

# Evaluation of the Stephanie Alexander Kitchen Garden Program



**Final Report to:**  
**The Stephanie Alexander Kitchen Garden Foundation**

**October 2009**



**Suggested citation:**

Block K, Johnson B, Gibbs L, Staiger P, Townsend M, Macfarlane S, Gold L, Long C, Kulas J, Okoumunne OC, Waters E, (2009) Evaluation of the Stephanie Alexander Kitchen Garden Program: Final Report. Melbourne: McCaughey Centre.

# EVALUATION OF THE STEPHANIE ALEXANDER KITCHEN GARDEN PROGRAM

---

**Final Report to:  
The Stephanie Alexander  
Kitchen Garden Foundation**

**Prepared by the SAKG Evaluation Research Team (details inside report)  
Primary authors: Karen Block, Britt Johnson**



# CONTENTS

---

CONTENTS .....	5
KEY FINDINGS AT A GLANCE .....	6
Evaluation Research Team .....	8
Acknowledgements .....	8
INTRODUCTION AND STRUCTURE OF THE REPORT .....	9
REVIEW OF THE LITERATURE.....	11
SUMMARY OF METHODOLOGY.....	14
SUMMARY OF FINDINGS.....	16
Increased appreciation of diverse, healthy foods .....	16
Increased enjoyment, knowledge and confidence in relation to growing, preparing, cooking and eating food .....	20
Improvements to the school social and learning environment.....	26
Evidence of extension of program benefits to home and community .....	31
Determination of the feasibility, acceptability and costs of conducting the SAKG Program in the primary school context .....	35
CONCLUSIONS.....	46
KEY REFERENCES .....	47
APPENDICES .....	50

## KEY FINDINGS AT A GLANCE

The Evaluation of the Stephanie Alexander Kitchen Garden (SAKG) Program has demonstrated that in the first two years of the implementation of the SAKG Program in Victorian schools, there are clear changes in child attitudes, knowledge, skills and confidence in relation to cooking and gardening. The overwhelming response by school principals and all other stakeholder groups was that the SAKG Program was well worth the effort required to maintain it.

A mixed methods approach was adopted for this evaluation. Qualitative measures such as focus groups, interviews and participant observation provided the primary means of understanding the impact of the program and how it was experienced by children and other members of the school community. Quantitative (i.e. survey) measures provided additional information about the extent of change occurring as a result of the SAKG Program.

The key findings of the evaluation are as follows:

- There was strong evidence of increased child willingness to try new foods including a significant difference between program and comparison schools.
- The kitchen classes were greatly enjoyed by children, and the children at program schools were significantly more likely than children from comparison schools to report that they liked cooking 'a lot'.
- Children enjoyed their gardening classes but in schools where the garden specialists had fewer gardening qualifications and experience, children tended to report lower interest in participating in garden activities. Differences in levels of enjoyment of gardening reported by children from program and comparison schools were not statistically significant.
- Children's competent use of knives in the kitchen appeared to be particularly valued by all stakeholders as evidence of skill but also as a symbol of trust.
- There was evidence of statistically significant increases in child knowledge, confidence and skills in cooking and gardening.



- Increases in food literacy occurred in both program and comparison schools and cannot therefore be attributed to the impact of participation in the program.
- The program was considered particularly effective at engaging 'non-academic learners' and children with challenging behaviours.
- The SAKG Program helped to create links between schools and the community. This was often noted as one of the program's most important outcomes.
- Transfer of program benefits to the home environment was not one of the goals of the program but is emerging as a flow-on benefit.
- Perceived challenges to program sustainability include ongoing funding of the program and recruiting sufficient volunteer support to run classes. Increased integration with curriculum helps to overcome competing priorities for class time.
- The SAKG Program is associated with substantial financial cost and even greater community investment in terms of the resources of time and materials used.
- Program schools on average generated \$1.93 of additional resources for every \$1 of government funding invested in the SAKG Program.



This comprehensive evaluation of the SAKG Program makes an important contribution to the international literature on kitchen gardens and garden based nutrition programs. It included matched comparison schools, all of which had a gardening program and in some cases a limited cooking program. In doing so it provided an opportunity to assess the SAKG Program against what is being achieved by schools without the benefit of the design, funding and resourcing of the SAKG Program model.

