School Ground Greening:
Developing a model for comprehensive design with multiple benefits

Qian Wang
ID: 1452262

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Abstract

It is proposed that school ground greening has the potential to enhance children’s relationships with nature. This project takes an educational approach through involving landscape architects’ commitment to education and enhancing the health of local social and natural environments. Rationales for the resurgence in interest (over the last decade or so) in school gardens focus on perceptions adults have about modern childhood and schooling; for example, that children lack physical activity, are facing an obesity epidemic, and battling inflexible educational systems – raising concerns about children’s diminishing contact with nature and natural systems. Research on school ground greening projects (which is an overarching term including school gardens) has established that there are many benefits, due to increasing children’s connections with nature on a number of levels, such as developing earth guardianship responsibilities, learning where food comes from, learning about science and ecology, encouraging physical exercise and imaginative play.

This project will investigate the claim that many school gardens have limitations in terms of their scope and children’s participation, especially in their planning and design. Instead they are frequently designed and constructed in an ad hoc manner by teachers and volunteers, missing the opportunity to both engage children in a process of learning about design (co-design) and to create ecologically richer school grounds that are ecologically-focused, creative, encouraging of indoor-outdoor connections, considerate of maintenance, and provide ecosystem services within communities.

Research was conducted with 28 students from a west Auckland School who worked with this author to develop a greening plan for part of their school grounds. This process and results are presented here and indicate that students gained environmental and design knowledge, especially due to their sense of ownership, which the project espoused.

Keywords: School ground greening; children; co-design; landscape architecture.
Authenticity Statement

I confirm that:

• All the work included in this thesis represents my own work.

• The contribution of supervisors and others to this work was consistent with the Unitec Code of Supervision.

• Research for this work has been conducted in accordance with the Unitec Research Ethics Committee Policy and Procedures, and has fulfilled any requirements set for this project by the Unitec Research Ethics Committee.

Candidate:  Qian Wang
ID:  1452262
Date:  July 2017
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1 Research Proposal

Introduction
Research Rationale
Research Question
Research Aim
This chapter describes the benefits of school ground greening (SGG) projects, as a rationale for inviting both landscape architects and children to cooperatively work together to extend the value of the SGG project. This chapter includes the current status of SGG projects and children’s environmental learning in the Auckland region.
1.1 Introduction

In this section I will first introduce the benefits of school ground greening projects, and identify common New Zealand school conditions as background information for this chosen project. I will follow by outlining the relevant literature as a rationale for the design method chosen.

School ground greening (SGG) is the general term used for the improvement of school grounds with landscape design interventions (Dyment, 2005). This often involves creating school gardens, for example, for flowers, food, native habitats, water management, and the placing of art and sculpture (Wake, 2015). According to Wake and Birdsell (2016) there has been a resurgence of SGG projects and school gardens, particularly in the last decade, with significant numbers of schools in many Western nations adding some sort of garden area. This has occurred in response to a number of concerns adults have about children's learning and experiences, as well as general public concern with local and global environmental matters. These concerns can be summarised as follows:

- Inflexible education systems (Williams & Brown, 2012).
- Obesity (Williams & Brown, 2012).
- Diminishing experiences with nature (Kong, 2000; Louv, 2005).
- A lack of physical activity (Dyment & Bell, 2007).
- Little understanding of where food comes from (Passy, 2014).
- Little understanding of ecological relationships and processes in general.
New Zealand schools traditionally had generous grounds allocated for play (as playgrounds and free play) and sports (rugby, soccer, netballball, cricket, etc.). According to Wake (2015) the grounds also have great potential for encouraging students’ learning and developing a sense of place. As land values increase, alongside awareness of the environmental role grounds could play, such as in environmental education and provision of valuable green corridors for birds and other organisms within the city, there is a valid case to be made for better design of existing school grounds. Wake (2015) believes this should also embrace children’s views and participation as an authentic, real and relevant (i.e. local) learning opportunity, which encourages ownership and empowerment as well as potentially leading to pro-environmental behaviour (Chawla & Cushing, 2007). According to Wake and Birdsall (2016) the benefits of SGG projects can be summarised as:

- Environmental learning (Williams & Brown, 2012).
- Soft skills (e.g. leadership, organising ability) (Wake, 2010).
- Physical exercise (e.g. reducing obesity) (Dyment & Bell, 2007).
- Bio-diversity & ecosystem services (Danks, 2010).
- Appreciation of food and nature (Louv, 2005; Passy, 2014).
- Maths and science learning (Williams & Brown, 2012).
- Cultural integration (Cutter-McKenzie, 2009).
- Stormwater management.
- Urban climate amelioration.
- Visual amenity.

Figure 3. The benefits of School Ground Greening. Graphic, Qian Wang, 2016
In New Zealand, there is a strong connection existing between school ground greening projects and the environmental education programme Enviroschools, which is managed by the Toimata Foundation, a registered charity (Enviroschools, 2010). One third of all New Zealand schools belong to Enviroschools (Toimata Foundation, 2015). However, this programme is focused on environmental learning, not necessarily design. There seems to be a clear role within this programme for landscape architects to be part of creating outdoor learning experiences for children, benefiting not just children, but also the environment.

SGG is mostly done by schools themselves, and very often by individual teachers. According to Wake (2015, p860) this can lead to "potential problems of disillusionment due to over-burdening and/or lack of knowledge (Passy, 2014), or the departure of the staff member is possessing the knowledge, so the process collapses. Schools are usually short of money, especially for 'non-essential' items such as gardens and creation of natural environments". If landscape architects were more involved in SGG, e.g. working in a partnership with the school (including students) the resulting landscapes could be better suited to the learning needs and maintenance capacity of the school.

To test this proposition, I analysed participatory theory and investigated co-design case studies, to ascertain whether these examples could achieve the aim I am interested in.
1.2 Research Rationale

1). Researcher interests

I come from the different discipline of graphic design, although I have a strong interest in environmental issues. I care about children’s future relationship with the environment and their overall health, especially with the increase in the presence of technology in children’s lives from a young age – creating a potential barrier to spending time outdoors. I want to engage in a research-led design process that is focused on increasing environmental awareness within schools and expanding environmental benefits from greening school grounds in urban contexts, and I believe this project will give me valuable design and research skills that I can use in a landscape architecture career in China.
2). Describing the significance of this project

First, I will introduce the current status of school gardens and SGG projects. According to Wake and Birdsall (2016), there is a lot of general, published information about school gardens and SGG, often focusing on extolling the benefits of school gardens and providing ‘how to’ guides (Gaylie, 2009; Danks, 2010; Williams & Brown, 2012). Wake and Birdsall (2016) found there is a considerable body of literature about the benefits to children’s learning and lives through being involved in school gardens, although three American reviews of the literature in the last decade have all concluded there needs to be more consistency in conducting research and collecting data (Ozer, 2007; Blair, 2009; Williams & Dixon, 2013). Schools face a number of issues in establishing and maintaining school gardens with the common situation being that schools rely on a few teachers, caretakers and interested parents to keep the gardens going and the fundraising efforts of the whole school community (Dyment, 2005). According to Wake (pers.comm.20/10/15) this is especially difficult for food gardens, since these are hungry for water and nutrients, especially during summer when schools are closed for a long break.

Even when a school garden programme is running successfully, one could argue that the very idea of a ‘garden’ means the greening project is limited to a designated area, rather than using and connecting a system of open spaces that is usually available but typically ignored.
Parnell, Cave and Torrington (2008) summarised the relationship of opportunity in school design collaboration to form an outline model, see Figure 5. This shows management of school design throughout a participatory process, in order to influence the level of involvement of both professionals and participants.
3). The importance of the involvement of Landscape Architects

Landscape Architects (LAs) are the best-positioned professionals to provide much-needed design assistance for SGG, plus, according to the NZILA website (n.d.), they have a commitment to educate and improve environments.

However, according to Wake (2015), in spite of documented benefits of design practitioners working with children, it seems that landscape architects in New Zealand are commonly not involved in school ground greening projects. There are various reasons for this, including budgetary constraints due to the lack of funding from the Ministry of Education. Instead, schoolteachers or parent groups often undertake SGG projects, managing design, construction or maintenance, even though they may not possess any professional knowledge or the commitment required (Passy, 2014).
4). The importance of SGG for the wider community

There are certain benefits of environmental learning for children and communities, which can be seen as ‘ownership’, through the investment of their time and ideas, in long term improvements – such as cleaning up a creek, reducing rubbish and waste, and cutting energy or water use (Toimata Foundation, 2015). Flowers and Chodkiewicz (2009) found that the interaction between schools and their communities, in agreement with Uzzell’s framework, could occur on four levels, of which the most fruitful for learning is schools working with the community as active social agents.

It is proposed that greener school campuses are an important element of an overall greener urban environment. They can hugely assist in elevating the overall liveability, sustainability and resilience of cities, towns, suburbs and neighbourhoods.

Based on the research rationale into my research question and aim to the below part.
1.3 Research Question

How can the value of SGG projects be increased for all stakeholders and their communities through a co-design process?

1.4 Research Aim

The aim of this research project is therefore to develop an appropriate method template for landscape architects to use in participatory design projects with schoolchildren, which I will test within a school in order to:

- Improve environmental learning and promote biodiversity.
- Engender student ownership and a sense of place and environment to encourage responsible behaviour.
- Ensure effective, practical and creative design solutions.
- Provide experience for landscape architects in designing for/with children as well as teach students about design.
2 Theoretical Background

Consultation compared to Co-design
Participatory Theory
LAs and Children's Participation in Design
National Programmes for SGG
Case studies
This chapter describes the theoretical background to this study, which includes the definition of co-design, compares it with consultation, then follows with a description of the underpinning participatory theory and how this may be applied within landscape architecture. It then gives a summary of environmental and school ground programmes in Auckland, including Enviroschools, since this New Zealand schools-based programme has a philosophy that is empathetic to a co-design process between children and adults.
2.1 Consultation compared to Co-design

According to Parnell (2014), the process of consultation is defined as a structured process. This process invites different parties to express views on a proposal, and infers commitment to consider participants’ views and provide feedback. This cooperative action is focused on gathering information rather than initiating design. By comparison, in co-design processes (figure 7) users work directly and collaboratively with the design team, also participants take a hands-on role to develop the design project. The participants therefore have the initiative to continue contributing to the design project in the next stage (Parnell, 2014).

