

p v). However, a number of non-English-speaking immigrants are also motivated by opportunities to experience wild nature, participate in bush walking and explore nature, particularly in national parks – a finding that needs more research.

Recent immigrants' expectations of parks in New South Wales are very similar to those they had of parks in their countries of origin, which were designed for recreational purposes. Some of their priorities are for parks to have sport facilities, evening opening hours (at least in summer), cafés, stalls and restaurants. This study suggests that to both preserve the Australian policy of park planning and make recent immigrants' use of parks satisfactory, it is necessary to explain the 'nature-conservation' function of national parks in Australia, while at the same time acknowledge the heritage of park use and nature appreciation (Byrne et al, 2013). However, can the same function be attributed to urban parks as well? And can the same policy be applied to urban parks? If so, then what is the role of landscape architects and designers in creating equal recreational spaces in multicultural cities? In view of such questions, a significant issue for landscape-making decisions in Australian urban areas appears to be to investigate ways of putting these recommendations together and then to present a solution.

Conclusion

Around 1888, when the celebrations of a hundred years of European settlement in Australia reasserted a search for national identity, pastoral landscape became a principal visual image of Australia for its mainly urban population and a central concern of the leading artists (Thomas, 1976). A vast number of Australian artists' large-scale canvases at that time showed images of pastoral life and landscape: 'blazing sun', 'heat', 'blonde pastures' and 'heroic workers' (ibid, p 159). Furthermore, most paintings of the Australian landscape depicted open spaces and natural elements of rural Australia. This viewpoint gradually affected the formation of urban green landscapes and became the main basis of landscape planning and park design in Australia, which represents Australian landscape myths such as 'bush' and 'Arcadia'.

Figure 2: Ruffey Lake Park, Melbourne, Australia. (Photo: Nasim Yazdani.)

As a result of increasing migration and a long tradition of development in Australian cities, many of those living in Australia feel alienated by open spaces (Nankervis, 1998). Considering the multicultural nature of Australia, this study is a response to Nankervis' (1998) question as to whether the mythical nature and identity of Australian urban parks should be considered as fixed and constant.

Because of their desire to make places out of natural spaces, immigrants in Australian cities have not merely visited parks but have engaged in processes of placemaking. Through sociocultural activities and events the parks are transformed into familiar, comfortable and meaningful places. Research shows non-English immigrants bring their already-formed habits, preferences and traditions in regard to visiting parks or relating to nature, and see natural environments through the lens of their cultural background. They show greater preferences for passive activities and enclosed spaces, and express their selves and culture in relation to nature in public parks. However, the broader conception of what a park is has caused an understanding of parks as public places that require facilities that non-English immigrants expect of them, such as night use, illumination, cultural/educational activities, exhibitions, cafés, restaurants, and settings for socialising. Therefore, it is suggested that landscape architects include more stillness spaces and settings that facilitate socialising in the design of urban park landscapes. Another significant issue concerns how to make the setting of parks more enjoyable for users from non-English ethnic minorities; for example, by including colourful flowers, benches or facilities in public park environments such as lighting, kiosks and cafés. In addressing the issue of expanding the use of parks and urban green spaces, and avoiding alienation in these spaces, it is significant to ask which activities should be allowed in parks. The short answer is that there is no need to limit the activities to those 'traditional' ones, nor to allow any single activity to dominate the park (Nankervis, 1998).

Landscape myths exhibit cultural values that are central in landscape settings and influence people's involvement in park spaces. This paper has drawn attention to the way non-English-speaking immigrants see the Australian mythical landscape, and to their understanding of and preferences for urban

parks. It has argued that these spaces are important in facilitating contexts for immigrants to get involved in social activities and experience the joy of belonging in a new environment. It is recommended that future studies focus on the characteristics of urban parks and green spaces in multicultural cities, ethnic minorities' park visitation patterns, their preferences in relation to urban parks, and their cultural backgrounds.

