RESEARCH QUESTION

To provide a comprehensive fifteen year evaluation of the Kids' Edible Gardens programme.

AIMS AND OBJECTIVES

What are the key benefits of gardening within schools?
Has Kids' Edible Gardens achieved its original goals and aims and how has it done so?
How can the programme seek to grow and further expand and what are some recommendations in order to do this?

CONTEXT FOR RESEARCH

Despite its 15-year history, no comprehensive evaluation of the programme has been undertaken.
Challenges need to be reviewed in order for the programme to grow.

SUMMARY OF METHOD

Archives were a main source of information to gain a historical perspective. This was also our only form of quantitative data.
Ethnography observations were carried out by a visit to both Our Lady of Assumption and Rowley Avenue Schools to observe the programme.
Surveys with past participants of the programme to allow us to assess the long term effects.
Semi- structured interviews with key stakeholders (Lily White, Matt Morris and Ami Kennedy) who have all had various roles in the Kids' Edible Gardens programme, to allow us to gain sufficient insight into the programme.

KEY FINDINGS

The benefits of school gardening in literature are overwhelmingly parallel to our research findings.
Kids' Edible Gardens has been significant as a model and through the provision of resources and knowledge in normalising and promoting nation-wide gardening within schools.
The impacts on past students is harder to track – many do not currently have their own garden but this programme has encouraged positive connotations of edible gardens.
Kids' Edible Gardens core aims as evidenced through findings are developing children's life skills and self-esteem, developing a sense of self-reliance, promoting reducing, recycling, and reusing; and the transferal of knowledge between home and school. The success of each of these components vary.
There are some common themes which emerged which will be important to address in the future in

LIMITATIONS

Our sample size was small but was mitigated by conducting face to face or telephone surveys rather than electronic, this elicited a more in depth response.
Ethics disallowed us the inability to speak to children involved in the program, however we were able to convey this slightly through our ethnographic observations.
Gaps in the Archival Data meant we could not construct a large data set, however with the majority of dated documents, this made it easier to see the scope and range of data available.
The literature mainly conducted studies in the US, with cultural and environmental differences. However, we were able to obtain access to the Marlborough Kids Edible Gardens Evaluation based in New Zealand.

AREAS OF FUTURE RESEARCH

Avenues of further funding.
Surveying schools who could potentially be keen to be involved in the future and whatr 91 0 0 1 72.024 5 Tm[()] TJE

This report aims to provide an in depth fifteen year analysis of the Kids' Edible Gardens (K.E.Gs) programme in Canterbury. This programme over its fifteen years has never had an evaluation undertaken to see whether it has achieved what it set out to. These core aims are both for the individual students involved in the programme as well as for the wider-national school curriculum, the family and community. Individually, the core aims identified are:

- Developing children's life skills and self-esteem by involving them in the planting and growing process
- Developing a sense of self-reliance by providing own food – narrowing the divide between seed to plate
- Reducing, reusing and recycling waste within the school community through composting and worm farms and the transferal of knowledge
- Transferal of knowledge and practices to home gardens by children imparting what they're learn

There are a number of benefits of school gardens as highlighted through many studies. However, throughout these studies are a number of weaknesses and challenges of these programmes. Through our research, these themes have overwhelmingly run concurrently to our findings. This report will point out the positives and successes of Kids' Edible Gardens, the challenges faced over the years and an overview of possible recommendations for the future.

Kid's Edible Gardens started off as part of the Organic Garden City Trust (OGCT) which was established in 1997 by a group of educators, organic growers, organic produce retailers and other likeminded people to promote organic education through gardening. K.E.Gs, which is the primary school education sector of O.G.C.T, was officially launched in 1998. Rod Donald, a member of parliament at the time, was one of the initiators and trustees of the programme. For Rod, K.E.Gs was a pilot programme for gardening in schools to prove how successful such a programme would be to the Ministry of the Environment in order for more funding in the future but also to normalise organic school gardens.