The process of co-design is important to the success of a co-design project both pedagogically for teachers and students, and professionally for designers (landscape architects) (Wake and Cha, 2012). This co-design approach process can lead to improved design ideas due to the involvement of several parties in a design process. The main clients of this project are children, and they can offer various design ideas, and provide rich learning opportunities between professionals (landscape architects) and children (Wake & Eames, 2013; Patsarika, 2014).
Parnell (2014) believed that co-design process can also create long-term opportunities for other members of the community to observe and learn from the outcomes of a process. Possible beneficial outcomes for designers include enhanced design ideas, which is a better learning opportunity about the way to work with children and design for them; and this co-operative process can generate a positive profile to potential clients (Wake & Eames, 2013; Patsarika, 2014).

Furthermore, this approach when successfully applied can release children’s creativity because these young people are natural designers (Francis & Lorenzo, 2002); these children are also more familiar with their environments. Besides, involving students can increase children’s ownership of a space due to feeling control over learning (Wake, 2010; Green, 2014).

Recent evidence suggests that children’s cultures and ‘ways of being’ might be particularly helpful in assisting creative exchanges with designers (Parnell, 2011). The Auckland Plan of 2012 identified ‘putting children and youth first’ as a priority and led to the drafting of the children and Young People Strategic Action Plan, I am Auckland in 2014 (Auckland Council, 2014), which was a collaborative process with young people. This signals a willingness within local government to give children and youth a say in the development of their environment.
2.2 Participatory Theory

My research is developed under participatory theory, which is a significant development in the interactive involvement of children or other participants in the initiation, design and management of projects (Francis & Lorenzo, 2002).

Underpinning the co-design approach is a body of knowledge about how to include a variety of individual aspects in design projects. Using participatory theory is appropriate for projects with children for a number of reasons. One significant reason links with Article 12.1 of the United Nations Convention on the Rights of the Child (CRC), stating it is children and young people’s democratic right to participate in matters affecting them (UNHCHR, 1989). This is a fundamental statement that has led to a whole theory and concept of the user as participant, or co-designer.

The illustration to the left is based on Hart’s theoretical frameworks of participation, applied to decision-making shared between adults (e.g., designers) and young people (e.g., school students). This is a tool for rating interactivity in projects relevant to this study, about children’s environmental learning and participation. As it shows, the bottom level – non-participation – is just tokenism, at best. However, the top level of Hart’s (1997) Ladder of Participation, “Young people and adults share decision-making”, is not necessarily desirable or even appropriate in every situation. For example, designers need to ensure that children have a choice about whether or not to participate and that children should clearly be informed about the project’s aims, roles, processes and limits, and they need be treated with respect (Hart, 1997).
Furthermore, Malone and Hartung (2010) claim that when the participative condition includes children, this is often presented in an adult-centric structure and therefore does not challenge the dominant leadership roles (e.g., adults or designers). In addition, many adults also believe that children are not capable of, or should not take the place of, adults in decision-making responsibilities. This raises the importance of distinguishing between consultation and co-design with children. As Parnell (2010) identified, architectural co-design with children involves them working directly and collaboratively with designers to contribute and make decisions within the design process, rather than in a purely consultative role.

Figure 9. The relationship of both designer and participants. Graphic: Qian Wang.
2.3 Landscape Architects and Children’s Participation in Design

In New Zealand, landscape architects often have an important role in creating outdoor learning environments and in propagating environmental values through their work (NZILA website); they are professionals with wide-ranging knowledge in design and the environment. In the previous chapter, I described the potential benefits of LA's involvement in SGG projects since they bring creativity and environmental knowledge and this could be combined with encouraging stakeholders' ownership of the design and subsequent space.

Children’s participation in such design work has gone through different 'fads' or phases over the years. Francis & Lorenzo (2002), point out seven realms of children’s participation. At an early stage, called the ‘romantic realm’ (children as planner), children are the planners of their own environments. Clearly, this work contributed to the children's rights movement, the concept of children as important individuals, as well as the long-term benefits of participation. Another realm is the ‘advocacy realm’, also called planners for children, letting children's decision-making overrule the designer’s ideas, sometimes to the point of ignoring the official decision-making process. The ‘needs realm’, (social scientists for children), identifies the spatial needs of children and combines them into design work. It acknowledges that when users or stakeholders have a strong sense of a place or their community, they are more likely to respond positively to efforts to solve community issues. They will also be more willing to provide their input, and even to contribute their time and resources.
Furthermore, within the ‘learning realm’ (children as learners), children can understand outcomes of planning and design due to their experience with this collaborative process. Obviously, participation in this context is a concept embracing a variety of decision-making forms with a number of participant groups into design work. However, the next realm called ‘institutional realm’, which treats children more like adults, which can interfere with the designer because they lack knowledge and experience of designers or adults in the design process.

The last type Francis and Lorenzo (2002) propose is called ‘proactive realm’ or ‘participation with vision’, so clearly, this reflects thinking and practice of participation as a visionary process. It also focus on the balance of participation throughout a communicative process that includes children, plus adults as children through a design process that recreates childhood.
2.4 National Programmes for School Ground Greening

In this stage I am going to introduce certain relevant national programmes, and summary these programme’s useful points to my research project.

Garden to Table Programme (2008) in New Zealand (www.gardentotable.org.nz)
This programme is changing the way children approach and thinks about food. The key focus of this programme is focused on learning how to grow, harvest, and prepare food. Besides, share fresh and seasonal food.

This programme focuses on the process of growing to cooking, and the useful points for my research is,
- empowering children
- learning-focused
- outdoor activities, and relevant with gardens.
However, this programme does not include co-design.
Engineers in Schools Programme was involved with Royal Road Primary School (the school went on to become my site) on a wind turbine project in Auckland, New Zealand. In 2010, the school needed a solution for their water pumping problem. Their water tank in the plant nursery was full and they had no way of using water, as the pressure was too low for the hoses to run for irrigation. They had no power nearby so a registered engineer worked with a class of children to design a wind turbine, which they fundraised to purchase and install. Engineer got children to do research and make decision. The usefulness to my research is:

- involving school children to participation
- workshop focus (It included collecting ideas and model making workshops)
- learning focus
- outdoor activity, relevant to design.
The Enviroschools Programme aims to create a healthy, peaceful and sustainable world through facilitating action-learning; where inter-generations of people work with and learn from nature (Enviroschool website). This programme benefits students as follows:

- A sense of belonging and contribution.
- Recognition of the different skills and qualities of themselves and others.
- Skills of working together, making decisions, planning and taking action.
- Increased confidence.
- Hands-on practical ways to engage with environmental learning and curriculum.

The Enviroschools Programme is well aligned with my project, as demonstrated by figure 16 through the:

- Action learning (reflective process)- cycle
- Shared decision-making
- Environmental focus
- Outdoor

**Figure 16. Enviroschools Methods. Graphic, Qian Wang. Cited from Enviroschool Website.**

**Figure 17. Enviroschools Programme, 2008 Cited from http://www.enviroschools.org.nz**
Enviroschools is a New Zealand-based nationwide programme for pre-, primary and secondary schools. This programme focuses on Education for Sustainability (EfS). The Enviroschools programme is managed by the Toimata Foundation. However, while the programme is environmental-learning-focused it is not design-specific, in a similar way that while landscape architects in New Zealand have a clear role in creating outdoor learning environments and in advocating both for human and environmental values through their work (NZILA), they are not trained educators.

It is known that approximately 31% of New Zealand schools (pre-school, primary, intermediate and secondary), nearly 1,000 schools have joined Enviroschools (Enviroschools, 2015). According to Enviroschools website that Enviroschools focuses on environmental learning through action, and most Enviroschools will carry out SGG, but they may choose other projects to focus on, such as rubbish, recycling or traffic reduction. There are 82% of schools/ECE centres who said that the Enviroschools Programme helped them foster community connections (Enviroschools, 2015). In this same research nearly all schools report they have SGG activities.
From this analysis of NZ school-based environmental programmes, there are none in New Zealand using a participatory design process, although the schools-based environmental education programme of the Toimata Foundation (Enviroschools) is empathetic with a participatory design process. This is due to their practice of “shared decision-making” (see figure 19/20) between adults and children, as proposed by Driskell (2002), which is enacted via their action learning cycle that is recommended for all projects (The Enviroschools Foundation, 2008).

In summary, there are elements of the Enviroschools programme that are compatible with a co-design process, such as are being proposed by this research project. In developing a suitable method I will now consider a number of relevant case studies both from the literature and professional practice.

For the research project being outlined in this paper the importance of focusing on process, as recommended by Wake (2010), will need to be balanced by the limitations of time, and with regard to the distinction between consultation and co-design. 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.
2.5 Case Studies

2.5.1 Gulliver’s Mapping Method Analysis

A recent example of the use of Gulliver’s Mapping method was the Freyberg Square project in Auckland CBD, which was a ‘Child Friendly Audit’ designed by researchers from Massey University’s Whariki Research Centre (Auckland Design Office, 2015). This project used a version of Gulliver’s Mapping as described by Driskell (2012, p. 158) and based on an idea by Japanese architect Junzo Okada. Gulliver’s Mapping (see figure 21) involves the designers providing large-scale maps to which participants (e.g., children) can add photographs, and their initial memories, ideas and comments about the design site.

Figure 21. Gulliver’s Mapping method.
Case study 1.
Freyberg Square project, 2015. (Two workshops)


Freyberg Square project included two design charrettes, related to the co-design workshop. At the first workshop, a group of students went outside to photograph things they did/didn't like about the square, and at a second charrette they refined their ideas and built models to contribute to the design. At the final workshop the design team from Auckland Council presented the design, and asked children to evaluate the process they had gone through. This project used more of a consultation method in the initial stage of the project, rather than collaboration with children at the later stage, as identified by Driskell (2012). The Gulliver’s Mapping method focuses on students’ input at the initial stage of a project, which means it is a form of consultation to the design. As Parnell (2014) points out, consultation is a structured process involving a variety of parties in order to collect their views on a proposal. However, in co-design processes, participants usually take a hands-on role and work directly with the design team, encouraging collaboration in the designs.