NOTE

1 John Glover 1767–1849 is one of Australia's most celebrated colonial landscape painters. Arriving in Australia from England in 1831, Glover adapted his picturesque style and luminous technique to his new surroundings (see www.artgallery.nsw.gov.au/collection/artists/glover-john). Eugene von Guérard 1811–1901 is best known for his large-scale paintings of dramatic views of the Australian bush, painted in the romantic tradition of the sublime. He immigrated to Australia in 1852 from Germany and, by 1854, had settled in Melbourne and resumed his career as a painter (see www.artgallery.nsw.gov.au/collection/artists/von-guerard-eugene).

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Exploring the Connection between Landscape and Biopolitics: The Story of Freshkills Park

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Constructed on top of what was the world's largest landfill at Fresh Kills on Staten Island, Freshkills Park is one of the most recent parks in New York, United States of America. The landfill has a history deeply enmeshed with the politics of New York City and this influenced the decision to create Freshkills Park and continues to shape the park itself. Faced with the unenviable task of constructing an enormous park on a landfill site, administrators are raising the profile of the park by linking it to several significant issues that impact the city including climate change, waste management, ecology loss and terrorism. These newer narratives augment traditional narratives of parks and, more importantly, draw into the spotlight the broader political context of parks.

By examining the creation of Freshkills Park through the lens of Michel Foucault's theories of power, biopolitics and governance, this paper argues that parks are a vehicle for biopolitics in an effort to manage the attitudes and behaviour of individuals for practices of self-discipline. Further, the new narratives associated with Freshkills Park also highlight how the park has become a vehicle to manage attitudes and behaviours relating to the vulnerability of the state. In that sense, parks in cities act as a spatial representation and enabler of biopolitical systems. The biopolitical systems evident in parks both shape and reflect the value that government and the broader population ascribe to parks. Consequently, landscape plays a much more significant role in political aspects of the city than has previously been recognised.

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Located on the western edge of the borough of Staten Island, Freshkills Park (FKP)[1] is the most recent addition to the assemblage of parks in New York, United States of America. It is being constructed on a landfill site that produced years of social and political disenfranchisement for Staten Islanders. The park represents a bold undertaking and a significant investment by the New York City (NYC) administration. As well as being very large at 2,200 acres or 890 hectares (approximately three times the size of Central Park), it will remain closed to the public until the landfill site has been decommissioned (a process that will continue for around 20 to 30 years). The decision to create this park reflects the positive attitude to parks that consecutive New York administrations have demonstrated over recent decades.

The difficulty of constructing a park on a landfill, the time it will take to decommission the landfill, its imposing size and its location on the edge of NYC present unique problems. Perhaps the most difficult issue for the FKP Office of the Department of Parks and Recreation is funding the construction and management of the park (E Hirsh, pers com, 7 May 2014). If the park is to reach its potential, it needs sufficient ongoing interest to overcome the considerable negative associations with the former landfill, the time lag before it is open to the

public and its location on the urban fringe. These conditions have been met in part by associating the park with a range of narratives. Some of these narratives are those traditionally associated with parks: playing 'indispensable roles in our neighbourhoods', providing spaces for exercise and community interaction, performing ecological functions (New York City Office of the Mayor, 2014, p 34) and promoting health (Serazio, 2010). However, additional narratives are emerging that are specifically associated with FKP – namely, waste management, climate change, preservation of ecology and terrorism.

The adoption of these newer narratives draws into the spotlight the broader biopolitical context of parks. Using Michel Foucault's theories on power, biopolitics and governance, this paper examines the relationship between landscape spaces in a city and biopolitics. It argues that, while responding to the needs of the population, FKP is also central to the administration and management of the population: in terms of both traditional narratives of parks, such as providing space for disciplinary practices, and also the behaviour of the population in relation to issues that impact on the life of the biosphere and security.