The strong additional benefits of the SAKG Program to the school community were clearly demonstrated in terms of child engagement in learning, increased child willingness to try new foods, improved child knowledge, confidence and skills in relation to cooking and gardening, improved school social environment, and increased school-community connections.

There were also indications that the SAKG Program may be of greatest benefit to students of greatest disadvantage thereby addressing health inequities in a way that is difficult to achieve in health promotion programs. Further research is required to confirm this finding.

Economic analyses highlighted the value placed on the program by all stakeholders and the success of the funding model in leveraging funds to support schools' implementation of the program.



The evaluation showed that the program would benefit from improvements to the components addressing food literacy, specialist qualifications in area of expertise, and curriculum integration. Schools also require greater support and guidance in relation to funding and volunteer recruitment to ensure the sustainability of the program.



## EVALUATION RESEARCH TEAM

---

Principal Investigator:	Dr Lisa Gibbs <i>The McCaughey Centre*, University of Melbourne</i>
Investigator:	Associate Professor Petra Staiger <i>School of Psychology, Deakin University</i>
Investigator:	Associate Professor Mardie Townsend <i>School of Health and Social Development, Deakin University</i>
Investigator:	Susie Macfarlane <i>School of Psychology, Deakin University</i>
Research Fellow:	Karen Block <i>The McCaughey Centre*, University of Melbourne</i>
Health Economics Advisor:	Lisa Gold <i>Deakin Health Economics, Deakin University</i>
Research Fellow:	Britt Johnson <i>The McCaughey Centre*, University of Melbourne</i>
Research Fellow:	Caroline Long <i>School of Psychology, Deakin University</i>
Research Assistant:	Jennifer Kulas <i>The McCaughey Centre*, University of Melbourne</i>
Statistical Advisor:	Obioha Chukwunyere Ukoumunne <i>Clinical Epidemiology and Biostatistics Unit (CEBU), The Royal Children's Hospital</i>
Advisory Support:	Professor Elizabeth Waters <i>The McCaughey Centre*, University of Melbourne</i>

\*The McCaughey Centre: VicHealth Centre for the Promotion of Mental Health and Community Wellbeing

## ACKNOWLEDGEMENTS

---

The authors would like to acknowledge the generosity of the school communities who committed considerable time and effort to participate in the evaluation. The funding provided by the Stephanie Alexander Kitchen Garden Foundation to conduct the evaluation is also gratefully acknowledged, as is the financial support the Foundation received for the evaluation from VicHealth, the Helen Macpherson Smith Trust, the Victorian Department of Education and Early Childhood Development, and Deakin University. Lisa Gibbs acknowledges the NHMRC Capacity Building Grant for Child and Adolescent Obesity Prevention and the Jack Brockhoff Child Health and Wellbeing Program for salary and operational funding support. For their assistance in the early stages of this project; Helen Bolger-Harris, Monica Green, Lucy Westerman, Michele Bell and Sing Kai Lo are also gratefully acknowledged.





# INTRODUCTION AND STRUCTURE OF THE REPORT

This is the final report on the Evaluation of the Stephanie Alexander Kitchen Garden (SAKG) Program in order to fulfil the funding obligations under the terms of agreement between the Stephanie Alexander Kitchen Garden Foundation and The McCaughey Centre: VicHealth Centre for the Promotion of Mental Health and Community Wellbeing, University of Melbourne.

This report marks the completion of a mixed-method longitudinal evaluation to examine the processes, impacts, costs and outcomes of the SAKG Program conducted over two and a half years from 2006 to 2009. The report includes:

- Key evaluation findings at a glance
- A brief overview of the literature summarising the evidence base for impacts and outcomes of school gardening and garden-based nutrition programs, and gaps in the evidence for kitchen garden programs
- A summary of the methods used for this evaluation with copies of child, parent and teacher questionnaires attached as appendices
- A summary of integrated findings from final program evaluation analyses aligned with the evaluation objectives as follows:
  - Children's increased appreciation of diverse, healthy foods
  - Improved child knowledge and confidence in relation to growing, preparing, cooking and eating food
  - Improved social and learning school environment
  - Evidence of extension of program benefits to home and community
  - Determination of the feasibility, and acceptability and costs of conducting the Stephanie Alexander Kitchen Garden Program in the primary school context
- A list of key references