The third workshop also showed how design staff had responded to the information from the children’s input. The reflective feedback from the children on how they found the process, was a useful and positive process, concurring with findings discussed earlier about the reciprocal benefits of co-design for both children and practitioners.
Case study 2.

Sydney landscape architect Fiona Robbé (2012) has combined her work on creating environments for children with the use of Gulliver’s Mapping method when consulting with children on projects. This park is a new playground, developed in consultation with the community, and local schools, led by play expert Fiona Robbe. The method she used which is a community participation process that employs huge scale photographic maps of the area being designed. Children as participants add their ideas and memories about the site as ‘footprints’ in the form of photos and sticky notes. As the designer Fiona Robbé who is specialising in children’s environments, she compares these information into reports for the client in order to encourage them to include comments from this community participation within the design. (Fiona Robbé, 2015), since it is intended to make the space more appealing to younger people.
From these two case studies' I decided to include the following in my method:

- To include some time in workshop 1 to teach children some design knowledge/principles which means this process will be richer in encouraging ideas and stories of the design site.

- Invite the children to provide reflective feedback on how they found the process

- Invite more input from the children on their design ideas and allow them to develop these through model-making.
Case study 3 - Academic research study (Conceptual Content Cognitive Map (3CM) Method)

A further case study illustrated the application of the co-design method; managed by researchers Rottle and Johnson (2007), the project was the design of an ecological park called Magnuson Park in the United States. The designers conducted three sessions of design charrette process work with 9-11-year-old students to design this park as an outdoor learning laboratory (figure 27), which was not intended to be constructed. This project not only focused on the design outcome, but also on developing the children’s environmental learning through the design process. This project included an ideas session (one hour) (figure 28), where the students worked in small groups to create posters of ideas for park elements.

The photos to the left shown model-making session, where the same facilitated groups of students showed their craft and spatial arrangement abilities in their designs for the park. Finally, there was a brief reflection session (postcard evaluation) that asked students to give feedback on the learning they gained from the design process. The difference with the former example is that this project used a conceptual content cognitive map (3CM) developed by Kearney and Kaplan (1997) (Micic, 2001; both cited in Rottle & Johnson, 2007), which focuses on students’ ownership of ideas that serve as a cognitive map of their understanding of issues in managing information.

This method is a useful description of how to manage participatory planning of recreational spaces with children. Although in this case study the design workshops followed a six month study of different aspects of the park, it is felt that the schoolchildren in my study are already familiar with the site so some of the activities used (e.g. child-guided walkabouts, photos, models and drawings) will not be as necessary in my research project.

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.
From 3CM method (Rottle and Johnson’s case study), the useful points to my research is:

- A simplicity and an iterative process
- A workshop basic and group focused process
- Empowering school students
- Collected ideas very simply (post-it notes), followed by a model-making session (included in a hypothetical sustainability education theme park).
- Provides a perspective on how these students manage the ‘ideas phase’ of the design by organising the ideas into themes.
- Used an evaluation by the children, parents and school staff.

This process included children’s voice throughout the process, and what they have learnt from being part of the project. As such, it is the closest I have found to the method I am seeking.
3 Method

Establishing My Hybrid Method
Reason for school selection
Schedule for the Project
Ethics Approval Application
In this section I outline the key method used in this research, based on the literature and previously described case studies.
The projects discussed in the previous section all offer something of value to the development of using a cooperative method that will be tested in a school ground greening project within a New Zealand primary school by a landscape architecture student. In order to keep the process simple and low in required resources, it is decided to use the sticky notes for ideas rather than more complex methods such as children taking photographs (e.g. in the Freyburg Sq example). I also focused on developing a process that involved design charrettes. This is a simple method for a short time frame without too much time requirement for both landscape architects and participants, while allowing the input of ideas by students and other stakeholders into this shared decision-making design process. Incorporating Gullivers’ Mapping and 3CM (Magnuson Park) methods, my hybrid method will include a poster session for ideas collection, which will prepare the students for the model-making session. This will show the spatial arrangement of design elements. The design brief is to increase biodiversity, social areas and active exploration.

Following the poster and model-making sessions I will work on a draft design that will be based on the previous two workshops - ideas collection and models. The final reflection stage, when students provide feedback on the design and the learning they gained from the several stages of the design process, will be a direct and accurate way of collecting and guiding students’ requirements into the design.
Therefore, my project hybrid method is based largely on the method described by Rottle and Johnson (2007), and offers simplicity and an iterative process that I believe should be well fitted for the project undertaken. In addition, it is hoped that the conceptual content cognitive map (3CM), described by Johnson and Rottle as an earlier development by Kearney and Kaplan (1997), will provide another perspective by getting the students to manage the ‘ideas phase’ of the design by organising the ideas into themes.

Furthermore, this hybrid process also combines elements of the Freyberg Square project, which included an evaluation by the children of how they found the process, so this will be included since the concept of including student voices throughout the process is very important and respects these participants. 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 Rottle and Johnson’s third workshop charrette.

**Methodology** - to frame my style of research that is:
- Research with children, includes activities /design charrettes /observation (photos)
- Data analysis, due to this is a quantitative research.
- Design charrettes (workshop basis, group focus and short time frame)
- Practical activities with powerpoint, and design site visits
In preparing for this project, we (my supervisor Sue Wake and I) talked to the Enviroschools Auckland co-ordinator Sandy Bell, regarding SGG examples in Auckland. We also spoke with landscape architects with experience in children’s environments, for example, Sarah Collins of Boffa Miskell. In addition, we discovered that Royal Road Primary School is also an Enviroschool with a history of early SGG projects, including an Engineering in Schools project to build a wind turbine to power a watering system for a propagation unit (2012) (see figure 31/32).

3.2 Reason for school selection

Figure 31. Engineering in Schools project (The wind turbine), 2016.

Figure 32. The overview of wind turbine, 2016.
Royal Road Primary School was chosen because is an Enviroschool with a history of early school ground greening projects; it has benefited from an Engineering in Schools project to build a wind turbine to power the watering system for the propagation unit (see figure 33). The school was recommended by an Enviroschools Programme Facilitator – it is a decile 2 school with an ethnically diverse roll of 300 students in years 1-8.

Royal Road Primary School is located in the west of Auckland in the Waitakere area just beside the State Highway 16, which is easily accessed from Unitec. Furthermore, it has a progressive principal who welcomed my project and was open to student involvement in the design.

**In summary, my research school needed:**

- Willingness to engage in a collaborative design process.
- Interest in developing their school grounds in a sustainable and ecologically focused way.
- Easily accessible.
- The project needs to be of a manageable size, in terms of both the site and number of children to work with.
- To be in Auckland for the convenience of repeat visits.
In May 2016, my application for research ethics approval was granted by the Unitec Research Ethics Committee (16th May 2016), which gave me approval to work with a year 5-6 class of 28 students to develop my research project.

Two meetings were held with the teacher to agree and plan the process, which was decided to be held as four workshops with the school students, in line with findings from the literature about the value of design charrettes and model-making. My Ethics Application files that includes the information for students invited to take part in the project (see appdinex 03), information for parents / caregivers’ participatory form (appdinex 04,05), the design evaluation (appdinex 06), and the postcard evaluation (appdinex 07).
3.4 Schedule for the Project

The teacher agreed to introduce my research topic to students the week before the first workshop, and the following week we ran the model-making session using recycled materials. Below is the schedule for the research during the two semesters, which also included my school workshops. This clearly shows how I developed and updated each workshop’s outcome and data information, and how this data collection guided the further design work.

<table>
<thead>
<tr>
<th>Date</th>
<th>Name</th>
<th>Activity</th>
<th>Location(Resources)</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 16</td>
<td>Ethics Application</td>
<td>Hand in ethics forms</td>
<td>Unitec</td>
</tr>
<tr>
<td>May 24</td>
<td>Workshop 1 (School visit)</td>
<td>3 hours/ poster session</td>
<td>Royal Road Primary School</td>
</tr>
<tr>
<td>May 31</td>
<td>Workshop 2 (School visit)</td>
<td>3 hours/ model-making session</td>
<td>Royal Road Primary School</td>
</tr>
<tr>
<td>June 23</td>
<td>Qian’s workshop 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aug 25</td>
<td>Qian’s workshop 3</td>
<td></td>
<td>Unitec</td>
</tr>
<tr>
<td>Sep 22</td>
<td>Workshop 3 (School visit)</td>
<td>Draft design, design evaluation</td>
<td>Royal Road Primary School</td>
</tr>
<tr>
<td>Nov 3</td>
<td>Workshop 4 (School visit)</td>
<td>Final design, postcard evaluation</td>
<td>Royal Road Primary School</td>
</tr>
<tr>
<td>Nov 17</td>
<td>Qian workshop 3</td>
<td></td>
<td>Unitec</td>
</tr>
<tr>
<td>Nov 21</td>
<td>Print the final design for school in A1 size</td>
<td></td>
<td>Royal Road Primary School</td>
</tr>
</tbody>
</table>

Figure 34. The illustration of this project plan. Graphic, Qian Wang. 2016.

Figure 35. The schedule of primary school visit and my Unitec school workshops. Graphic, Qian Wang. 2016.
3.5 Method Summary

As this project is concerned with co-design ideas, expressed through design, it is a qualitative study. Through contact with a local primary school whose principal was interested in this research and design, it was agreed that his year 5-6 class could participate in the process.

And my project method is intended to run four workshops that represent a combination of Johnson and Rottle’s (2007) method alongside the Gulliver’s Mapping method as applied by the Freyburg Square project (2015)

- Workshop basis and group focus
- From the beginning my method will be focused on encouraging rich ideas and stories from school students on how to design the space.
- Following ideas collective sessions I will work on a draft design that will be based on previous two workshops data analysis.
- Explaining to students about the process at the end, in order to invite them to provide feedback for the design work, and then understand their learning through this participatory process.
Design Process and Discussion

- Summary of planned workshops
- Site selection
- Workshop 1 Description
- Workshop 2 Description
- Draft Design
- Workshop 3 Description
- Workshop 4 Description
In this chapter I will present the details of the four workshops with the Royal Road Primary School students, based on the hybrid method introduced in the previous chapter.
4.1 Summary of planned workshops

There will be four workshops with senior students from an Auckland Primary School:

**Workshop 1** – Poster session. Students will be shown a Powerpoint to introduce the design brief and the process, plus design terms. A site visit will be included. Back in the classroom, they will be shown some examples of SGG projects and then work in groups to create posters of their ideas. Students’ ideas will be put onto large sheets of paper and groups vote for their top three ideas. Finally, all groups then gave a short presentation to present their ideas to the class. The session described above is organised according to Johnson and Rottle’s method (2007).