From landfill to park: A brief history

The former Fresh Kills landfill site was the world's largest rubbish tip and the last landfill to operate in NYC. Before the landfill was established in the late 1940s, Fresh Kills was a stream that flowed into a tidal wetland. The word 'Kill' is based on the Dutch word for river, the Dutch people being the first Europeans to settle in the region. It was apparently very beautiful – so beautiful, Frederick Law Olmsted argued in 1871, that it should be 'developed into a series of "water preserves and public commons"' (Staten Island Improvement Commission, 1871; cited in Greene, 2013, p 15).

In 1948, under a plan of Robert Moses, the city began dumping rubbish on the wetland, to fill in what was considered to be wasteland, which would allow a parkway between Brooklyn and New Jersey to be built, followed by housing and industrial facilities (Miller, 2000). Despite promises to close the landfill, it remained open, creating animosity between Staten Island and the rest of NYC as the Staten Island borough administration was powerless to control its destiny (Kramer and Flanagan, 2012, p 11). The decision to close the landfill was eventually made following the 1993 city election, which brought Mayor Rudi Giuliani to power (Molinari, 2001). This produced a rare political alignment of Republican leaders at the borough (Guy Molinari, Staten Island Borough President) and city and state government (George Pataki, Governor). Up to that time, political differences at the three levels of government had held back the political will to address the issues of Fresh Kills landfill. Finally, 50 years of inaction and broken promises to close the landfill ended.

Over the 50 years in which the landfill grew, it began to impact on the lives of many Staten Islanders, both physically by its presence and the all-pervading stench, and psychologically as a tangible representation of how the rest of NYC viewed Staten Island. The city administration well knew the environmental impact that Fresh Kills landfill had on the community of Staten Island. Suspicion about the site and its perceived health risks to the community was considerable.[2] It was perhaps the psychological impact that the landfill had on Staten Islanders

that was most significant. Staten Islanders saw themselves as a working-class borough 'being unduly saddled with all the city's garbage' (A Benepe, pers com, 6 May 2014). The landfill came to symbolise the disenfranchisement that Staten Islanders felt relative to the rest of NYC.

It is not entirely clear who proposed a park for the site, although it is believed to be the Municipal Arts Society. In the end, political expediency probably influenced the decision to create a park. As with the decision to close the landfill, former Assistant Commissioner for Planning and Parklands Joshua Laird notes that 'as a political matter the decision [to create a park] was made very early if not instantly' (J Laird, pers com, 20 May 2014). More specifically, Tom Hess of the New York Department of Planning recollects that it was 'basically made as a Mayoral decision' (T Hess, pers com, 21 May 2014). Subsequently, 'no in-depth analysis' and 'no study or assessment' of alternative options occurred (J Laird, pers com, 20 May 2014). Even though pressure to develop the site for commercial operations later eventuated, the decision to construct a park was relatively uncontroversial for the administration at the time. The decision reflected the administration's belief that the public wanted parks and accepted the dominant narratives of parks. Regardless, it involved a significant opportunity cost.

That decision also created the considerable problem of how a park was going to be constructed on top of half a century of accumulated waste. The first response was to cap the rubbish with an impermeable plastic membrane and cover it with a couple of feet of soil. In decommissioning the site, the NYC Department of Sanitation is processing leachate and methane as well. The rubbish will remain permanently hidden beneath the surface under a range of grasses and groundcovers the NYC Department of Sanitation has planted. Once covered and reseeded, the site is thought to have great potential as parkland due to its 'rolling hills, abundant bird life, gorgeous wetlands and rambling creeks' (New York City Department of Parks and Recreation, 2009, p 2).