Previous progress reports may be referred to for further detailed descriptions of preliminary evaluation findings which have included:

- Descriptions of the program and evaluation background (Baseline Report, November 2007; Progress Report, June 2008)
- Summary descriptions of the study population for the duration of the evaluation (Baseline Report, November 2007; Progress Report, June 2008; Progress Report, December 2008)
- Baseline findings obtained from child and parent questionnaires from program and comparison schools (Progress Report, June 2008)
- A record of innovative approaches being used by schools in the implementation of the program (Progress Report, December 2008)
- Analysis of focus group discussions conducted with children, parents, teachers, and volunteers, and interviews conducted with all principals and kitchen and garden specialist staff from the six program schools participating in the evaluation (Progress Report, December 2008)
- Results of analysis of the teacher questionnaires comparing baseline and follow-up findings (Progress Report, June 2009)

- Preliminary findings arising from three rounds of participant observations conducted by an external observer of kitchen and garden classes (Progress Report, June 2008; Progress Report, December 2008; Progress Report, June 2009)
- Discussion of preliminary findings related to key attributes of the program for different stakeholder groups and values attached to the program by those groups (Progress Report, December 2008)
- Detailed discussion of preliminary findings related to program sustainability, curriculum integration and implications of findings concerning specialist staff qualifications (Progress Report, June 2009)

Additional details of methodology, analyses and findings are included in a supplementary document provided to the Stephanie Alexander Kitchen Garden Foundation with this report. This document comprises data tables from survey measures used for the evaluation and draft papers for academic journals with the following provisional titles (lead author in brackets):

- Methodology and sample description for the Evaluation of the Stephanie Alexander Kitchen Garden Program (Lisa Gibbs)
- Expanding children's experience of food – the impact of a school-based kitchen garden program (Lisa Gibbs)
- Growing and cooking with confidence – the impact of a school-based kitchen garden program (Petra Staiger)
- Growing community: the impact of a kitchen garden program on the social and learning environment in primary schools (Karen Block)
- Cooking up confidence, capabilities and connections! A review of volunteering using the Stephanie Alexander Kitchen Garden Program as a case study (Mardie Townsend)
- The economics of Stephanie's Kitchen Garden: what is involved and what does it cost? (Lisa Gold)

- The value of a school-based kitchen garden program: why do people do it and is it worth it? (Lisa Gold)

**These draft papers are not yet available for public release**, however full publication details will be provided to the Stephanie Alexander Kitchen Garden Foundation as soon as they become available.



# REVIEW OF THE LITERATURE

Throughout the last decade there has been a great deal of interest surrounding community, and specifically school based, garden initiatives. Interestingly, whilst some school cooking programs have been initiated during this time, proliferation of these projects has been comparatively modest. Very few school based kitchen garden programs (which include both gardening and comprehensive cooking components) are currently implemented in primary schools; Alice Water's The Edible Schoolyard (ESY) in California being a notable exception.

There is a significant lack of thorough research regarding the impacts of garden-based programs and several researchers have noted the need for more reliable research based on strong evidence and rigorous methods of evaluation (Skelly and Bradley 2000; Murphy 2003; Phibbs and Relf 2005; Lautenschlager and Smith 2007a; Ozer 2007; Robinson-O'Brien, Story et al. 2009). The relatively limited numbers of established cooking and kitchen garden programs has resulted in an even greater deficiency of evaluative studies and represents a significant gap in the current literature.

There exists considerable variation in the evaluations of current gardening programs due to differences between both the programs themselves and the methods applied in their evaluation.

Several gardening programs discussed in the literature have a limited duration - from as little as 10-weeks (Lautenschlager and Smith 2007b; Heim, Stang et al. 2009). Some of these were piloted specifically for research purposes (Morris, Koumjian et al. 2002; McAleese and Rankin 2007). Other programs have been implemented over the course of a year or more (Newell, Huddy et al. 2004; Somerset and Markwell 2008). Some gardening programs have been established in conjunction with other initiatives such as nutrition education instruction (Morris and Zidenberg-Cherr 2002; Lautenschlager and Smith 2007b; McAleese and Rankin 2007),



basic food preparation activities (Hermann, Parker et al. 2006; Lautenschlager and Smith 2007a), or as part of a multi-strategy nutrition education program (Newell, Huddy et al. 2004); making it difficult to research the impact of garden programs specifically.