**Workshop 2** – Model-making session. This will be held one week later, because of the preparation necessary for model making. The session begins with a review of the previous learning, followed by the construction of models in groups, using ideas generated the previous week. This session is also based on Rottle & Johnson (2007).

**Workshop 3** – Presentation and evaluation of a draft design. During two hours I presented and invited students’, evaluation of my draft design. This workshop was based on the Freyburg Sq example, except that in my method an opportunity for feedback and consequent design change was included. The idea was to improve the draft design and raise the level of participation. Feedback was also invited from school staff and parents/caregivers via a voluntary questionnaire.

**Workshop 4** – Presentation of final design and evaluation of the design process and learning. This will be held shortly after workshop 3. The final design is presented to the students and they will be asked to evaluate the process and the learning (as per Rottle & Johnson and Freyberg Square.)
4.2 Site selection

4.2.1 School for the Project

In the following section, I provide information about the New Zealand region where my chosen school is located (figure 36), and further information on the Enviroschools programme.

The historical development of Waitakere. The major historical timeline of Waitakere is presented in Figure 37. As the map shows, Waitakere (formerly Waitakere City) is a district in the west of Auckland, New Zealand, which was governed by the Waitakere City Council from 1989 to 2010. It was New Zealand’s fifth largest city, and is now part of Auckland City.
Based on Auckland Council website information, in the twentieth century, industry and service trades started to grow, which saw the improvement of transport links with Auckland City, such as the Northwestern Motorway, whose first section opened in 1952. The Waitakere Council developed the ‘Greenprint’ (1999) and declared itself to be an eco-city, following its adoption of Agenda 21, a UN initiative for sustainable cities developed at the 1992 Earth Summit for sustainable development. In 2010, Waitakere City was merged into a single Auckland City governed by Auckland Council (Auckland Council, 2012) (see figure 37). This site selection is also match with the guidelines from Ministry of Education on School Ground Greening project and schools’ locations. It can be NZ primary curriculum, and survey closed the school grounds in Mt Albert, PtChev, or Waterview area.
4.2.2
Site Photos

- Worm bins (beside sand pit)
- Pohutukawa trees (beside classroom 19)
- Muddy area (behind classroom 19/20)
- Bush area (north-west of school)
- Classroom area
- Rugby field
- Cycle track

Figure 38. Site Photos, 2016
4.2.3 Area for design (existing problem) Rationale - based on site analysis.

1) Behind classroom 19/20
See figure 42, the green area behind classroom 19/20, it becomes muddy during winter rain due to stormwater discharging under classroom.

2) The bush area
This is quite crowded with native plants and some unnamed non-native plants. I propose this space can be designed to include some adventure space, active exploration and learning for school children.
4.2.4 Landscape Analysis

Contour of site - Underground services

Figure 41. Contour map (1:5000)

Figure 42. Waitakere Underground Services (1:5000)
Figure 43. Royal Road School Underground Services (1:1000)
Based on the geographic information system (GIS) analysis of the Waitakere area and the site of the school, it was found that there were few underground services in the designated available design area.
From this I chose two areas of the school grounds for the design site - including a small bush area in the west of school, and a sloped grass area with trees extending behind classrooms 19 and 20, plus a small flat concrete area near the sandpit (Figure 45). It is important to note that there is a gentle slope just behind the classroom, which often experiences slight flooding in the winter months. This area, behind classrooms 19/20 has heavy clay that is very muddy during rainy season in winter.

Having spoken to the teacher and following the aim of my research, I developed a design brief to:

a) Increase environmental learning and promote biodiversity;
b) Encourage activity and exploration;
c) Provide for cooking, eating and socialising;
d) Provide a place for watching sports on the field.
On May 24th 2016, I conducted my first workshop (poster session) with 28 school students, a teacher aide, and my supervisor to assist. The workshop ran for approximately three hours, and was divided into parts. Initially, I gave a half-hour Powerpoint to introduce my design brief (Figure 51) and describe the design aims. The presentation also included certain relevant design terms, such as site analysis and landscape concepts (e.g. landscape features of slope, shading, sun and wind direction, active and static space, measuring methods) (see Figure 52).
This was followed by another half-hour period, when we went outside to the design site so the children could undertake an activity to test and confirm their simple questions (e.g., the sun and wind direction, the length of the design site). The purpose of this activity was to guide students to put design concepts into practice, for example measuring with tapes (see figure 49-51). Students also measured the site by using alternative methods such as stretching out their arms and joining hands with each other. Learning about the site and the presentation. Students completed worksheet questions, for example, seeing and feeling the sun and wind direction, measuring the size of the bush area, choosing their favourite spots, and so on.
Back in the classroom, I showed some examples of SGG projects and then put them into five small groups of 5-6 students to generate ideas for making a better outdoor learning space. The poster session started around 10 am, with students creating ideas on colourful sticky notes, and some students who were good at illustrating their ideas drawing small pictures. During the idea collection time, I walked around these groups and gave them some assistance by using my landscape architecture knowledge.

I reminded myself about the key points of the co-design method, such as providing the children space in order to not intervene too much, to avoid influencing their ideas. Though it is important to encourage students’ ownership of this design process, it’s also important to keep them aware of the design brief.
At the end of the post-it note activity, ideas were meant to be organised into themes, only one group managed to do this and put onto large sheets for each group. The groups then were to vote for their top three favourite ideas. After that, each group gave a short presentation to the class.
4.3.1 Workshop 1 Reflection (clipboards for children)

The first school visit went quite well, with students interested in our workshop activities. However, some unexpected situations emerged, such as:
- Damaged measuring equipment and
- Some misunderstanding of the voting system during the poster session (they all voted for themselves!).
- Some ideas presented were inappropriate (e.g. gangs & guns) (see figure 61).

So there still needs to be some improvement, which could lead to better management of the student groups. Also back in the classroom, during the poster session, certain groups were a little lacking in attention at the beginning, although on the other hand some groups came up with many relevant ideas (figure 62, 63), which would provide much data for the next step – data analysis.

On the following page other issues from workshop 1 are reflected on.
The arrangement of students’ ideas into design brief themes was only successfully achieved by one group of girls (see Figure 64). Their poster showing ideas on sticky notes was well organised and categorised by different colours. On the other hand one group of boys gave ideas relevant to their interests, such as a gun sculpture and computer games, but not what seemed to fit the design brief; this indicates that the 3CM method might be of less value in some situations. The other noticeable situation was when students were asked to vote for their favourite ideas, limited to a maximum of three for each group. As it turned out, most students only voted for their own, so there were quite a lot of ideas with only one vote. The result of this was that I had to do a lot of work to recombine and review their ideas in order to take them to the following workshop.

At the end of the presentation step, the groups were generally shy and uncomfortable about presenting their ideas in front of the class, and did a lot of mumbling and giggling, and there were some interruptions from classmates.
There were 28 children who provided 95 ideas in the SGG project poster session. The analysis of children’s ideas yielded distinct themes, which resulted in six broad themes. The figure to the left shows the distribution of ideas amongst the six main themes.

The broad themes suggest the following: Firstly, 25% of the ideas were nature focused, which seems to connect well with promoting biodiversity, which closely matched the first point of the design brief (promoting biodiversity). Structures, especially tree houses, were very popular, indicating they want to be active, imaginative at 20% and have fun and surprises. It was clear from the results that most of the students felt this project was important, which was positive for my next stage. However, a significant proportion of the ideas classified as ’biodiversity’ related to non-native species e.g. vegetable garden species and farm /domestic animals. There were also some inappropriate suggestions e.g. indoors activities and violent sculpture (e.g. gang members).
4.4 Workshop 2
Description

One week later, on May 29th, I went back with my supervisor, to assist, to Royal Road Primary School for my second workshop, which was a model session.

This also took three hours with the different groups of year 5-6 students and we revised the learning from the week earlier. We gave out a new worksheet (figure 68) that was more directive and gave a summary of ideas generated the previous week, and the model-making materials (see figure 69) including cardboard, polystyrene, modelling clay, different sizes of boxes, small wooden sticks, as well as a large-scale plan of the design site, which was divided into two parts because of the L-shape of the site.
Royal Road School - Design project for school grounds.

**Workshop 2 - Making Plans and Models**

Last week we talked about developing the brief for the site, site analysis and then went out to see the site before looking at some design ideas. *THEN YOU WORKED ON YOUR POSTERS OF IDEAS.*

This week we will take the ideas and create a plan with models - in your groups.

Below is the list of ideas you came up with last week. These are organised into themes as below:

**In groups:**

1. Decide on the ideas you want to include in your design. You should choose at least one from each group plus the pizza oven.
2. Draw these ideas in place on the maps you are given - to make a plan showing areas, seating, games, steps, pizza oven, learning activities. Try to organise your ideas into a design that is practical and connects well to other parts. For example you don't want kids running past a hot pizza oven. Remember to separate passive and active activities.
3. Use the materials you are given to create 3D elements for your areas and put them on the plan, where you have drawn them. *HAVE FUN!*
4. Present your plan and model to the class - explaining your ideas.

