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Developing a co-design method for school ground greening

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Introduction

It is widely asserted that if school grounds are developed as ecologically diverse and environmentally stimulating places that encourage student engagement and learning, they can contribute to children demonstrating, what researchers such as Chawla and Cushing (2007) have termed, pro-environmental behaviour (Danks, 2014; Williams & Brown, 2012). School ground greening (SGG) is the general term used for the transformation of school grounds from asphalt, concrete and grass to spaces that invite children to explore and experiment (Dyment, 2005), and a significant rationale for its current popularity is the potential for developing positive environmental values and attitudes as a result of these nature encounters (Williams & Brown, 2012). Expanding the learning potential further, a growing number of researchers propose that if children participate in the design of these environments, it can foster creativity and imagination, develop communication and thinking skills, engender ownership of the space, promote sharing and increase community belonging (Christidou, Tsevreni, Epitropou, & Kittas, 2013; Green, 2014; Wake & Eames, 2013).

The research outlined in this paper is part of a Masters in Landscape Architecture focusing on the role landscape architects (LAs) in New Zealand could play in assisting schools with greening projects in a way that benefits both. Greening schools advocate Sharon Danks (2014) outlined the increasing interest and opportunity for involvement of American LAs in SGG in a recent article written for the American Association of Landscape Architects. This interest is also evidenced by the work of The Trust for Public Land in New York City, a USA-wide not-for-profit that protects land for people's use (www.tpl.org). According to their website, in New York City precious land is tied up in asphalt-covered school yards, which the Trust works with school communities to change through a participatory design approach that includes the school and community, while focusing on green infrastructure design solutions such as planting to increase ecosystem services (e.g. shading, cleansing, animal habitats) and decrease pollution. In the UK, Learning Through Landscapes is a charitable trust that connects schools with LAs who can assist with a re-design process (www.ltl.org.uk). There are no comparable organisations in New Zealand, although the schools-based environmental education programme of the Toimata Foundation (Enviroschools) is empathetic with a participatory design process as indicated by their aspiring to David Driskell's "shared decision-making" (2002, p. 6) between all participants

(e.g. adults and children) and their action learning cycle that is iterative and encourages reflection (The Enviroschools Foundation, 2008). However, this is general rather than design-specific, and while LAs in NZ often have a role in creating outdoor learning environments and in advocating both for human and environmental values through their work (www.nzila.org), they are not trained educators and have to juggle social with economic imperatives. This predicates a need for a process that is reciprocally beneficial and efficiently devised, while still focusing on the process, an importance identified by others (Somerville & Green, 2015; Wake & Eames, 2013).

The aim of this research project by design is therefore to propose, with rationales, a suitable participatory design method for LAs to use with schools and test it through a real design process with school children. This paper outlines the development of the method, focusing on the principles and benefits of co-design. Parnell (2014) defines architectural co-design with children as them working directly and collaboratively with designers to contribute and make decisions within the design process, rather than a purely consultancy role. This kind of spatial advocacy is known to be empowering.

Background and rationale

The identification of reciprocal beneficial outcomes from a co-design process is a strong rationale for its importance both pedagogically for teachers and students, and professionally for designers. Improved design ideas, learning better how to design with/for children and generating a positive profile to potential clients have been cited as possible outcomes for designers (Parnell, Cave, & Torrington, 2008; Patsarika, 2014; Wake & Eames, 2013), while unleashing children's creativity (children as natural designers with knowledge of their environments), developing valuable skills, increased ownership of the space and empowerment due to feeling control over learning have been cited as outcomes for students (Green, 2014; Sorrell & Sorrell, 2005; Wake, 2010). Set against this is the fact that LAs in NZ are typically not involved in SGG projects, usually for reasons of economy due to school ground projects requiring private fundraising, rather than being funded through the Ministry of Education. Instead, teachers or parent groups often assume the role of design/construction/maintenance although they may not be fully aware of the knowledge and commitment required. The result can be over-burdening, disillusionment, over-reliance on one person for continuation, or simply not taking full advantage of what SGG could offer as a learning tool and a valuable ecological and social resource for schools and communities (Passy, 2014).

