Reflections on a student research-led design project involving children, climate change and landscape architecture

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ABSTRACT: This paper is centred on knowledge building within research and design as a layered and collaborative approach. It develops a small case study of the learning journey of an undergraduate landscape architecture student and her supervisor through a research project that itself is about a process of collaborative learning through design with children (co-design). In turn the design project developed a concept for a hypothetical educational park focused on positive learning about climate change management within communities. The paper reflects on the project as an exploration of the education and environmental stewardship responsibilities of the practice of landscape architecture as centred on community outreach, especially children. The focus of the project was on design as a participatory and iterative process that engages people positively in understanding climate change and how it will change the way they live. Combined with a discussion of the supervisory process the paper provides an excellent example of knowledge building for all participants, which is grounded in theory and centred on practice.

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Keywords: children's learning, climate change, participation, co-design, undergraduate student supervision

INTRODUCTION

Efforts to increase awareness of the likely implications of climate change are often ignored because it is seen as depressingly apocalyptic. For one landscape architecture student this presented an interesting challenge that she believes landscape architects should engage with. To this end her final year research-led design project established a rationale for the role of landscape architecture in environmental education through its normative practice. Following this has been exploration into the importance of nature in children’s lives, juxtaposed with their diminishing exposure to it and coupled with investigation into ways of empowering children through engaging them meaningfully in a design process. The result was development and application of a method of positively and democratically involving schoolchildren in an iterative process of contribution and awareness about climate change, through design workshops.

The paper will first outline relevant literature as rationale for the method chosen. Results of the design workshops with children at a local primary school are presented along with their interpretation and incorporation into the research student's design. This includes brief discussion of the feedback workshop to show students the resulting design and invite their feedback. Finally this paper reflects on the supervisory relationship as a conduit to knowledge building, even though it is inherently limited as a democratic and empowering model of learning. This is due to power hierarchies and the waves of ‘chaos’ and ‘cosmos’ as described by Todd, Smith and Bannister (2006). Supervising projects at undergraduate level has challenges for both the student and supervisor compared to postgraduate study due to the research inexperience of students. In addition, when the research is design-based students may confuse application of academic research with usual site analysis and development of design solutions.

1. BACKGROUND TO THE PROJECT

A final year landscape architecture student, Cha, was assigned Wake as her supervisor for her negotiated studies project in 2012. Cha’s initial idea for her design-led research project stemmed from an educational interest in climate change
issues, especially approaching them from a positive perspective. She believed the discipline of Landscape Architecture has a stewardship role to play in the environment through its established practice of designing outdoor spaces that connect people with the environment, whether that is through subdivision development, parks, roading schemes or native biota restoration projects. This is corroborated by the New Zealand Institute of Landscape Architects who state on their website (www.nzila.co.nz) an aim “… to foster and develop an understanding of these [physical and cultural] processes and to ensure that this knowledge is applied in such a manner as to conserve or enhance the quality of all natural resources and human values.” Although public education is not a stated role, advocacy for the environment is, as well as working for and within communities. Reading professional journals quickly established the commonality of landscape architecture projects with an education focus or acknowledgement of climate change. For example the children’s playground at Hobsonville Point, near Auckland, by Isthmus Group Landscape Architects that teaches about seed dispersal through giant sculpture and interpretation (Wake, 2012) and the ‘water square’ stormwater buffering concept in Rotterdam by Florian Boer of De Urbanisten (Anonymous, 2010). An urban designer, Boer wanted to reveal the infrastructure required to manage stormwater and turn it into an attractive and changing urban landscape of playing and learning about water flow within the city fabric. It also has capacity to manage flooding events, predicted to increase as a climate change symptom (Anonymous, 2010). Climate change is a reality, not a possibility, and includes global warming, rising sea levels, intensification of tropical cyclones, declining ocean pH and decreasing snow cover, permafrost and sea ice (Brown & Sovacool, 2011). It therefore seems reasonable to assume landscape architecture practitioners will engage with educational issues around this subject due to their environmental, social and cultural focus.