**Increase native biodiversity (active)**

- Waterfall/water fountain, also it could help the plants grow.
- Adventure game - with small trees, boulders and grasses
- Nectar trees to encourage birds e.g. <GAP>
- Grass garden
- Insect box
- Own decomposing container for our science experiment for a topic inquiry for all classes

**Encourage student activity and exploration (active)**

- Tree house
- Tower with sliding board /Shade tower
- Pretend campfire circle /stone campfire
- Sculptures
- Mini Maze
- The bushes should have a quiet relaxing pathway
- We should have a wood tunnel on the playground
- A mini tree house with fake animals to make it look like a jungle and a flying rope that take you to the other side /flying foxes
- A tree with swinging <GAP>
- A big rock-climbing wall

**Create a place for cooking and eating /Make somewhere to sit, be social or watch sport (passive)**

- A wooden deck with a slide going down the slope
- There should be an area when you can rest and watch rugby game
- A sitting and eating deck on the slope
- A quiet place where people can think and read a book
- Behind classrooms 19/20 have a cover, and a wooden stage, as a seat for watching sport or performances.

Figure 66. New worksheet, 2016
Figure 67: Model-making materials, 2016.
As in the first workshop, with the teacher’s help we organised students into equal groups. For the second workshop I handed out a worksheet to keep all students on the task, and A3 large-scale plans of the design site, as figure 70 shows, which was divided into two parts – one for the bush area and another for the area behind/beside classrooms 19 and 20. These paper plans were mounted onto heavy cardboard for durability.
The two groups of girls and three of boys were effectively concentrated on model making for roughly two hours, as these photos shown.
All these vivid projects from students were photographed. While the students presented and explained their projects, my supervisor and I shared the task of taking video footage. All groups put the pizza oven into their model, as the teacher had earlier suggested it so I made it a compulsory design item on the activity sheet. However, only two groups developed this further into a social space by creating a sitting and eating place (see figure 77,78) next to the pizza oven in their design models.
Further to the information given in the left illustration, four out of five groups considered fire safety, and chose flat, open areas well away from planted spaces to set up the pizza oven. Only three of the five models included a tree house in their projects, which clearly showed a decrease in popularity from the poster session, however, these ideas included ramps, slides, ladders and a rope swing to carry a flying fox. There were four out of five models that included a water feature, developed from the downpipe from the roof of classrooms 19 and 20 (this was included as an optional design point in the activity sheet). Four of the five models added adventure areas, such as a campfire, punga log structures, maze, climbing wall and tunnel, which were decorated with small climbing plants.

Figure 77. Chart of students’ ideas from the model session. 2016.
4.4.2 Reflection on Workshop 2

Based on the first workshop experience, I were more prepared for the model-making session, and as a result we handed out a clear activity sheet and ideas list which re-introduced students to the ideas on the posters they created in the first workshop. The list reminded each group to consider the design themes and various types of nature systems they would like to see in the design site. To stimulate their imagination and manual ability, I provided a variety of options in their list that included their original ideas, and certain relevant ideas that I had added.
4.4.3 Discussion of Workshop 2

The second workshop was very engaging for the students; they worked hard and seemed highly motivated (figure 79,80). They were very articulate about the landscape design terms, and their explanations closely matched with the design brief. All the groups were more excited than previously, and had good discussions of their masterworks. Furthermore, at this time they worked quite collaboratively, and I noticed that some teams divided up the design plan, with some members working on one aspect, and others on the other (figure 81 & 82). This was a good way to split large groups into a more manageable size when working together in a small space.
However, some groups showed fewer model structures, and some students only wrote the names of facilities on the map. I think the reason may relate to their limited crafting abilities, which meant they could only construct what they were capable of. Overall, at the end during the presentations the students were interested and they made their ideas clear.
4.5 Analysis of both Workshop 1 and Workshop 2

The first workshop was planned as idea collection and the second workshop was a model-making session, which both potentially provide a lot of relevant design ideas which could possibly drive the new design. Based on these ideas from the students were coded into themes and presented graphically.

Figure 65 clearly shown that of the 95 design ideas generated by the 28 students, the most noticeable category was to do with nature, followed by play structures. After the first workshop, I described that the most interesting part of nature is logically linked with the design brief and suited to the outdoor conditions the school offers. However, digging into the detail of the category of ideas about nature, a lot of ideas were to do with domestic animals (e.g., pigs and hens) or edible plants, rather than about natural systems. Interestingly, the rest of the categories (e.g., structures, games or art/sculptures) also included certain nature-based ideas, for example, in the art and sculpture category students came up with “giant hibiscus flower sculpture”, and “some sculptures of famous animals”, and “we could make like a little chilling place just in the centre of the small forest”, and “a mini tree house with fake animals to make it look like a jungle”.

Some details from each category (see Figure 88-92) could be a subset of nature or outdoor structures. However, I kept them separate as they combine lots of ideas for active exploration, adventure journeys and active challenges (e.g., flying fox, climbing wall and maze). I noticed that one of the ideas could become an option in the later design, as one girl suggested inspirational words “… sustainability, pride, aroha (love), respect, kiakaha (sic)...” These could go on a sign on the gate”. This suggests that some structures could be included in a painting or sculpture form (i.e. gestural), due to constraints, such as the size of the design site, landscape features, safety and the school budget.
4.5.1 Design Ideas

Following Workshop 2, it was quite a big challenge for me to choose from the array of ideas and fit most of them into a coherent design that would also meet all needs.

At first all these 95 ideas crowded my brain, and as a specific result I focused too much on detail in the initial designs, such as animal sculptures, a walkway, and an attractive entrance to the bush. I sketched these drafts many times (see Figure 93-95).
Above I mentioned, “meeting all needs” which included students’ ideas, caretaker’s requirements, students’ safety and school budget. However, the school had not set a budget for this project, because the design might not be realised, but I still hoped to develop a design that would be achievable for the school, through considering all the constraints. Ultimately, summarising the data analysis from first two workshops, I produced a short list of student ideas:

- Tree house or similar with activities (slide or flying fox)
- Bush walk activities
- Pizza oven
- Water feature
- Sitting area for watching sports
- Sculpture/art
- Biodiversity: increase plants (e.g., edible plants) / insects/birds
- Quiet spaces
- Learning areas
These ideas related to the design brief, as well as being the most popular choices by the students. In addition, they gave a coherence in terms of situation on the site. From the brief the site needed to incorporate the following:

- Social space: pizza oven, sitting/eating place
- Biodiversity: water feature
- Quiet space: learning area, sculpture/art
- Bush adventure

It took a while for me to integrate all these elements into an appropriate design process, and first of all I developed them into a draft bubble diagram for the site (see Figure 96), ahead of the draft concept plan shown in figure 97.
4.5.2 Draft Design (see figure 97)

Figure 97. Finished Draft Design (Graphic, Qian Wang, 2016).
4.6 Workshop 3 Description

September 22nd, I went back to the school to present the initial design plan (figure 98). This occurred four months later due to holidays and the design challenge for me of not being a landscape architect. In a presentation, I explained the draft design and answered students’ questions. This was followed by comments on the draft design to collect all students’ feedback (see appdinex 06), which they wrote individually on the design. This activity went quite well and students seemed to enjoy the design.
During the presentation time, when they looked at the design pictures, I noticed their curiosity as well as expressions of pleasure on their faces. They were very excited about the design work, and even gave me some additional thoughts and suggestions (see Figure 100). From my personal perspective, the students’ attitudes and reactions were an effective way to confirm my design, and I felt that all this work was worthwhile.

At the end of that day, I went back to the school reception office, and asked school staff to assist me to hand out the rest of the design evaluation forms to the other school staff, parents and caregivers to obtain some feedback about the draft design.
After the third workshop week, the students were on holiday, so two weeks later I went back to the school to collect all the evaluation forms from reception. This part of the evaluation had not gone well as teachers were away on holiday so didn’t respond. Also, parents were confused and gave their forms to the children to answer (a second time), so I was unable to include this feedback.

<table>
<thead>
<tr>
<th>Positive</th>
<th>Negative</th>
<th>Suggestion</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Maze</td>
<td>2 Decking - wet/slip</td>
<td>5 Flying fox added / Rope swing</td>
</tr>
<tr>
<td>12 Pizza oven</td>
<td>4 Campfire</td>
<td>3 Paint animals &amp; leaves on nature room</td>
</tr>
<tr>
<td>7 Campfire, adventuring into the bush</td>
<td>3 Hut making (rainy day may not stable)/quite small space</td>
<td>1 Insect hotel in bush</td>
</tr>
<tr>
<td>6 Hut making /creative space</td>
<td>1 Water feature might cause kids slip</td>
<td>1 Lights for campfire</td>
</tr>
<tr>
<td>7 Nature room</td>
<td>1 The seating needs shelter</td>
<td>1 Add small rain shelters</td>
</tr>
<tr>
<td>4 Wooden board walk rain garden</td>
<td>1 Mural art (easy damage, hard cleaning)</td>
<td>1 Add shelves to sit on, also bird feeders</td>
</tr>
<tr>
<td>2 Stepping logs</td>
<td>1 No tree house (somebody could fall off)</td>
<td>1 Change shelter seating into bush area</td>
</tr>
<tr>
<td>4 Outdoor cubes</td>
<td>1 Maze (small)</td>
<td>Add bricks &amp; stones around the campfire</td>
</tr>
<tr>
<td>3 Rain garden</td>
<td>1 Sharp edges on ‘nature room” doorways</td>
<td>Swimming pool, water sprinklers</td>
</tr>
<tr>
<td>1 Bug hotel</td>
<td>1 Bleacher tiered seating (too smelly beside worm bin)</td>
<td>Nature room add drinking space for students</td>
</tr>
<tr>
<td>1 Alternate pathways</td>
<td></td>
<td>Water fountain around campfire</td>
</tr>
<tr>
<td>1 Sheltered seating</td>
<td></td>
<td>Bigger campfire</td>
</tr>
<tr>
<td>1 Flexible performance</td>
<td></td>
<td>Bigger creative space for hut making</td>
</tr>
</tbody>
</table>

Figure 100. Design Evaluation from students’ feedback, 2016
One staffmember did respond and he gave very useful information. He told me that a new kitchen is planned for the school so the pizza oven and eating area could be sited next to that. This worked with the flexibility of my design.

In summary:
- The delay in my returning with the draft design was detrimental as I ran into holiday times.
- Teachers missed completing my design feedback due to the school holidays
- It was necessary to make the parents’ questionnaire quite different to the children’s one to avoid confusion.
- Some participants complained that the plan was too small and the detail hard to see.
  More pictures and perspectives would be easier.