The theory of participation has now been well described, following the drafting of the United Nations Convention on the Rights of the Child (UNCROC) in 1989. In this regard researchers emphasise the importance of being clear with children about the limits of their

participation (Hill, 2006) and focusing on the participatory learning process rather than on the project outcome (Somerville & Green, 2015; Wake & Eames, 2013).

Malone and Hartung (2010) maintain that children's participation is frequently recognized only in an adult-centric structure and therefore does not challenge dominant hegemonies, such as many adults believing children are not capable or should not be asked to assume adult decision-making responsibilities. It is therefore important to distinguish between consultation and co-design with children. Parnell (2014) defines consultation as a "...structured process enabling different parties to express their views on a proposal ... denotes commitment to take on board participants' views ... and provide feedback" (para. 18), while "in co-design processes, users take an active, hands-on role in the design of the major spaces, working directly and collaboratively with the design team to develop designs" (para. 15).

Developing a method

As pointed out by others such as Green (2014), co-design examples with children are not common within academic literature and are often scant in providing details on methods used. For the research project being outlined in this paper it is also clear that the importance of focusing on process will need to be balanced by the limitations of time and with regard to the distinction between consultation and co-design. Both Somerville and Green (2015) and Wake (2010) describe exemplary co-design projects that are long term and on-going. While laudable, such an open-ended project is not practical in all situations. The following represents a distillation of examples that have been found from within literature or practice, which may be useful in informing the method for this research project.

In looking for suitable case studies, Iltus and Hart's (1995) useful description of how to manage participatory planning of recreational spaces with children recommends child-guided walkabouts, photos, models and drawings. They emphasize the importance of children annotating these to give clear evidence of their meaning. A number of researchers use design charrettes (Rottle & Johnson, 2007) or visioning (Sanoff, 2001), both of which are group activities used in design disciplines to develop multiple design ideas and solutions in a short time. Rottle and Johnson (2007) clearly describe a three-stage design charrette process used with senior students designing a public park to be an outdoor learning laboratory – a one hour ideas session (creating posters of ideas for park elements in facilitated groups) followed by a one hour model-making session (same facilitated groups) showing spatial arrangement of park elements and habitats, and finally, a brief reflection session where students gave feedback on the learning they gained from the project, using postcards. Incorporated within their method was use of a conceptual content cognitive

map called 3CM (Kearney & Kaplan, 1997; Micic, 2001; both cited in Johnson & Rottle, 2007, p. 488), which focuses on participants' ownership of ideas that serve as a cognitive map of their understanding of issues. In identifying concepts perceived to be important and then organising them, as per the research of Kearney and Kaplan (1997), Johnson and Rottle invited participants to collect ideas individually on sticky notes and arrange these collectively into a map of themes. The best ideas were translated into the group poster. Kearney and Kaplan (1997) point out that the method is simple, highly valid and is useful in offering an approach that is between qualitative and quantitative.

Wake and Cha (2012) used a modification of Rottle and Johnson's method in that students created models (within groups) of elements they would like to see included in a hypothetical sustainability education theme park. These ideas were interpreted by the designer into a concept design to which the students gave feedback. One drawback they noted was the tendency for children to be led by any examples provided to 'whet their appetites'. Practitioners reinforce this anecdotally, and one recommends: "never give children catalogues of play equipment and ask them what they want – the result will be a shopping list" (Fiona Robbé, Landscape Architect, Sydney, pers. comm. 26/11/15).