On 5 September 2001, the City of New York announced the start of an International Design Competition for FKP. In December 2001, the three finalists were chosen with the opportunity to compete for the consultancy to produce a master plan for the park. First place was then awarded to Field Operations under the direction of James Corner for its entry, 'Lifescape', which formed the conceptual basis for the master plan completed in 2006. Lifescape attempted to create a world-class, large-scale park that capitalised on the unique characteristics of its metropolitan location, vast scale, openness and ecology. Its main design goals were captured in three coordinated organisational systems: habitat, programme and circulation (New York City Department of City Planning, 2013). The programme's organisational system involved creating a wide variety of public spaces and facilities. The park plan offered the space for a range of activities and programmes that were designed to be based around extensive active and passive recreation, educational amenities and cultural enrichment, including sports fields, canoeing, cycling and mountain biking, walking, community events, education, extreme sports, public art, horseback riding, bird watching and outdoor dining (ibid).

The history of the narrative of healthful recreation that is evident at FKP stretches back to the creation of Central Park. Frederick Law Olmsted was active

in promoting that aspect of Central Park, arguing in the Second Annual Report for Central Park of 1859 that visitors should have the opportunity for 'healthful recreation and exercise' (Olmsted Sr, 1973, p 59). In a paper to the American Social Science Association in 1870, Olmsted argued with respect to the park, 'as to the effect on public health, there is no question that it is already great' (ibid, p 172). Coming into the twentieth century, the Progressive Era emphasised that narrative through more sports-minded parks commissioners, who believed that the primary function of parks was as places for playing games (Rogers, 2007, p 3). Some of the activities that will be available at FKP, both recreational and programmes, are similar to what is offered in many parks in NYC. In that sense, FKP would be consistent with narratives around the function of parks that were established up to 100 years earlier. The size of FKP also lends itself to recreational activities less often associated with parks, such as horse riding, mountain biking and canoeing. Notably, from its early conception, FKP started to broaden the role of parks in NYC.

The real brilliance of Lifescape is that it offered a way to manage the immense difficulties of size, scope, complexity and timing that the site presented. One of the main challenges to implementing the design was staging to give the public maximum access to the site as early as possible while providing such access safely and without affecting the ongoing landfill closure, sanitation and monitoring operations (Field Operations, 2006, p 14). Time is required for the landfill to become safe for full public access, for natural processes to occur and for the park to be built, which Field Operations factored in to the park's programme. Corner (pers com, 21 May 2014) argued for 'a time based approach because that was … the only way you were ever going to get anything done'.

Field Operations mapped out how habitat would diversify over a 30-year timeframe and how the park would grow through implementation of the plan for every 10 years across that period (Field Operations, 2006). This time is necessary for the habitat to evolve, for plants to grow and soil to build up, for the park to become 'richer through time and more elaborate in terms of habitat and recreation' and, indeed, to make it possible to direct sufficient funding to undertake the activities needed to complete the park (ibid, p 56). The staging involved developing the park as a patchwork series of projects that could be done through periods of intermittent funding but 'add up to a unified whole' (J Corner, pers com, 21 May 2014). In that sense, the master plan was less a completed vision for the park than a plan to manage the complexity of the task over a long timeframe.

In a general sense, therefore, the design of FKP maintains elements of a health and recreation narrative and broadens the scope of recreation and programme activities. The park maintains existing narratives on the role and value of parks in the city. Despite significant resistance to the site from Staten Islanders, growing numbers of visitors on open day events are showing that FKP meets a latent need for recreation space. Staten Islanders are beginning to appreciate what the park can offer: even with the currently restricted access, the potential of FKP has been clearly established. However, with unsecured funding, the difficulty that administrators now face is how to gain and maintain ongoing interest in and consequent funding for the park.

Biopolitics and parks

The work of Michel Foucault on disciplinary power and biopolitics of the population has been applied to the creation of space and subjects by numerous authors, including Wylie (2007), Osborne and Rose (1999), Matless (2000), Chang (2014) and Gabriel (2011). In *Discipline and Punish*, Foucault (1979) discusses how disciplinary practices formed in the prisons of the classical age began to act on the body in less direct ways than in the preceding era, when power had acted on the body directly and visibly – for example, through public floggings and hangings. In particular, he cites Jeremy Bentham's concept of the Panopticon, which was a proposed prison architecture that enabled authorities to control and observe people based on the way they were spatially distributed. This form of power grew largely undetected through society as the number of 'techniques for achieving the subjugation of bodies and the control of populations' expanded (Foucault, 1978, p 140), spreading through different settings of power, such as factories, schools, universities and state administrative offices (Dreyfus and Rabinow, 1983). One of the practical applications of disciplinary power suggests that individuals internalise the power and manage their own behaviour through self-discipline, the governance of the self through the 'examination of conscience' (Rutherford, 2007, p 299). Through these mechanisms, disciplinary power became the basis of governance, and Foucault argues that it is the basis of modern liberal government (Foucault, 2008, p 67).