Both K.E.Gs and the O.G.C.T were financed under a charitable status with members of the community and council donating money to better the project. When the O.G.C.T went into decline in the early 2000's due to dysfunctional aspects of the trust it made it hard for associated groups such as K.E.Gs to gain their legitimacy as they relied on this trust for their reputation. The O.G.C.T finally wound up in 2012 and K.E.G.s came under the legal umbrella of Soil & Health Canterbury.

The aim of K.E.Gs was to promote education in organics throughout New Zealand and especially in Canterbury. This was done through a garden facilitator establishing a garden within schools, spending an allotted time with the children each week teaching them, and then gradually transferring ownership over to the school. Beyond setting up an edible garden, it is about establishing a learning space which is enduring beyond the stay of the facilitator.

3.3 LIFE SKILLS

Robinson & Zajicek(2005) found that there was a significant improvement in the children's ability to work with groups, improved self-understanding, communication, and volunteerism. Other life skills such as decision making and leadership skills showed no significant difference in pre and post test scores. It is noted by the authors that life skills are influenced by other external factors such as social life and family values. It concludes that the skills that are gained or enhanced by participating in similar gardening programmes can help youth to become socially responsible, successful and productive citizens later in life. Lekies and Sheavly (2007) found that life skills such as self-confidence and esteem were positive side effects of learning new gardening skills. Blair (2009) states that inquiry-based learning allows for the development of new receptors for information especially for more tactile learners. Principals interviewed in the Marlborough District Council (2013) study, also agreed that K.E.Gs delivers the key competencies of the New Zealand curriculum including self-management, contribution, participation and cooperation.

3.4 ENVIRONMENTAL CONSIDERATION

Children are able to learn about environmental concerns and sustainability through gardens by being exposed to sustainable food systems. Parents and children from the Marlborough Evaluation (2013) expressed that the programme had made them become more environmentally friendly; performing tasks such as recycling, composting, and reusing seeds, both at school and in the home environment.

4.1 QUANTITATIVE

Quantitative data has been used sparsely in previous evaluations (Gibbs et al, 2013) of edible gardening programmes. Due to the nature of our research focus, our quantitative methods were only existent in the form of data obtained from archives.

4.2 QUALITATIVE

Although a mixed method approach is valuable for a comprehensive evaluation (Gibbs et al, 2013), our research mainly consists of qualitative analysis. Qualitative methods are of specific relevance to the study of social relations and the development of intangible skills and knowledge due to the fact of the (Flick, 2009). This method has allowed for a narrative perspective, taking into account that viewpoints and practices are subjective dependent on an individual's perspective and external influences. These are divided into four main sections: archives, ethnography, interviews with key stakeholders and surveys.

ARCHIVES

Matt Morris allowed us access to past archives (funding applications, minutes and newsletters). To have a historical perspective on the programme, primary data in this form, has been a critical element.

SURVEYS

We developed a survey (Appendix 9.2). These were then presented to five previous participants via face to face or over the phone. This was done in order to elicit a more detailed response to the questions. The snowballing method was used to find participants (Noy, 2008), by using the group's friend base and social media. They were involved in the programme from Years 4-8 (approximately aged 7-12). This enabled us to review the long term effects of the programme.

The success of K.E.Gs is shown by the achievement of their aims. These aims are to create healthy and sustainable communities. The following sections are the four initial aims and the achievement of them over the past fifteen years.

5.1 PAST

DEVELOPING CHILDREN'S LIFE SKILLS AND SELF-ESTEEM BY INVOLVING THEM IN THE PLANTING AND GROWING PROCESS

Children who may not thrive in a structured classroom setting, are given opportunities to be involved in more tactile environments through their involvement in the garden as highlighted in studies. As per their initial goals, this aspect of the gardening has been significant in developing children's life skills and self-

In the Organic City Garden Trust newsletter (Issue 11, 2000), Jesse a garden facilitator, talks about how children gain, through the programme, an understanding about the seeds to vegetables to food process. They understand that the foods eaten at dinner originally come from the garden.