Robbé herself uses a variation of Driskell's (2002) Gulliver's Mapping method, which is a community participation process that employs huge scale photographic maps of the area being designed. Participants add their stories, memories and opinions about the site as 'footprints' in the form of photos and sticky notes. As the designer (specialising in children's environments), Robbé collates this information into reports for the client in order to encourage them to include ideas from this community participation within the design. This method was recently modified for use in a 'Child Friendly Audit' of Freyburg Square in the Auckland Central Business District. Auckland Council and researchers from Massey University's Whariki Research Centre led the project, which was underpinned by Auckland City Council's policy of 'putting children and young people first' (Auckland Council, 2014), the Waitemata Local Board's intention to become a UNICEF accredited 'Child Friendly City' (UNICEF New Zealand, 2016), and concerns about children's diminishing outdoor activity and independent mobility (Witten, Kearns, Carroll, Asiasiga, & Tava'e, 2013).

The Freyburg Square project gave a group of 11 children aged 7-13 years the opportunity to express their views on the square from a youth perspective (Auckland Design Office, 2015), since it is intended to make the space more appealing to younger people. The Auckland Design Manual Blog (Auckland Design Office, 2015) explains that three workshops were run, the first giving the participants the opportunity to explore and photograph the space and comment on what worked for them and what didn't. The second workshop refined this information with participants choosing three photographs to annotate, followed by further

group discussion. The third workshop presented the draft plan prepared by the design office (who had received a detailed report on the findings), showing how they had responded to the information from the children's input. Also included in this session was an invitation to the children to provide reflective feedback on how they found the process, which evidenced a useful and positive experience for all parties (Penelope Carroll, Researcher, pers. comm. 17/11/15). This process concurs with findings discussed earlier about the reciprocal benefits of co-design for both children and practitioners.

Discussion and conclusion

The projects discussed in the previous section all offer something of value to the development of a co-design method that will be tested in a school ground greening project within a New Zealand primary school by a Masters in Landscape Architecture student. In order to keep the process simple and low in required resources, it has been decided not to get children to take photographs. Therefore, the method outlined by Rottle and Johnson (2007) offers simplicity and an iterative process that we believe should be well fitted for a project undertaken by a LA who will be giving up paid working time to travel to the school and work with students in a 'pro bono' project. This method also has the advantage of incorporating a version of Kearney and Kaplan's (1997) 3CM method, which provides another perspective on how the students manage the 'ideas phase' of the design by organising the ideas into themes. Informed by other literature and examples, it has been decided to modify the method slightly to incorporate other researchers' and practitioners' methods. For example, the Gulliver's Mapping exercise used by Fiona Robbé as more of a consultation than a co-design process, is rich in encouraging stories of a place or space, so the project under discussion will use large scale maps (traced off aerial photos) of the site as the base when students are creating their models during the second charrette.

The process used in the Freyburg Square included an evaluation by the children of how they found the process, so this will be included since the concept of including student voice throughout the process is very important. Equally, learning about landscape design and the environment is a key outcome from the project so this final evaluation will also ask the students (via postcards) what they have learnt from being part of the project. This will be similar to Johnson and Rottle's third workshop/charrette.

It is intended to run four workshops – the first being the visit to the site followed by scoping of ideas (poster session). The second will focus on construction of models, the third will present the design and ask students for critique and the fourth will present the final design and ask for evaluation of the process and the learning. It is estimated that the first two workshops will take 2-3 hours and the final two about 1-1.5 hours. There will be an

introductory powerpoint shown in the first workshop, to outline the brief and introduce some landscape design principles, while being careful not to suggest too much to students. In conclusion, this paper has established a rationale for the research aim of involving students in a co-design process with a landscape architect to effect school ground greening projects within their school grounds that increase student exploration and learning, and build biodiversity within the school. The co-design process aims to build ownership and develop design skills that could see students more engaged in environmental issues within their schools. Reciprocal benefits for landscape architects include potential skills in working with children and understanding their needs better, plus promoting their discipline more widely. Developing a method to trial within a school has therefore been the focus of this paper.

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