Paralleling the rise of disciplinary power, Foucault argues, was the growth of intervention in and regulation of the biological processes of life. The supervision of these processes led to 'an entire series of interventions and regulatory controls: a biopolitics of the population' (Foucault, 1978, p 139). Biopolitics comprises the political practices and economic observations focusing on the administration of all aspects of life and is concerned with 'social, cultural, environmental, economic and geographic conditions under which humans live, procreate, become ill, maintain health or become healthier, and die' (Dean, 2010, p 119). Thus, through biopolitics, the state cared for its people to maintain its stability, and people were a resource that it could use for its own purposes (Dreyfus and Rabinow, 1983). The body became a tool of the state as, being both useful and productive, it had a value through its economic use (ibid).

Also of interest is Foucault's understanding of governance. In the simplest sense, governance is the 'conduct of conduct' (Foucault, 2007, cited in Dean, 2010) or, as Dean (2010) argues, it is 'any more or less calculated and rational activity … that seeks to shape conduct by working through the desires, aspirations, interests and beliefs of various actors' (p 18). This paper is interested in the decisions of government, the 'conduct of conduct', and its power to make decisions in relation to parks in general and FKP specifically. This is not to suggest that the 'state' is the holder of power while citizens completely lack agency. Foucault (1978) argues that power is not held in and does not consist of an institution or structure, and is not limited to the 'state', although power sometimes crystallises out into state institutions (Sluga, 2012). Foucault saw power as a matrix that operates in two directions: from the top down and from the bottom up (Dreyfus and Rabinow, 1983). Therefore, biopolitics can be seen as a multidirectional relationship involving the population and the administration, in which each has a degree

of power. However, Rose (2014) argues that the reason 'state' power looks all pervasive in Foucault's work is that it 'is all pervasive within the parameters that the state pre-establishes' (p 220), and of interest are those parameters of decision making in relation to parks.

Therefore, the question arises: in providing parks, how are authorities attempting to shape conduct? Clearly one role of parks is to provide space for recreation. Large segments of the population have internalised the ideals of maintaining peak health, expressing self-discipline through exercise and achieving personal regeneration. In crowded cities like NYC, it is parks that provide the spaces where activities of recreation can freely occur. In that sense, parks provide the spatial requirement for practices of self-discipline. Thus, in part, the provision of parks in a city is responding to the perceived needs and desires of the population and adds a positive element to the fabric of a large city. Power 'is more than simply preventing or forcing others to do something they would not do on their own' (Darier, 1999, p 17); instead biopolitics works with the '"grain" of human behaviour, to seek paths of least resistance; in short, to govern in line with the dictates of "human nature"' (Lee, 2013, p 27). People use parks because they want to, and derive some benefit from doing so.

The recreation narrative, among other narratives associated with parks, exists in part because the population itself perceives a need for spaces that allow such activity. Indeed, the design and promotion of FKP represent the provision of spaces for active and passive recreation as one of its core benefits – an existing need in Staten Island (A Benepe, pers com, 6 May 2014). The desire for recreation spaces can be understood within Foucault's conception of the 'technologies of the self' – the operations that individuals choose to perform 'on their own bodies and souls, thoughts, conduct and way of being, so as to transform themselves in order to attain a certain state of happiness, purity, wisdom, perfection, or immortality'(Foucault et al, 1988, p 18).