Following with her interest in community education Cha explored examples of this ‘way of learning’ in planning her research project. Her other interest in temporality led to her investigating ‘pop-up’ concepts such as Candy Chang’s community education and consultation participatory projects (www.candychang.com) that invite community members to have their say about issues (typically by writing on walls etc.) and SparkTruck (www.sparktruck.org), a mobile educational workshop for children to make things. However, the difficulty of conducting this kind of project, coupled with her time and resource constraints led to her searching for simpler ways of engaging with people about positive climate change education. Due to Wake’s research interest in children’s environments, the project then developed towards involving senior students (9-10 years old) at a local primary school.

Many authors have written about the essentiality of contact with nature in children’s lives for healthy physical and psychological development (e.g. Kahn & Kellett, 2002). Juxtaposed with this is an awareness of diminishing opportunities for children to experience nature due, for example, to increasing urbanisation (Chawla, 2002) and overstructuring or ‘adultization’ of children’s lives (Francis & Lorenzo, 2002). Of concern for this project is the importance of having positive nature experiences as children in order for this generation, with whom the responsibility for mitigating effects of climate change rests, to develop empathy or caring for the environment. Approaching environmental issues as positive opportunities rather than negative problems is the basis of ‘ecological modernisation’, the dominant education for sustainability (EfS) discourse in northern Europe (Laessoe, 2010). In comparison the traditional science or transmissive approach to EfS often tends to focus on the overwhelming magnitude of environmental problems, which can switch people off (Jensen & Schnack, 1997). Phrases such as ‘green fatigue’ have become commonplace to describe negative responses to the enormity of climate change and popular journalism such as newspaper magazines have helped fuel this. In a recent issue of Elements magazine, accompanying the New Zealand Herald, an article called “Climate of Denial”, cites ignorance, mistrust and habit as barriers preventing people changing their behaviour due to the imminence of climate change (Kenworthy, 2012).

In the EfS literature it is acknowledged that projects ‘for’ (focussing on ‘the heart’ or attitudes and values expressed) the environment rather than ‘about’ (focussing on ‘the head’ or knowledge accumulation) or ‘in’ (focussing on ‘the hands’ or skills development), which have an action focus and are relevant (i.e. locally-based) are more likely to lead to learning transformations and therefore permanent changes in behaviour towards the environment (Fien & Greenall Gough, 1996; Sipos, Battisti, & Grimm, 2008). In addition, ensuring democracy (i.e. participation) leads to greater engagement and ownership of projects, and encouraging political advocacy gives authenticity by grounding them in reality (Chawla & Cushing, 2007). Jensen and Schnack (1997) proposed the concept ‘Action Competence’ to describe an on-going and social process of learning within education for sustainability, which, through it’s focus on ‘solutions to problems’ and assumed democracy of learners, involves a deeper level of engagement than simple environmental ‘activities’. This connects well with ecological modernisation and also resonates with the German concept of Bildung, which describes development of a higher level of education through socialisation rather than simple knowledge building.

As a result Cha’s research project developed into democratically involving children in the design of a hypothetical educational park focused on positive engagement with climate change issues, framed by the wider question of how to promote positive engagement with climate change within communities through educational design of the landscape? Continuing her interest in a pop-up or moveable concept, e.g. the mobile education idea of the “Life Education Trust” caravan that moves around schools focusing on health education (www.lifeeducation.org.nz), she came up with the concept of a ‘floating island’ as the site for the park, representing flexibility in the face of sealevel rise. Examples of floating
islands were explored, including historic sites such as the ‘chinampas de Xochimilco’ in Mexico and the floating islands of Lake Dal in Northern India (both based on subsistence food production), as well as some contemporary concept examples such as Vincent Callebaut's lilypad ecopolis (www.vincent.callebaut.org). Cha described her project rationale as follows:

Based on my literature research, I decided to work with children as community members who have rights and valuable ideas to contribute to a design process. I also wanted to focus on learning at all levels (children, myself, future community learning and involvement, ongoing). The process is about learning, it will be iterative through including feedback and further input by children, and the end design will have an educational and community focus.