Community based garden programs have been evaluated in a range of contexts, such as within schools (Lineberger and Zajicek 2000; Morris, Briggs et al. 2000), holiday or after-school programs (Hermann, Parker et al. 2006; Heim, Stang et al. 2009) and as part of wider community initiatives (Pothukuchi 2004; Lautenschlager and Smith 2007a). The variations between programs, such as duration and community context, limit possibilities for comparison and perhaps go some way to explaining the relatively inconsistent current findings regarding gardening programs.

The majority of evaluations of school garden programs are concerned with the impact of such initiatives on nutrition knowledge, fruit and vegetable habits, preferences and intake (Morris, Neustadter et al. 2001; Morris and Zidenberg-Cherr 2002; Somerset, Ball et al. 2005; Parmer, Salisbury-Glennon et al. 2009), as well as the capacity to improve knowledge in traditional academic areas, particularly maths and science (Graham, Beall et al. 2005; Klemmer, Waliczek et al. 2005; Pigg, Waliczek et al. 2006). However, some other evaluations have reflected on the potential impact of gardening programs on children's



attitudes towards the school environment (Alexander, North et al. 1995; Canaris 1995), interpersonal relationships and self esteem (Waliczek, Bradley et al. 2001; Somerset, Ball et al. 2005), and environmental attitudes (Skelly and Zajicek 1998; Aguilar, Waliczek et al. 2008).

Past studies of school garden programs have employed various evaluation tools including 24-hour food recall books (Lineberger and Zajicek 2000; McAleese and Rankin 2007), student and/or parent surveys (Morris, Neustadter et al. 2001; Morris and Zidenberg-Cherr 2002; Newell, Huddy et al. 2004), child interviews (Koch, Waliczek et al. 2006), vegetable taste testing (Morris, Neustadter et al. 2001) and lunchroom observation (Parmer, Salisbury-Glennon et al. 2009); with some studies including multiple evaluation tools. However, several existing studies have employed only a single evaluation tool (Newell, Huddy et al. 2004; McAleese and Rankin 2007).

Others have excluded a control group (Cason 1999; Hermann, Parker et al. 2006; Koch, Waliczek et al. 2006; Heim, Stang et al. 2009) or omitted baseline data collection (Newell, Huddy et al. 2004; Graham, Beall et al. 2005), thus limiting the usefulness of reported findings. The lack of consistency in evaluation tools used is another factor limiting comparison between various school garden-based evaluations and clear findings as different research methods measure different concepts.



Throughout the last twelve years there have been several key evaluation studies of garden, cooking and kitchen garden programs.

The various evaluative studies of Morris and colleagues (Morris, Neustadter et al. 2001; Morris, Koumjian et al. 2002; Morris and Zidenberg-Cherr 2002) have provided much insight into the potential of school gardens, in conjunction with nutrition education instruction, to improve nutrition knowledge, willingness to eat vegetables and vegetable knowledge and preference. However, the lack of consistent findings amongst these evaluative studies indicates a need for further research.

More recently, several review papers (Morris, Briggs et al. 2000; Phibbs and Relf 2005; Ozer 2007; Blair 2009; Robinson-O'Brien, Story et al. 2009) have attempted to distil existing research on youth focused gardening programs. These represent an attempt to create a cohesive analysis of the often disparate literature currently available. Such reviews indicate that whilst current findings offer a promising indication of the value of garden based programs there is still a significant need for further research.

An evaluation of the *Cookshop* program in New York conducted by Liquori and team (Liquori, Koch et al. 1998) assessed the impact of a school cooking program (in conjunction with a cafeteria initiative) on increasing consumption of vegetables and minimally processed grains; positively influencing children's attitudes, preferences and knowledge about these foods; and increasing self-efficacy. Whilst this study makes a valuable contribution to the existing body of literature there is a need for greater evaluation of such programs.

Murphy's 2003 evaluation of The Edible Schoolyard (ESY) project (Murphy 2003) was an important publication as it addressed the complete absence of literature regarding school kitchen garden programs; however, the lack of rigorous reporting of research methods and data (particularly quantitative)

greatly limit the interpretation of reported findings.