In providing for 'the processes that constitute the health, happiness and well-being of the population' (Dean, 2010, p 63), it must be assumed that the 'state' has a degree of intentionality. In this situation, power has the effect of contributing to the cohesion of the social body (Foucault, 1980). The biopolitical benefits of recreational spaces of a city are to produce a stronger, more productive, more contented population for the greater good of the state. The biopolitics associated with parks and FKP is a multidirectional power relationship that is based in the perceived needs and desires of the population, and thus can be understood as a mutually beneficial relationship. Foucault argues strongly that, rather than being only repressive, power is also productive (ibid). Power 'creates new subject positions and new regimes, new knowledges and practices' (Wylie, 2007, p 111). Consequently, the production landscape space and the subjects who use that space can in part be attributed to power relations. In that sense, it is reasonable to argue that biopolitics contributes to the creation of parks in NYC.

Freshkills Park and biopolitics in the twenty-first century

While FKP can be read through the lens of existing recreation and health narratives, it introduces a number of narratives relating specifically to issues of the later twentieth and early twenty-first centuries. From 2006, the Freshkills Park

Office of the NYC Department of Parks and Recreation took over responsibility for implementing the plan under the leadership of administrator Eloise Hirsh. Ms Hirsh faces the monumental task of constructing FKP: a park that is large, expensive to develop and on a difficult site that has been the source of angst to the people of Staten Island. Support for the park is essential to maintain the interest of the administration and the public and, therefore, to attract the necessary private and public funding to build and maintain it. Yet achieving a significant and highly visible profile is another challenge given FKP's location in the lowest-density borough and on the edge of the city. As James Corner (pers com, 21 May 2014) recognises, these 'are very complicated projects, and they need real leadership and commitment', while competition jury member Laurie Olin (pers com, 16 May 2014) similarly notes that 'like all great visions, it can go off the rails'. Although Ms Hirsh (pers com, 7 May 2014) believes that her office's job is to 'make this thing [FKP] inevitable', continued support for the park is not guaranteed through changing administrations, economic fortunes and changing priorities.

Yet building and maintaining a high profile is rendered especially problematic because of the limited public access to the park for the next couple of decades (A Benepe, pers com, 6 May 2014; J Corner, pers com, 21 May 2014). Consequently, the Freshkills Park Office is trying a variety of ways to get as many people to visit the site as possible in an attempt to increase support. One of its approaches has been to align FKP with a number of broader issues that affect the people of NYC – namely climate change, loss of ecology, waste and the threat of terrorism.

Climate change

An important outcome of the public consultation process between 2001 and 2006 was to include renewable energy projects in FKP. While methane was always going to be produced at the site through the decomposition of the waste, the consultation process raised the possibility of other sustainable energy demonstration projects that harnessed solar, wind and water power as well. Field Operations had not included wind farms or at least did not feature them in early renderings of FKP. However, by 2006 wind farms featured prominently. The technical issues for including wind turbines still need to be addressed, but a solar array has been approved for installation in the coming years.

The connection between the park and climate change was reinforced in 2012. The flooding and the damage that was inflicted by Superstorm Sandy had a big impact on New Yorkers' attitudes to the potential threat of climate change. Manhattan, 'developed right out to its edges right now' (J Laird, pers com, 20 May 2014) and with literally no buffer to the ocean, was severely affected but the storm impacted other areas of New York too. While it has been acknowledged that New York cannot be made climate-change proof, the tactic of the NYC administration has been to try to develop a 'stronger, more resilient New York' (New York City Office of the Mayor, 2014). Part of that approach is to use landscape as a buffer from the ocean. Hence the NYC administration has a new resolve to protect the wetlands and other natural areas because, according to the NYC Mayor, 'wetlands, streams, forests and other natural areas offer substantial sustainability and resiliency benefits' (ibid, p 199).