2. THEORY & PRACTICE OF PARTICIPATION OF CHILDREN IN THE DESIGN OF THEIR ENVIRONMENTS

Article 12.1 of United Nations Convention on the Rights of the Child (CRC) makes it a democratic right for children and young people to participate in matters affecting them (UNHCHR, 1989). In addition, Article 29.1e of CRC states that: “Children’s education shall be directed to the development of respect for the natural environment”, which places Lake Dal in Northern India (both based on subsistence food production), as well as such as Vincent Callebaut’s lilypad ecopolis (www.vincent.callebaut.org).

One of the most well-known models indicating types of children’s participation is Hart’s ‘ladder of participation’, first published in 1992 in a UNICEF Innocenti essay (Hart, 1997). The model proposed that the bottom three rungs of the ladder (1. Manipulation, 2. Decoration, 3. Tokenism) were ‘non-participation’. The top five rungs (4. Assigned but informed, 5. Consulted and informed, 6. Adult-initiated, shared decisions with children, 7. Child-initiated and directed, 8. Child-initiated, shared decisions with adults) are all degrees of ‘genuine participation’ (Hart, 1997, p. 41.). Driskell (2002) distributed Hart’s eight categories across a graph that represented increasing community interaction and collaboration on the x axis and increasing decision-making and change-affected powers on the y axis. The result is more holistically referenced and avoids a linear interpretation that is an inherent weakness of the ladder metaphor.

Despite reluctance to implement it there are a number of advantages to involving children in a design process (co-design with children). These include acknowledging children’s particular needs (Francis & Lorenzo, 2002) and the fact that children bring different perspectives and fresh ideas that adults would probably never think of (Sutton & Kemp, 2006). This adds layers of meaning and learning both to the experience and subsequent use of these spaces (Ilhus & Hart, 1995), which builds ownership through increased responsibility and empowerment through a sense of being in control. Significantly, there are also cross-disciplinary learning opportunities (Sorrell & Sorrell, 2005).

With reference to the scope of this project, the involvement of children was necessarily limited due to time and resource constraints (refer research methods section). It did however provide a small but significant opportunity to get children engaged creatively and, it was intended, learn something about aspects of climate change in a positive, fun environment. ‘Having fun’ is something Chawla and Cushing (2007) identified as an important criteria to learning positively about the environment. In view of this and given other constraints identified Cha investigated appropriate methods for democratically involving children in a design process, guided by Hart’s (1997, p. 92) ‘action research process’ for participatory projects with children, which includes “… problem identification, analysis, planning, action, evaluation and reflection…” This area is not well represented in the literature, especially with regards to detail on method, although it is unanimously agreed that strong and effective facilitation of the process by skilled adults is needed (Ilhus & Hart, 1995; Rottle & Johnson, 2007; Sutton & Kemp, 2006).

Ilhus and Hart (1995) recommend modeling and drawing as a participative design method with children and youth, although they emphasise the importance of the children annotating their work to avoid wrong interpretation by adults. Francis and Lorenzo (2006, p. 232) have devised a specialist method of ‘proactive design’ that employs “environmental autobiography” whereby adults rediscover their own childhood experiences and share them with their children. This contributes to a very egalitarian process of design by negotiation that encompasses all ages and abilities and minimizes the frequent participatory ethical issues such as disparate power and skills. A charrette is a collaborative session to draft a solution to a design problem. It is often used is urban planning as a consultative technique with all stakeholders. Sutton and Kemp (2006) highlight the transformative power of charrettes, whereby participants leave thinking differently to when they arrived.
This connects well with EfS pedagogy imperatives regarding learning transformations being essential to behavior changes towards the environment.