I summarised students’ feedback into a table with three columns that included positive aspects, negative aspects and suggestions (see Figure 100). The analysis of the children’s feedback was divided into three parts (e.g., positive, negative and suggestions). Positive feedback I received was strongly biased towards playground safety and their interest in nature and ecosystems. The aspects that they liked about increasing nature in the design (the positive aspects in table 100) right from the first workshop are still the aspects they most liked in the design. Furthermore, the negative aspects and suggestions provided clarity to me for improvements in my final design (see figure 100).
4.6.2 Data Analysis and My Design Response

1) The hut-making and the maze adventure area could be made bigger and more stimulating.

2) The campfire should be removed and this space linked to the hut-making area. A number of students noted the campfire space was dangerous and would require supervision.

3) The flying fox continued to be requested but is not relevant to my design brief. This equipment is quite expensive to build at the school, as well as occupying a large amount of space.

4) The nature room could be set up with a viewing platform with paintings on the wall. Because of its height, its surroundings could include some little structures such as insect hotels and bird feeders to fit with the design brief.

Further design aspects summary:
There are certain changes to be made to the bush area, which require a detailed plant list to be created of existing vegetation. This is included in figure 101. Following from this is the revised plan for the bush area with new plants shown (see figure 102). A revised plan was also made for the rain garden, performance and eating space (with new planting) behind the classroom 19/20 (see figure 103).
Existing Bush Area (with plants) (Figure 101)

The species of plants:

<table>
<thead>
<tr>
<th>Māori Name</th>
<th>Botanical Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Akeake</td>
<td>Dodonea viscosa</td>
</tr>
<tr>
<td>Karamu</td>
<td>Cordyline australis/Cabbage tree</td>
</tr>
<tr>
<td>Kowhai</td>
<td>Phormium tenax/Flax</td>
</tr>
<tr>
<td>Cabbage tree</td>
<td>Pittosporum</td>
</tr>
<tr>
<td>Lemonwood</td>
<td>Coprosma robusta</td>
</tr>
<tr>
<td>Red matipo</td>
<td>Kunzea ericoides</td>
</tr>
<tr>
<td>Flax</td>
<td>Kohekohe Dysoxylum spectabile</td>
</tr>
<tr>
<td>Kowhai</td>
<td>Sophora microphylla</td>
</tr>
<tr>
<td>Puriri</td>
<td>Hoheria populnea/Lacebark</td>
</tr>
<tr>
<td>Lacebark</td>
<td>Pittosporum eugenioides/Lacebark</td>
</tr>
<tr>
<td>Totara</td>
<td>Leptospermum scoparium</td>
</tr>
<tr>
<td>Pittosporum</td>
<td>Myrsine australis/Red matipo</td>
</tr>
<tr>
<td>Akeake</td>
<td>Pittosporum tenuifolium</td>
</tr>
<tr>
<td>Kowhai</td>
<td>Vitex lucens</td>
</tr>
<tr>
<td>Manuka</td>
<td>Podocarpus totara</td>
</tr>
<tr>
<td>Lacebark</td>
<td>Walnut</td>
</tr>
<tr>
<td>Red matipo</td>
<td>Undergrowth unknowing native shrubs</td>
</tr>
</tbody>
</table>

Royal Road school bush area scale 1:100 in A1
Revised plan for bush area (with new planting) (Figure 102)

New Planting plan:

<table>
<thead>
<tr>
<th>Māori Name</th>
<th>Botanical Name</th>
<th>Quantity</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Makaka</td>
<td>Carmichaelia odorata</td>
<td>3</td>
<td>5 litre</td>
</tr>
<tr>
<td>Tororaro</td>
<td>Muehlenbeckia astonii</td>
<td>7</td>
<td>3 litre</td>
</tr>
<tr>
<td>Puawhananga</td>
<td>Clematis paniculata</td>
<td>4</td>
<td>3 litre</td>
</tr>
<tr>
<td>Pohuehue</td>
<td>Muehlenbeckia complexa</td>
<td>13</td>
<td>3 litre</td>
</tr>
<tr>
<td>Kawakawa</td>
<td>Macropiper excelsum</td>
<td>3</td>
<td>3 litre</td>
</tr>
<tr>
<td>Akakura</td>
<td>Metrosideros carminea (climbing rose)</td>
<td>5</td>
<td>5 litre</td>
</tr>
<tr>
<td></td>
<td>Tecomane speciosa</td>
<td>2</td>
<td>3 litre</td>
</tr>
</tbody>
</table>

Royal Road school bush area scale: 1:100 in A1
Revised plan for Rain garden, Performance and Eating space (with new planting) (Figure 103):

- **Rewarewa trees**
- **Sheltered seating** in an attractive setting for parents to watch sports
- **Water feature** to solve the drainage problem
- **Sheltered seating** in an attractive setting for parents to watch sports
- **Mural art** Sir Edmund Hillary climbing Mt Everest (as an alternative to a climbing wall since this exists elsewhere)
- **Flexible performance/play Space** as raised decking under existing pohutukawas. Includes stage entry and wings, plus tree climbing platform and rope ladder
- **Seating area**
- **Pohutukawa tree**
- **Oioi plants** to solve the muddy problem during rainy season
- **Wooden boardwalk over rain garden** with *Muehlenbeckia complexa*
- **Stepping logs with carex plants**
- **Pathway** (decorated as stepping stone) with short bush Oioi plants
- **Animal Sculpture** (snail, kiwi bird and weta like)
- **Rope climbing structures**
- **Table with bench seating** for a whole class of students eating pizza.
- **Vege-garden** with berries, veges and pizza ingredients.

### The species of plants

- **Existing tree**
- **Rewarewa**
- **New shrubs**

### Native plants: carex, oioi, New shrubs

<table>
<thead>
<tr>
<th>Māori Name</th>
<th>Botanical Name</th>
<th>Quantity</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carex</td>
<td></td>
<td>3</td>
<td>3 litre</td>
</tr>
<tr>
<td>Oioi</td>
<td><em>Apodasmia similis</em></td>
<td>6</td>
<td>3 litre</td>
</tr>
<tr>
<td>Libera</td>
<td></td>
<td>3</td>
<td>3 litre</td>
</tr>
<tr>
<td>Pohutukawa</td>
<td><em>Metrosideros excelsa</em></td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Royal Road school bush area scale: 1:100 in A1
One month later, I went back to the school again with my final design work to present to them the changes since the third workshop. During the presentation I explained the design process, aspects of the data analysis and showed them a comparison to the draft design. I designed the Powerpoint slides to logically guide students’ cognitive ability (i.e. perception) and understanding of the design plan. Next we did another evaluation, which asked students to respond to three questions:

1). List things you have learnt from taking part in this design process.
2). What have you enjoyed most from taking part in this design process?
3). What have you enjoyed least from taking part in this design process?

I collected all the forms that day. In the end, the workshop went quite well and the students were enthusiastic about talking and writing about the design.
Figure 107. The postcard session (about students' learning feedback).
4.7.2 Discussion of Postcard Evaluation

The responses on the postcard session indicated that students felt they had learned by measuring the site, since this was a positive reflection that made them more familiar with the design site and would enable them to consider a study from a landscape architects' design point of view.

The disadvantage of this exercise was that, with almost five months between the first workshop and the final reflection session, the students may have forgotten details of some stages. During the third workshop presentation, I had made a comprehensive design flow diagram, in order to refresh their memories of the four workshops. Nonetheless, the postcard session was a wonderfully positive finale that gave valuable insight into students' perceptions of the design process and what they have gained from it (see Figure 107).
5 Conclusion

- Evaluation of findings in terms of literature review
- Evaluation of method in terms of case studies
- Summary of how increased my design skills/knowledge through this process.
- Reflection on Overall Method
- Providing a Future
This final section will consider my findings in light of the literature review from Chapter 2 and my research aim and questions. Further, it will critically evaluate my method in terms of the literature, my experience of managing the process and the data, and the level of success of the project in involving students in a design process. Consideration of the design process from my perspective will also be discussed. Finally, I will make some recommendations for how the findings from this project could be used in a wider context, and what further research could be undertaken.
5.1 Evaluation of findings in terms of literature review

Through the literature review, three themes were discussed:
- participatory theory
- consultation
- co-design

In the framework of participatory theory identified, a hands-on role is taken to develop the design project (Iltus & Hart, 1995; Driskell, 2002). It recognises the democratic right of children and young people to participate in matters affecting them (UNHCHR, 1989). It also lets children work directly and collaboratively with designers to contribute and make decisions within the design process, rather than in a purely consultative role (Parnell, 2010). In my project, the collaborative process enabled student ideas to be incorporated relatively quickly and simply to achieve a design outcome to meet the brief. Obviously, the planning and preparation work, as well as the time spent on data analysis is quite considerable, but it is hoped this could be streamlined in reality.

Consultation implies a willingness to collect and consider design concepts, e.g. from students and other users (Parnell, Cave & Torrington, 2008; Wake & Eames, 2013). In my project this enriched the initial stage of ideas collection and the later stage to gain feedback on the draft design. Outside of these times there was a focus on co-design, as defined by Parnell as children working directly and collaboratively with designers to contribute and make decisions within the design process, rather than a purely consultancy role (2014). In my example this included children carrying out site analysis and developing design ideas through model-making.
In this child-centred and design-focused research project participatory theory is considered to underpin the co-design approach, as defined by Parnell (2014). Both Hart (1997) and Driskell (2003) emphasise that participation between adults and children is a continuum that needs to be negotiated on a project-by-project basis. Echoing this, Francis and Lorenzo (2002) have established realms of children’s participation in design that have ignored this and resulted in poor power distribution within projects, e.g. the ‘institutional realm’ where children are considered as adults that can have the final say. Their ‘proactive realm’ has been developed as a visionary process that situates children and adults equally through a design process that recreates childhood. While this was not used in my project method, my intention was to develop a co-design method that was simple and built positive connections between school students and landscape architects in designing spaces for children that would encourage activity and environmental learning while maximising the site in terms of use, ease of maintenance and increase of ecological services. The students were encouraged to be active participants, within the constraints of time that the project had, and their initial ideas were democratically filtered through the design brief established for the project. Using the design visioning or charrette process that was taken from the case studies I considered as relevant to this research, students were then free to develop their ideas into models, that they annotated for me as part of my data collection for analysis. Later stages in the process gave students an opportunity to critique my draft design and to reflect on the level of learning, ownership and enjoyment they gained from the process.