Since Superstorm Sandy in 2012, FKP has stood as a symbol of a response to climate change as it provided a buffer against the worst of the effects of the

storm on adjacent neighbourhoods (New York City Department of Parks and Recreation, 2013), absorbing 'a critical part of the storm surge' (Kimmelman, 2012). While other urban landscaped areas in New York also acted as buffers, the wetlands, in particular, have subsequently been identified as essential natural elements in mitigating damage to property in the likely event of similar storms in the future. Consequently FKP and indeed landscaped areas in general have become strongly and positively associated with the role of protecting the city from the effects of climate change, and a number of proposals have been put forward to re-establish landscape around the riparian edges of the city to mitigate against damage from storms and rising sea levels (Aiolova and Joachim, 2013; Drake, 2013; Reed, 2013; Thomann 2013).

Waste

The closure of the Fresh Kills landfill also brought to the surface issues of waste in the city. The production of rubbish in New York was invisible to public consciousness while the landfill operated. As Pollak (2007) argues, 'putting garbage out of sight, far away from the city centre, made it possible to ignore it' and to 'the extent that the Fresh Kills landscape is a consequence of our own material desires and consumption, its location away from the city hub reflects a desire to forget about our own waste products, to look in a different direction rather than risk being identified with them, to have them go away' (p 91).

The Department of Parks and Recreation is particularly keen to keep the memory of the landfill embodied within the park, wanting it to 'really speak about land renewal and land reclamation, personal responsibility, about waste … about sustainability' (E Hirsh, pers com, 7 May 2014). Consequently, it changed the name of the Fresh Kills site to 'Freshkills' Park to retain the association of landfill with the site, and it runs educational programmes in schools about waste production. The department believes in the value of the educational aspect associated with waste and recycling that the site embodies (ibid), and drawing people to the park allows it to provide a message about the 'environmental consequences of that type of lifestyle' (R Nagle, pers com, 13 May 2014). In using the park as an educational tool and a way to promulgate a message about rubbish production, it is keeping the issue of waste alive and in the collective consciousness of the population.

Ecology

The *Fresh Perspectives* newsletter, published by the FKP Office biannually between 2007 and 2013 to promote the park, has publicised the ecological credentials of FKP quite prominently. The evidence from the site seems to be that its ecological integrity is improving as more species are identified there. Cranz and Boland (2004) favour developing parks with sustainability as their primary function. The desire to promote FKP so strongly as ecologically vibrant does seem curious given that the public image of the site was so dominated by landfilling, health concerns, polluted waterways, and toxins. It is necessary to convince the public that the park is now not just safe and clean, but also ecologically sound. One reason for investing in the ecology of the site is that natural habitat is rare in the rest of NYC. Consequently, as former Freshkills Park community coordinator Raj Kottamasu (pers com, 14 May 2014) argues, the habitat is valued because 'the rest of the city is so developed that it [ecology] becomes rarer and rare'.

Equally, the value of wetlands is now being reconsidered, and a genuine regret is felt over the loss of this ecosystem. Robert Moses led significant in-filling of wetlands as people at the time 'thought of them as a place of pestilence rather than a place of flood control' (E Hirsh, pers com, 7 May 2014). Fresh Kills was the last of the great marshes that existed in New York to be filled. Consequently FKP is 'making something good out of what is fundamentally an ecological disaster' (E Barlow Rogers, pers com, 19 May 2014) and is being developed and promoted in that fashion as a reminder to the population of the importance of ecosystem health.

Terrorism

The relationship between the park and the site's landfill history also changed during this period, in part due to the temporary re-opening of the landfill to receive the residue from the towers destroyed during the 9/11 attacks. Field Operations offered a design that acknowledged the disaster at the site, proposing an earthwork structure that would represent the towers lying down across the mound. The towers were huge but, on top of the mounds, they would seem relatively small on the far larger FKP site. The size of the towers would nonetheless become clear to anyone walking their full length as the walk would take them 20 minutes (J Corner, pers com, 21 May 2014). FKP is now intrinsically attached to the story of 9/11, and will represent the loss to the city through the memorial. From the 9/11 terrorist attack, which reflects what has been traditionally understood as a significant risk to the physical state, comes another example of how FKP has come to symbolise the vulnerability of NYC while also embodying the idea that the city is resilient at the same time. As the location of a memorial to the collapse of the Twin Towers through a terrorist act in 2001, FKP is bound with the discourse about NYC's vulnerability to terrorism.