Rottle and Johnson (2007) carried out a charrette process for a similar purpose to the project this paper is describing – i.e. getting students’ (in this case youth) ideas and perspectives for an environmental learning park (although in a real park setting rather than hypothetical), as well as reinforcing their own learning and possibly encouraging ‘ecological literacy’, an indicator of ‘environmental caring’ proposed by David Orr (1992, cited in Rottle & Johnson, 2007). These authors explain the charrette process involved three stages – the Idea session for brainstorming in groups, the Model session for creating a 3D map of their ideas and the Postcard reflection session for filtering ideas down to a significant few. They conclude by proposing that charrettes may contribute to ecological literacy in youth both through the design outcome and the learning that occurs along the way. The research participants felt their ideas were valued, which built ownership in the project and their input provided a freshness and creativity, that otherwise would have been absent. Rottle and Johnson (2007) also lamented the reality that designers usually don’t involve children and youth in participatory design (co-design). These findings endorse the rationale of Cha’s project.

3. RESEARCH DESIGN & DATA COLLECTION

Because this project is concerned with participants’ ideas, expressed through design, it is a qualitative study. Through contact with a local primary school a teacher who was interested in the topic of climate change and design agreed that her year six class (students approximately 10 years old) could participate in the process. Two meetings were held with the teacher to agree and plan the process, which was decided to be held as two workshops with the school students, in line with findings from the literature about the value of design charrettes and model-making. The teacher agreed to introduce the topic to students the week before the first workshop and ask students to bring recycled materials from their homes for model-making.

The first workshop was planned as an ideas and model-building session of approximately 1.5 hours and the second (of about 1 hour) to complete the process in an iterative way by returning to the students and presenting to them the incorporation of their design ideas into Cha’s design concept. They would be invited to give feedback on this, with the potential for Cha to make changes to her design based on this feedback. While it was understood this process did not allow for the 3rd (reflective) session of the charrette process followed by Rottle and Johnson (2007), for the scope of the project (a small undergraduate negotiated study) and the resources available (e.g. time and timing for the workshops, understanding that activities with 10 year olds need to be short and focused, awareness that the process should not use up too much structured classroom learning time), it was decided this would be adequate to garner [limited] input from the students. In terms of Hart’s (1997) ‘ladder of participation’, this project perhaps fits between rung 5 (consulted and informed) and rung 6 (adult initiated, shared decisions with children). It has elements of each definition, especially due to the return workshop to share ideas and invite feedback, but the ‘shared decision-making’ was very limited because it was Cha’s project and she had to have final say on the design. This was clearly set out in the information sheet given to participants ahead of the workshops and concurs with Chiles’ (2005) recommendation that specialists with expertise should make final design decisions in co-design projects with children.

Because of the involvement of minors an ethics application was then made to cover the involvement of students in the workshops. At this time and based on Iltus and Hart’s (1995) recommendation to annotate children’s drawings and models, it was decided to collect data as a video recording of students’ talking about their ideas and models. Consent forms and information sheets were drafted for this. A short Powerpoint™ presentation was prepared to give students some background to climate change, Cha’s project and their invited involvement in it. This included some historic and contemporary examples of ‘floating islands’ and some structure around how they might contribute to the design of an educational park – i.e. kinds of exhibits or activities they might explore through their model-making. This was a difficult balance because of the risk of suggesting ideas, rather than them coming up with them independently. But the time constraint on the workshop meant this was felt to be necessary. In terms of following EfS pedagogical literature, the project was an action-taking project for the environment and the examples of climate change effect shown in the powerpoint were of local places the children could relate to although, because it was a hypothetical design, it necessarily lacked authenticity.

3.1. Reflection on Workshop 1

The class had 28 students but only 20 consent forms were returned by the first workshop on 31st July so those students formed five groups of four. Based on Brown and Sovacool (2011) sustainability themes were pre-selected and each
student group chose a different theme, which were ‘Green Buildings’, ‘Reduce/reuse/recycle’, ‘Alternative transport’, ‘Renewable energy’ and ‘Food production’. The time shortage had been anticipated as a constraint that could be managed by good organisation so a lot of time was spent ahead collecting materials for the model-making and setting these up in the classroom ahead of the workshop (e.g. recycled polystyrene blocks, cardboard, string, tape, glue, craft materials – all found, not bought for this purpose). Even so more time was needed for students to complete models but the teacher was so engaged by the process that she invited us back the next day to complete (approximately 1.5 hours further). By this time some students were ‘off task’ so it was ideal to conclude then.