REDUCING, REUSING AND RECYCLING WASTE WITHIN THE SCHOOL COMMUNITY THROUGH COMPOSTING AND WORM FARMS AND THE TRANSFERAL OF KNOWLEDGE

In K.E.Gs, recycling waste through lunchtime food scraps has always been integrated into the programme. In Figure 1, a student collection of lunch time food scraps is shown, with any of the scraps being used for the schools own compost system. With the students collecting the compost, their participation means they are engaged in the activity and can see the transition of eating and their leftovers to be used in some way to benefit the garden.

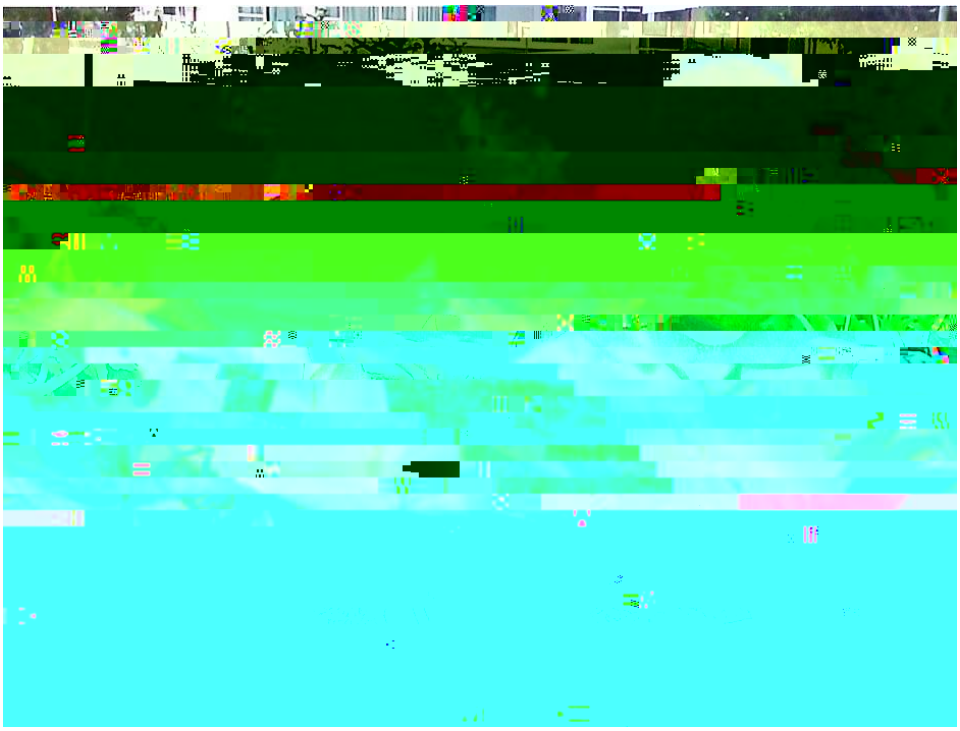
Addington Primary School students collect lunch food scraps for composting.

(Photo courtesy of Lily White)

While observing students at Our Lady of Assumption, students were explaining how they had collected food scraps and were using them in a composting system called ‘bokashi’ where food scraps break down anaerobically over six weeks. The idea that the food scraps could make the garden thrive more after being implemented in the composting system shows that this aim has been well met. However, because this ethnographic research was carried out with older students (Year 7/8s) it is difficult to know if these processes could be understood by younger students as well.

The willingness of the children to impart what they had learnt as well as the enthusiasm from parents to initiate such a programme demonstrates the success of this K.E.

Two Rowley Avenue students participate in Kids' for Edible Gardens Programme. The student on the left has been involved in the programme for three years and according to Lily "sti



PHILLIPSTOWN KINDERGARTEN

The kindergarten had previously heard about Lily and Kids' Edible Gardens programme and invited her to begin teaching in term four, 2012. With harvested produce, a soup or something similar is cooked and shared. This exemplifies the transition from vegetables in the garden to food on the plate, allowing for the development of life skills through their active involvement in the process and helps develop knowledge of food self-reliance. DERG

NEWSLETTERS AND MEETING MINUTES

The Organic City Garden Trust printed a newsletter and included a section for Kids Edible Gardens. The first issue began in November 1997, (K.E.Gs first mentioned in March 1998) and the last archived newsletter was Issue #23 (2003). Additionally, the meeting minutes allowed for an insight into the functionality of the model beyond the classroom. A key theme throughout the minutes was the discussion of funding options. Analysing the newsletters, as a public source, then the meeting minutes, K.E.Gs private source, demonstrated the balance between presenting their image to schools and

extension programme run at Casebrook School where students can opt in and are encouraged to do so for a year. There are approximately 20 students involved who are involved in the gardens for two hours a week.