Reciprocal benefits for both children and designers were also at the forefront of this project, a concept that has been identified by a number of researchers (e.g. Patsarika, 2014; Wake, 2010). I feel that the process was both transformational and inspirational for me, and it has influenced my knowledge and attitudes towards contributing to children’s environmental learning through design and play. My hope is that landscape architects may be similarly influenced and this plus the value of learning better how to design for/with children will help compensate for the potentially non-chargeable time required to work with schools to develop a finished plan.
5.2 Evaluation of method in terms of case studies.

Relevant case studies were reviewed, including projects and proposals that address school grounds and cooperative problem solving with children. These design precedents revealed various ways to deal with school children’s environmental learning problems, including local and international examples. Advantages were adopted from these case studies to serve my hybrid method to complete the research.

This hybrid method was based on Rottle and Johnson’s project (2007) using the 3CM method (Kearney & Kaplan, 1997; Micic, 2001; both cited in Rottle & Johnson, 2007) combined with the Freyberg Square project (2015) and the Chelsea Street Park Playground project’s (Fiona Robbe, 2012) Gulliver’s Mapping Method. I amalgamated certain relevant factors of these methods into my research method.

2) Summary of two methods

This research method was based on two systems: Gulliver’s Mapping and 3CM.
- The 3CM method has the advantage of providing a better perspective on how the students manage their ideas and how to organise these ideas into design themes. This method is also better in keeping the participatory process simple and low in required resources. In this research project, the school children didn’t take photographs.

- Another method, Gulliver’s Mapping, is more focused on consultation than a co-design process. This is rich in encouraging ideas and spatial creativity, so students were asked to create their models during the second workshop.

- The evaluation process from both case studies was used. This was beneficial for the designer to understand how the participants (e.g. children) found the process and what they learned about the environments; it also included the concept of student voices throughout the participatory process.
1) The adaptability of the model to other situations.
Could my hybrid model be adapted and used in different situations, e.g. students with special needs in mainstream classrooms? In fact there was such a situation in this class with one boy in class having learning difficulties. He wore a hearing aid and I wore a speaker so he was able to participate fully. I believe that design is a universal language and there is potential to adapt my model to suit different situations and people.

2) Cultural values:
Lots of different kids in the class came from different background and cultures. The overarching theme of project was sustainability and increasing student interaction and learning with nature; I believe this is universal across cultures. It is, however important to be aware that certain cultures might not give their children this degree of freedom or decision-making. It is good to have awareness of cultural differences. As a Chinese student in NZ, I deal with this daily.
5.3 Summary of how increased my design skills/knowledge have increased through this process.

I started this Masters project with no knowledge of Auckland, NZ school systems, environmental education in NZ or children and learning. Through this project I have learnt about all these areas and much more, some of this is highlighted below.

The site

Waitakere is quite a large area, as it encompasses the sparsely populated Waitakere Ranges, as well as some of the urban fringes as the city has expanded westward into former orchards and farms. Royal Road School is a mixed primary and intermediate (years 1-8) school with 300 students, located in West Auckland. Historically, the school has been graded as decile 2 out of 10 socio-economic status of the geographic zone it draws students from. It has a diverse student composition of 40 percent Pacific, 31 percent Māori, 10 percent NZ European, and 19 percent other ethnicities. This school is an Enviroschool, and has implemented certain inventive programmes in its grounds already, for example a cycle track, a propagation unit and large native-plant revegetated area in the northwest of the school.

GIS analysis, relevant reports about the site and ethics application

GIS analysis, and the study of relevant reports about the Waitakere ward and Royal Road Primary School were important methods used to comprehensively understand the site status and existing problems to solve.
The school design site was split into two compartments, according to their distinct land use. After the individual analysis of each compartment, the innovative concept of underground services and greenery were confirmed finally as appropriate strategies to be used.

The project proposed to run four workshops; the first workshop was a poster session for the scoping of ideas, followed by the model-making session focused on the construction of models. The third workshop presented the designs and asked students for critique, and the fourth presented the final design and asked for evaluation of the process and the learning. These proposed workshops would effectively provide experience for landscape architects in designing for/with children, as well as teach students about design. In addition, this proposed interface would be expected to promote biodiversity.

Overall, this research 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. Also, the co-design process aims to build ownership and develop design skills that could see students more engaged in environmental issues within their schools. The research method could be used in other school ground greening projects and other similar research fields. The reciprocal benefits for landscape architects include potential skills in working with children and understanding their requirements better, also promoting their discipline more widely.
A co-design approach is a holistic framework for landscape architects to use with school students, and provides opportunity for participants for environmental learning, through four workshops. Possible outcomes for the designer include improved design ideas and learning better how to design with/for children, and generating a positive profile to potential clients, while unleashing children’s creativity and valuable skills. The co-design process conducted four workshops, which constitute the final design work in my research, contributing to achieving the final aim and answering the research question, “How can the value of SGG projects be increased for all stakeholders and their communities through a co-design process?”

Increasing the value of SGG projects for all participants depends on certain key factors: building ownership and understanding children’s needs. Letting children or participants have the initiative to lead this design process with respect can see students more engaged in environmental issues within their school. Besides, landscape architects can maximise their potential skills in working with children and better understanding participants’ needs. The imperative is that landscape architects need to be humble enough to act as a knowledgeable and skilled conduit in scaffolding children up to a higher level in exploring and developing design concepts. This could lead to a more environmentally informed population if this kind of learning occurred.
5.4 Reflection on Overall Method

This research describes development of an appropriate method and data collection, including going through a participatory process. The co-design method may support the design brief in better quality of school grounds and biodiversity through the designed space, the environmental learning throughout the participatory process and continued ownership of the space and empowerment of the students involved. I believe that the design process should be informed by asking participants (e.g. students) about their needs, ideas and stories, which occurred in the design process through engagement and encouragement. My philosophy was confirmed through this collaborative process, even though these school students’ ideas or creations may have been at times unexpected. Engendering students’ ownership in design participation can provide practical and useful elements that could be missed in the initial step (ideas collection) in building such environments.

As this project progressed I developed my skills at data analysis from these four workshops, to summarise and translate into design. This provided insight into the possibility of including students’ voices in the design. Furthermore, this process can increase the value of SGG projects and children’s learning experiences through encouragement and engagement. The literature cites benefits of co-design projects with children as bringing a motivated approach to the design as a learning process.

Clearly, involving 28 school children is not easy work especially in workshop 1, where the students were asked to write down their ideas for the improvement of the design site. Quite a lot of ideas come out, and without a sanctioned involvement in this process, it is unlikely that the children’s ideas would be incorporated. I tried to consider all design restrictions, including cost and potential to stage the design, but I am aware that it may never be built. This does not detract from the value of the project, which I see as my learning and the experience of working with the amazing energy and ideas of the children. For them, I think that seeing their ideas transferred into a tangible plan was really fulfilling.
Some things went better than others and I wish to note the following as reflection.

Firstly, I should have prepared a work sheet for students, which would have guided them and kept them on task. There were also some surprising responses and ideas from the students that were not appropriate to the project. Engaging children in design participation is the key strategy in combining with a landscape architect to work out the design outcome through a collective process.

Secondly, during the participatory process, I noticed that an alternative method (e.g. Gulliver’s Mapping) of using photos or drawings to add around the large-scale site map (see figure 111), which was used in the first workshop, could be more effective in engaging students in the task, especially for boys. This may reduce or avoid certain inappropriate ideas and misunderstanding of the design brief in the process. So for future improvement, the Gulliver’s Mapping method may be more visual and more engaging at the initial stage (e.g. workshop 1 – poster session).

Thirdly, there was the unexpected gap between workshop 2 and workshop 3, which was almost 4 months because my emerging design skills. This delayed the draft design process and caused a backlog with my later processes.
Overall, it provided insight into the possibility of including children’s views in design, in order to increase valuable experience at managing this process of participation by collaborating with landscape architect. The literature cites benefits of participatory theory, consultation and co-design methods with children as bringing a multiple beneficial approach to the design. Students certainly provided rich ideas to the design process, and their full engagement and enthusiasm can be read as their having enjoyed the process and possibly gained some professional knowledge both about sun and wind direction, measuring methods, plants, and the stages of design. In addition, I fully enjoyed the opportunity to work with these school students. The experience is therefore felt to have been very worthwhile and provided benefits to all participants. About teacher involvement, I recommend more involvement of teachers e.g. completion of feedback and questionnaire. Also get teacher to do some pre-design ideas work with class. It has certainly shown that it is possible and worthwhile to include children and adults within a design process.
Within the Auckland area there are a total of 378 schools (Auckland Council, 2016), and estimate that at least 30% of schools have some form of SGG since Enviroschools encourages this action linked with growing food was 97% and biodiversity occupied 96%, which all roughly 100% to participate to this theme. Other schools may be involved in other programmes such as Garden to Table or Trees for Survival. Further schools may be developing school grounds without being part of a programme. While impressive, this implies there are plenty of schools that could benefit from SGG. If NZILA were to initiate a programme of support, I believe my method would be useful to employ. However, meantime, it could be trialled only 31 percent of New Zealand schools belong to the Enviroschools programme. The involvement of participants (e.g. school students) in the design of such an environmental learning space could become more widespread and effective, with potential benefits for both site design and environmental education.

I have shown that increasing the value of school ground greening (SGG) can be established; at the same time, I have identified SGG benefits, which can provide environmental learning opportunities for children. By involving landscape architects and participators (school children), it is possible to extend the value of this SGG project, in order to benefit all stakeholders and their communities. Process is the participatory part and the way this is carried out is a real strength of the project. The outcome is important for the school and landscape architects. The future challenge will be to get landscape architects involved and for them to value more intangible rewards. On this note I recommend that this process I have developed should be repeated by an experienced landscape architect as a comparison and as a way to test and refine the process further.
6 Reference


Figure 5. Garden to Table Programme. (2009). Retrieved from http://www.gardentotable.org.nz/carousel%20images/wsjkndcarousel.jpg


Figure 11-12. Garden to Table Programme. Retrieved from http://www.gardentotable.org.nz

Figure 17. Enviroschools Programme, 2008. Retrieved from http://www.enviroschools.org.nz


Figure 25. Robbé, F. (2012) Chelsea St Park Playground: Consultation with children October 2012, City of Sydney, Sydney.
Figure 26. Chelsea St Park Playground, Sydney (Fiona Robbe, 2012).