During the workshop the school students seemed to engage fully with the project brief, i.e. proposing ideas for educating or demonstrating aspects of climate change in a positive way, which could be incorporated into an educational park located on a floating island. In general they were directed towards thinking of this via sustainable living principles. These are the kind of projects they might tackle if they were working within an EFS programme such as the New Zealand developed Enviroschools Programme, which in fact the school visited does belong to. Within the Enviroschools Programme individual schools choose projects to work on within the themes of ‘Living landscapes’, ‘Ecological buildings’, ‘Healthy water’, ‘Precious energy’ and ‘Zero waste’ (The Enviroschools Foundation, 2008). The programme also subscribes to Driskell’s participatory level of ‘shared decision-making’ between adults and children, which is a different level to that which was achieved in the project under discussion here, for the reasons already discussed. In the pre-activity powerpoint session students showed they were well aware of issues of climate change and offered genuine, albeit simplistic, solutions via lifestyle choices that would help mitigate effects of climate change. They really enjoyed the model-making activity and applied themselves fully to the process, including negotiating within their groups about what to include.

There was no problem getting students to talk about their ideas and what they had made but it was clear they had been influenced by the powerpoint content. Three of the five groups created boats or floating structures, which was thought to be derived from the picture in the powerpoint of a ‘floating island’ barge concept for a family to live on, incorporating all sustainable conveniences. This was not unexpected and was a calculated choice when juxtaposed with the risk of the students not understanding what to do.

4. INTERPRETATION OF DATA AND DEVELOPMENT OF DESIGN

Most of the models were examples of ‘green thinking’ rather than ideas for educating about it. However, this was not surprising given the constrained time allowance to develop the idea with the children, ahead of the model building. In fact, in light of this, their responses showed strong understanding of mainstream sustainability issues and great confidence and creativity in graphically representing this through model building, agreeing with findings from Wake (2010) in a different co-design project with children. It also highlights the importance of design being treated as a functional core rather than marginalized by teachers who don’t value it (Anning & Hill, 1998, as cited in Chiles, 2005 p.109). A main impetus for developing this research project to include children was the positive response from the schoolteacher, who clearly thought there was value in involving students in a design process.

From the models and corresponding student annotations captured as a digital movie recording, Cha developed a list of features that the children had represented in their models and emphasized in their descriptions. She began the design process using these ideas to generate her design on the floating island. Two very strong ideas that emerged were to create a forest of bamboo for the dual purpose of making an adventure trail and harvesting stems and young shoots, and a lotus pond, also for harvesting. These ideas came from the ‘Food Production’ model of an “eatable garden” (student quote). However, Cha combined the lotus pond idea with the flower-covered climbing wall on the ‘Green Buildings’ model to create a huge space net frame over the lotus pond so people could climb down to near the water level and sit among the lotus flowers on a platform she designed (see Figure 1). Lotus is a plant much-revered in Asian cultures, the flower having religious significance and many parts of the plant being edible – seeds, young leaves, rhizomes and flowers. Dried lotus seed pods are also used in flower arranging. The café shown in the bottom right of Figure 1 would sell lotus flower tea grown in the park.

The bamboo forest would supply bamboo shoots, an Asian staple food that is rarely available fresh in New Zealand. Demand for this product is likely to grow as numbers of Asian immigrants into Auckland increase greatly over the next 50 years. Bamboo is also very versatile within the building and clothing industries, so it is a plant where many parts are usable, in keeping with the sustainable focus of the park. Meals with bamboo shoots would also be served in the café. Bamboo stems would also be harvested and used as building materials for children’s play (see Figure 2). Cha explored examples of buildable materials in playgrounds and found a recently designed playground in New York City that offers children movable foam shapes for building (www.imaginationplayground.com), in a contemporary take on the post-war
Adventure Playground movement (pers. comm. Roger Hart, April 2011). Her improvement is to use natural materials grown on-site. A further example was found at a children’s garden in Michigan where children could build miniature log cabins using a similar foam material shaped into logs.