One past student who was surveyed, who is now training to become a teacher, highlighted the need for outside support for teachers. A suggestion for the continued growth of the Marlborough K.E.Gs which could also be adopted by original K.E.Gs programme, was the implementation of annual professional development workshops for teachers to up skill them (Marlborough Kids' Edible Garden, n.d). DeMarco, Relf and McDaniel (1999) demonstrate that throughout gardening programmes, the lack of funding and resources was the prime reason which limited integration of gardening into schools. Funding remains a key barrier to such implementation – possible agreements with different groups and sectors such as the Ministry of Education need further exploring.

Lily is the only current garden facilitator. K.E.Gs has almost reached its capacity in taking on new schools. This raises an issue of scalability – how can they increase to meet the needs of a greater range of schools? Comparatively, Marlborough Kids Edible Gardens for the past five years has been funded by the Nelson Marlborough District Health Board as well as the District Council (Marlborough District Council, n.d). Christchurch's Kids' Edible Garden, as observed through the funding applications and interviews, lacks a steady flow of funding. Additional to targeting this weakness, an idea raised was the creation of equivalent for garden facilitators – this would give them a unified approach and a defined standard of what they are able to offer schools.

SURVEYS

Those surveyed were in their early 20's with many participants flatting. Because of the less permanent accommodation tenure, many did not have gardens and were unable to comment on current gardening practices. Our sample set (N=5) was small as finding past participants was hard. Many could not specifically remember if it was a K.E.Gs programme. This was mitigated by conducting face to face or phone questions rather than electronically –

TIME

Due to the ten week time constraint of this project, there was aspects which could not be addressed. Additional interviews with past employees and teachers would give an even wider scope.

ETHICS

Due to the University of Canterbury's ethics, there were constraints on our ability to interview the children participating in this programme. To an extent, this was mitigated through our ethnographic observations. However, formal interviews, out of the range of their garden facilitator could have given a greater perspective.

BIAS

There is a bias to contend with in interviewing past and current employees of K.E.Gs. Being involved, it is harder to portray a balanced opinion and view.

GAPS IN ARCHIVED DATA

The archived data was not complete. Items were missing and there was a gap in the years the trust had broken down – this makes it harder to construct a longitudinal timeline and data set. However, due to the dating upon the majority of the documents, it was easier to see the range and scope of information we had.

This report has sought to produce a fifteen year evaluation of the Kids' Edible Gardens programme. Research through a range of methods has been undertaken to provide a thorough evaluation of the benefits, weaknesses and potential challenges since Kids' Edible Gardens first began in 1997. The benefits and limitations of implementing school gardening programmes evident in the literature run concurrently with those observed through our research. Kids' Edible Gardens can successfully demonstrate that it has largely fulfilled its aims

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Survey participants
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9.1 INTERVIEW QUESTIONS

What was your role (over what years) at K.E.Gs?
What was the role of the garden facilitator within schools?
What and who were some of the key instigators in starting up K.E.Gs?
What have been some of the key challenges for K.E.Gs/schools?
What are some of the key benefits of K.E.Gs?
Where do you think you see K.E.Gs in the future?

9.2 SURVEY QUESTIONS

1. What school did you attend?
2. How old and in what school year were you when you participated in this programme?
3. How was the programme received?
4. How do you think gardening in now received within schools?
5. Do you have your own edible garden?
    a. YES.
        i. What types of plants do you grow?
        ii. How frequently would you use the produce that you have grown?
        iii. How has the Kid's Edible Garden programme affected your gardening practice now?
        iv. If you have kids, are they either at school or at home participating in the gardening?