Retrieved from http://www.colarado.edu/journals/cye
Appendices

Consent forms
Evaluation forms
Unitec Human Ethics Application – Form A

FOR APPROVAL OF PROPOSED RESEARCH INVOLVING HUMAN PARTICIPANTS
For all research that involves or may involve potential for contentious or sensitive issues.
(All applications are to be typed and presented using language that is free from jargon and comprehensible to lay people)

Section A: General Information

1. Project title: School Ground Greening: Developing a model for comprehensive design with multiple benefits

Projected start date: 23rd May 2016 (1st school visit)  Projected end date: December 2016

Academic Staff Application (excludes staff applying for ethics as students)
Full name of staff applicant/s:
Title/Department:
Campus (mark one only): ☐ Albany ☐ Mt Albert ☐ Waitakere
Telephone:
Email Address:

Student Applications
Full Name: Qian Wang
Telephone: 021 026 50898
Email Address: design.xizhi@gmail.com
Postal Address: 8A Mark Road, Mt Albert, AUCKLAND 1025
Employer (if applicable):
Full Name of Principal Supervisor(s): Sue Wake
School/Department/Institute: Landscape Architecture
Campus (mark one only): ☐ Albany ☒ Mt Albert ☐ Waitakere
Telephone: 09 815 4321 extn 7804 or 021 172 3762
Email Address: swake@unitec.ac.nz

Other Applicants – Co-researchers/co-supervisors/organisations
Full Name:
Name of organisation (if applicable):
Role in project (co-researcher, supervisor, sponsor, etc):
Telephone:
Email Address:
Postal Address:
School/Department/Institute:
2. Summary of Project

Please outline in no more than 200 words in plain, non-technical language why you have chosen this project, what you intend to do and the methods you will use.

I am studying for a Masters of Landscape Architecture by project and I have chosen school ground greening (SGG) as my project because I have an interest in environments for learning and my supervisor is an experienced researcher in children and youth environments.

I want to test a co-design process between primary school students and landscape architects (ie myself) that could be usefully applied to SGG projects in order to improve environmental learning, engender student ownership and sense of place, ensure practical and creative design solutions, plus provide experience at designing for /with children.

Co-design has been defined by Parnell (2014) as the users taking an active, hands-on role in the design of the school building/grounds, working directly and collaboratively with the design team to develop designs through models, ‘or example. Parnell, R. (2014). Designing with Children - Glossary. Retrieved from http://designingwithchildren.dao.seeusefularts.org/glossary


As part of applying the process I have developed I plan to work with a class of year 5/6 children and their teacher at a local West Auckland primary school to work in groups and develop ideas posters followed by models of their design ideas for a portion of their school grounds. I will take this and develop the design through a feedback and evaluation process with students, which will ensure their ownership in the process. I will also give a simple evaluative questionnaire about my draft design to parents of the students and key school staff - in order to involve all key stakeholders in the process.

3. List the Attachments to your Application

Consent forms – participant and organisation ☑
Information sheets ☑
Interview questions ☐
Focus group schedule ☐
Questionnaire/s ☑
Other (please specify): The schedule for visits to the school is included in this document.

Applications that are incomplete, lacking the appropriate signatures or submitted after the specified application deadline date will not be processed. This will mean delays for the project.

Applications must be submitted in the following formats:
One signed hard copy to be sent or hand delivered to the Ethics Secretary at:

Research Office and Postgraduate Centre
Penman House
Building 55, Level 1
Unitec Mt Albert Campus
Gate 4, 139 Carrington Rd
Mt Albert, Auckland
Research Project Title: School Ground Greening - Developing a model for comprehensive design with multiple benefits

Information for students invited to take part in the project

Qian Wang is a Chinese student doing her Master of Landscape Architecture at Unitec in Mt Albert. She is interested in how landscape architects can work with children to improve school grounds in ways that encourage play, exploring, learning, meeting others and eating with others - through creating interesting areas and encouraging plant/animal relationships (eg insects, birds, lizards).

Qian invites you to work with her during 4 short workshop sessions during May-July, which will be interactive and fun. These will happen during the day in Mr Woods class. As part of this you will be working in groups, making posters and models as well as going outside to look at the ‘site’ (the part of the school grounds we will be designing). It is important to analyse the site to see how it makes you feel and to decide where things should go (like rearranging your bedroom). Hopefully the plan will be implemented later - you might even get to help build it.

As part of the workshops you will present information from your groups to the rest of the class and this will be video-recorded and photographed (footage) by Qian and her supervisor (Sue Wake) so they can use this to develop a design. This footage may be used by Qian in her final exam for her Masters or in later university conferences or publications. Footage will not include your name and will not be close-up. Later in the project you will be asked to write down what you think of the design and being part of this project. This also will not name you - so you will be anonymous, like a secret agent.

If you don’t want to be part of this project that is fine and you can join another class when Qian comes in to Mr Woods class. If you say yes then change your mind, you can withdraw - no problem.

First you need to get your parent/caregiver signature to allow you to do this. If they do and you want to join in, please sign below and hand this to Mr Woods. PLEASE RETURN THE SIGNED FORM FROM YOUR PARENT/CAREGIVER BEFORE SIGNING THIS FORM.

I agree to being a part of this project.

Student Name: .................................................................

Student Signature: ...................... Date: ..........................

PLEASE RETURN SIGNED FORMS TO NEIL WOODS BY MONDAY 23 MAY 2016 (THE FIRST WORKSHOP IS TUESDAY)

UREC REGISTRATION NUMBER: 2016-1026
This study has been approved by the UNITEC Research Ethics Committee from 19 May 2016 to 23 December 2016. If you have any complaints or reservations about the ethical conduct of this research, you may contact the Committee through the UREC Secretary (ph: 09 815-4321 ext 8551). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
Information for parents/caregivers of student participants

Research Project Title:
School Ground Greening - Developing a model for comprehensive design with multiple benefits

Outline of the project:
- This project is being carried out by a Master of Landscape Architecture student at Unitec Institute of Technology (Qian Wang, mob 021 326 50898 - called ‘the researcher’).
- The researcher invites the year 5/6 class students at Royal Road Primary School (Neil Woods’s class) to participate in 4 short workshops to develop design ideas for part of the school grounds. These will be hands-on and fun.
- These will at the school and during school time between May to July, 2016. Students will be doing normal classes, under the topic of ‘making connections through kai’ and the researcher and her research supervisor will come to the school to lead the 4 sessions, along with Neil Woods.
- The school hopes to implement the plans over time. The researcher will use the design she develops for her master research project and presentation at Unitec, which concludes at the end of 2016.
- This project will give students knowledge about the profession of landscape architecture and some skills in designing outdoor environments. It is intended to encourage children’s views and ownership within the project.

What it will mean for your child

- As the parent/caregiver, if you agree to your child’s participation, you are asked to sign a consent form (overleaf). This consent includes allowing photos and videos of the process to be taken and used by the researcher and her supervisor in this research project and other public presentations and published articles. No close-up photos or video of children will be taken.
- Student work from these workshops will also be kept (photographed) and used. If you sign and then change your mind, your child can be withdrawn at any time although the work they complete in groups cannot be withdrawn. In this case all photos and video of them will be deleted from the project.
- Names of students will be kept confidential and all information collected will be stored securely and only used as described above.
- As the parent/caregiver, you and other stakeholders will also be invited to give feedback on the researcher’s design since you are a valuable part of the school community. An evaluation form for you will be sent home with students later in the project. These will be completely anonymous and completion of this form automatically indicates your consent.

Please contact us if you need more information about the project. At any time if you have any concerns about the research project you can contact my supervisor: Sue Wake telephone: 09 815 4321 extn 7804 or 021 172 3762. Email swake@unitec.ac.nz
Parent/Caregiver Consent Form

Research Project Title:
School Ground Greening- Developing a model for comprehensive design with multiple benefits

I have had the research project explained to me and I have read and understand the information sheet given to me.

I understand that I don't have to allow my child to be part of this research project if I don't want to, and that I may withdraw my child at any time. If I don't want them to participate they will join another class during the visits by the researcher. If I agree but then decide to withdraw my child all visible footage of them will be deleted from this project, although the things they have contributed to as part of a group cannot be removed (eg posters and models).

I understand that my child's participation in these design workshops will be video-taped and photographed (footage), which will be used by the researcher in developing a concept design for part of Royal Rd School grounds. My child will not be identified by name and all footage taken will be at a reasonable distance (i.e. no head and shoulders close-ups). It will only be viewed by the researcher and her supervisor in developing the design and select footage may be shown as part of the researcher's exhibition and final exam at Unitec in November, 2016. It may also form part of future academic papers or conference presentations by the researcher or her supervisor. I also understand that all the information that my child gives will be stored securely on a computer at Unitec for a period of 5 years and then deleted. I understand that I can see the finished research.

I give my consent for my child to be a part of this project.

Parent/Caregiver Name: ........................................................................................................

Parent/Caregiver Signature: ................... Date: ........................................

PLEASE RETURN SIGNED FORMS TO NEIL WOODS BY MONDAY 23 MAY 2016 (FIRST WORKSHOP IS TUESDAY)

UREC REGISTRATION NUMBER: 2016-1026
This study has been approved by the Unitec Research Ethics Committee from 19 May 2016 to 13 December 2016. If you have any complaints or reservations about the ethical conduct of this research, you may contact the Committee through the UREC Secretary (ph: 09 815-4321 ext 8551). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
1. What parts of this design do you like, and why?

2. What parts of this design don't you like, and why?

3. Please suggest your changes or improvements to the design. Include your reason.
1. List things you have learnt from taking part in this design process.

2. What have you enjoyed most from taking part in this design process?

3. What have you enjoyed least from taking part in this design process?