A third idea, depicted in Figure 2 came from the student model on ‘Reduce/Reuse/Recycle’. These students created a model dolls house of miniatures made from the polystyrene blocks provided in the workshop. From this Cha explored ways of recycling polystyrene since this is a material that is both commonplace as packing material and difficult to get rid of domestically, except to landfill via household rubbish collections. Information about machinery that melts polystyrene into dense blocks to reduce its bulk for recycling was found (www.kbm.dk or www.brentwood.com.au). From this an idea was developed whereby members of the public visiting the park (including local community members and visiting school parties) could bring their polystyrene to the park for recycling, see recycling in action and then take away the products. Cha devised planter boxes (Figure 2) that could be made from the recycled polystyrene, although she admits that more research is needed on how to turn the melted polystyrene that is extruded from the machine like sausage meat, into the right consistency to pour into a mould to create the planter boxes. These would be used on-site in the park for growing vegetables and herbs, as well as being available for people to take away to grow their own. The fact that polystyrene floats and creates a rubbish problem on water makes an interesting connection with the floating island concept of the park whereby the polystyrene could be seen as floating in as useless rubbish and leaving with a new purpose.

Further ideas were taken from the student models, for example the ‘Renewable Energy’ model featured a car that plugged into a battery fed from a solar panel on the garage roof. This idea led to a design for solar powered ‘dodgem’ or ‘bumper cars’ as part of a fairground-style ride at the park. The ‘Sustainable Transport’ model featured a solar-powered boat that had a “balcony of love” (student quote). While it was understood that this was the fancy of young girls, Cha interpreted it as a need for places for friends to gather in an attractive/romantic setting. This therefore became the platform she designed that is located in the centre of the lotus pond (Figure 1). Couples and friends could climb down to this vantage point and be amongst lotus blooms and water. The solar powered boat idea from the students became a hand-operated cable ferry that visitors could ride from the mainland to the island – tide permitting. Cha’s chosen location for the floating island environmental park was in the Waitemata Harbour of Auckland, near to the commercial and light industrial area of Rosebank Rd, Avondale. This many-fingered harbour is very tidal on it’s western boundary, e.g. Avondale.

4.1. **Reflection on Workshop 2 (Feedback Session)**

Cha returned to the school on 26 September and presented her designs to the same students. They gave feedback both verbally and by completing evaluation forms. The feedback highlighted that students were interested in the design concepts and engaged fully with providing thoughtful comments about developing them further. Some students expressed
concern about children potentially falling in the pond because Cha had not shown it completely covered by the space net in the concept (although it is intended to be). One student had the idea of using the recycled polystyrene as light building blocks for play, which was also an idea Cha had, although she had not developed it further. There were also suggestions of a water fountain by the café and combining the lotus pond with a swimming pool. Unfortunately, while the iterative ideal served the project aim well, in reality Cha did not have time to make changes to her design before final submission, so the new ideas were not resolved or included. On reflection, the project was ambitious for the time available and the first workshop needed to occur earlier in order to allow generous time for design, feedback and changes to design. A significant factor in determining the date of the first workshop was obtaining ethics approval.

5. THE SUPERVISORY PROCESS

This paper has reflected on the rationale, method and analysis of a research-led design project by an undergraduate student in landscape architecture. It is therefore important to consider supervision as part of the process. Cha states in her earlier quote that her project was about learning for herself as well as the participating children and hypothetical future users of the park. The supervisor stands to learn as well, through the process of assisting the student with their project. A key question regarding supervision is what level of assistance is required or should be given at undergraduate level? Students completing the Bachelor of Landscape Architecture at Unitec Institute of Technology do a year-long negotiated research project that is usually a design project. While these students have done many design projects previously in their degree, they have not done any academic research. They do not do a research methods course in preparation for this. This puts a lot of pressure on the supervisor they are assigned to guide them through the process of establishing a research problem to investigate, framing up their project as a question, helping determine methods, showing them how to search the literature, write academically and reference material. Not least is the issue of linking this to design. In our contemporary society of different educational goals at school coupled with increased immigration, significant help with grammar and spelling may also be required. Anecdotally it has been said that design research is different and because the focus is on graphical representation, writing per se is not so important. The counter argument to that is that communication ability is essential, especially in our new working environment of collaboration and multi-disciplinary teams.