Using these issues as a frame to promote the park is an attempt to make the park itself take on a greater relevance and importance to the people of NYC. Eloise Hirsh (pers com, 7 May 2014) states that 'a piece of the site's job [is] to be talking about these issues', and therefore the park will align itself with these broader narratives. Indeed, the park must do so if it is to become a reality. The Freshkills Park Office has to build 'a constituency that is not just going to be the constituency that supports the park but also hopefully defends it' (J Laird, pers com, 20 May 2014), because at any stage funding could dry up (A Benepe, pers com, 6 May 2014). Aligning the park with these broader issues extends the biopolitical mechanisms from a recreation and health narrative to much bigger and broader issues, attitudes and behaviours.

Dean (2010) argues that the government uses biopolitical mechanisms to manage 'several "non-political" spheres' (p 64) that it must control for its own purposes; that is, given the limits to its role, the state manages those processes that fall outside the political sphere by using biopolitical mechanisms to create the desired effect. Since the late twentieth century, biopolitics has not been confined to practices to increase economic profitability and prosperity, but has also embraced practices associated with the life of the biosphere (Dean, 2010 Reid, 2012). Such an expansion of its conceptual framework emphasises that biopolitics influences the lives of populations in much broader ways than Foucault

envisaged. Biopolitics can no longer be seen as simply relating to 'technologies of the self' that impact on individual health and docility, nor as just a tool to manage the body for economic use and productivity; it is now associated with the essential vulnerability of the state to a range of internal and external threats, and with the protection of the biosphere itself. More than being a space for practices of self-discipline, FKP has become a mechanism for making the concerns and fears of the city known to the population of the city and therefore, by inference, for trying to manage the behaviour of individuals in relation to these issues. That is biopolitical in its essence.

Conclusion

Through its unique and poignant history, FKP has become associated with issues relating to climate change, loss of ecology, production of waste and terrorism. Given the enormously difficult task of bringing the park to fruition, these broader narratives have been used to raise its significance in the eyes of the public and administration of NYC. The decision to align FKP so clearly with these issues may have been driven by necessity. However, linking these issues to the park has a biopolitical dimension in that the park becomes a mechanism to publicise these issues, persuade the public of their significance, and ultimately modify the attitudes and behaviours of the population. FKP also demonstrates how biopolitics now extends to the issues that impact on the life of the biosphere and processes that relate to the vulnerability of the 'state'.

Reframing parks through the lens of Michel Foucault's ideas of power, biopolitics and governance offers new conceptions of landscape. It is argued that landscape in cities acts as a spatial representation and enabler of biopolitical systems; that is, the rationally ordered and designed spaces that are the parks of the city are connected to biopolitical mechanisms of governance and become fundamentally political objects. While the traditional narratives of the role and value of parks are still valid, they are reshaped through a biopolitical lens.

Ultimately, it is argued that landscape plays a much more significant role in political aspects of the city than has previously been recognised. Landscape has become intrinsically associated with administration of all aspects of life primarily through providing the space in a city for carrying out the disciplinary practices related to recreation and health. FKP also demonstrates that biopolitics has extended into practices relating to waste, climate change, ecology and terrorism, all of which impact on the 'state' in far more significant ways.

NOTES

1 'Freshkills' is the name of the park. 'Fresh Kills' refers to both the landfill and the general site where the landfill was located, on top of which the park is being constructed.

2 Interviews conducted in 2014 indicate a significant degree of suspicion about the site remains. However, this suspicion appears to be waning over time (E Hirsh, pers com, 7 May 2014).

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