There is very little literature available on supervision of undergraduate research projects (see e.g. Heinze & Heinze, 2009; Rowley & Slack, 2004) and even less on undergraduate design research projects. Within the literature it is agreed that undergraduate projects encourage independent learning, depth of learning and development of knowledge and skills (Rowley & Slack, 2004). It is also acknowledged that good supervisor-student communication is essential (Heinze & Heinze, 2009) and it is proposed that there is a need for further research both from the perspective of students’ (I’Anson &
Smith, 2004) and supervisors’ experiences (Todd, et al., 2006). But what of the actual process – for example the degree to which supervisors should prompt students into areas of their own research interests and provide hands-on assistance with planning and executing the project? In the project under discussion the student came with vague notions of climate change, sustainable living and community involvement. This developed, with supervisory encouragement, into a project involving participation of children in design and EFs, both of which are of research interest to the supervisor. The process of guiding the student through the literature was therefore very calculated and the exercise of obtaining ethics approval for the workshops was essentially carried out by the supervisor, on behalf of the student. Having said that it was still a valuable learning experience for the student. It goes beyond the scope of this paper to do more than raise this issue and make the point that more discussion is needed, perhaps led by further research into this area. Todd et al (2006) refer to the benefits of the ‘cosmos’ outweighing the problems of the ‘chaos’ that is created by the uncertainty of the process of supervising inexperienced undergraduate students. Coker and Davies (2006) recommend capitalizing on the ‘cosmos’, which can be defined as the energy, enthusiasm and fresh approach by these students towards time-honoured research norms. In light of the project under discussion here it is felt that this is the case, especially when student’s projects are related or linked to supervisor’s research interests so there is an opportunity of the supervisor benefitting from the high input of time required, by obtaining further research knowledge, results and published outcomes. This is the classic Masters or PhD model, but is not often applied at undergraduate level, at least not at Unitec.

CONCLUSION

The project provided an undergraduate student in landscape architecture with an authentic research project through its engagement with the literature, development of an appropriate method and carrying out data collection, including going through a process of seeking ethics approval. As the project progressed Cha developed skills at analysing data from the first workshop and translating this into design. Overall, it provided insight into the possibility of including children’s voice in design plus valuable experience at managing a process of participation with children. The literature cites benefits of co-design projects with children as bringing a fresh approach and enthusiasm to the design table as well as it being a learning and empowering process (Ittus & Hart, 1995; Sorrell & Sorrell, 2005; Wake, 2010). Although there was no assessment of learning carried out within this project, students certainly provided rich ideas to the design process and their full engagement and enthusiasm can be read as them having enjoyed the process and possibly gained some knowledge both about climate change and the stages of design. In addition the undergraduate student hugely enjoyed the opportunity to work with the school students. The experience is therefore felt to have been very worthwhile and provide benefits to all participants. It has certainly shown that it is possible and worthwhile to include children within a design process, in this case landscape architecture.

The project itself is very current in that it tackles issues of climate change and community education. Another project by De Urbanisten is for an ‘energy forest’ planned for a motorway route near The Hague where urban development has stalled due to the recession (De Urbanisten, undated). This will both generate renewable energy, create biodiversity and provide public recreation in a way that reveals and educates. An algafarm will heat an outdoor pool for swimming and the forest will have hiking and biking trails as well as being harvested for biofuel that will heat homes nearby. This is similar to Cha’s idea of an educational park that will mix recreation and learning, while incorporating recycling and reuse of materials in a way that will promote further learning.

Finally, the supervisory process has shown gaps in student and supervisory knowledge and skills, but also has provided valuable experience for both. This has particularly been the case due to the encouragement for the student to pursue a project within the supervisor’s research specialty. In an undergraduate project such as this, such an approach offers benefits of greater assistance to the student and potential research outputs for the supervisor. It is recommended that research into this area should be carried out.

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