This evaluation will build on the existing evidence that, although inconsistent, suggests that programs involving a gardening component can have a positive impact on children's food attitudes and the school environment. In addition the evaluation will address the gap in the literature by generating new knowledge about the processes, impacts, costs and outcomes of a combined kitchen garden program on children specifically and on the school and home environments.





# SUMMARY OF METHODOLOGY

---



## *Study sample*

The evaluation schools were randomly selected from the schools receiving the SAKG Program using a stratified process to ensure a range of schools were included on the basis of geographic location, sociodemographics (represented by percentage of school families receiving Education Maintenance Allowance) and school size. The comparison schools were matched in terms of sociodemographics (represented by SFO – Student Family Occupation index – a Department of Education and Early Childhood Development measure of sociodemographic status), school size and geographic location.

The evaluation design most suited to the SAKG Program was a mixed methods, longitudinal, matched comparison trial. A mixed methods approach uses a range of ways of collecting information and measuring change to ensure that the most meaningful data is collected to understand the impact of the program.

In this evaluation, the qualitative measures including interviews, participant observation and focus group discussions were the focus of the evaluation to enable an understanding of how the program was experienced by the stakeholders.

The qualitative measures were supported by longitudinal quantitative measures of change captured by child, parent and teacher questionnaires administered at baseline and follow up. The inclusion of matched comparison schools provides a means for determining whether the changes were occurring within schools anyway or could be attributed to the influence of the program.

The population of interest for the evaluation of the SAKG Program included all staff and families of children in grades three to six (i.e., aged 8-12 years) from the six program and six comparison schools. Participation in the evaluation was through an opt-in process of consent: staff and families were sent information letters and consent forms via the school and requested to return the consent forms to the school for collection by the research team.

A total of 770 children, 562 parents and 93 teachers were recruited to participate in the study. The participation rates for the program group were 65.9% of eligible children and 49.7% of eligible parents. The participation rates for the comparison group were 38.5% of eligible children and 31.5% of eligible parents. Eligible teachers included all those involved in teaching the target group of children in grades three to six. School level variations, such as team-teaching, or class-sharing, meant that in some schools the number of eligible teachers did not match the number of classes. At baseline, the child response rates (i.e. the percentage of children for whom consent to participate was received who went on to complete questionnaires) were similar for both the program and comparison groups with approximately 97% response. The parent

response rate at baseline was 78.3% for the program-school group and 81.8% for the comparison-school group. Seventy-four teachers completed questionnaires at baseline which included 43 program-school and 31 comparison-school teachers.

Following some attrition, the response rates for children at follow-up were 82.6% for the program schools and 87% for the comparison-school group. The parent response rate at follow-up was 81.3% for the program schools compared to 68.2% for the comparison schools. At follow-up, 45 program-school teachers and 26 comparison school teachers completed questionnaires.

### *Measures*

The evaluation sought to measure achievement of the following SAKG Program objectives:

- Increased appreciation of diverse, healthy foods
- Improved child knowledge and confidence in relation to growing, preparing, cooking and eating food
- Determination of the feasibility, and acceptability and costs of conducting the Stephanie Alexander Kitchen Garden Program in the primary school context
- Improved social and learning school environment



The evaluation also assessed:

- Evidence of extension of program benefits to home and community environments.

This was not a SAKG Program objective but had been anticipated as a possible flow-on benefit and so was included in the evaluation.

### *Data Collection:*

All of the data was collected over a two and a half year period (2007-2009) and included:

- Principal (pre & post) interviews at 6 program schools and 6 comparison schools
- Kitchen and garden specialist staff interviews at 6 program schools at the end of the evaluation
- Teacher, parent and volunteer focus groups at 4 program schools and child focus groups at 6 program schools (in the final six months of the evaluation)
- Teacher, parent and child questionnaires (all pre & post) at 6 program schools and 6 comparison schools
- Participant observations at 4 program schools at 3 time points – first six months of program, midpoint and last 6 months of evaluation

### *Data Analysis*

A mixed methods analysis of the data was conducted including separate analyses of the data collected using different methods. Examination of the combined results was then conducted to clarify and explore similarities and contradictory results and compare with the existing literature. This provided an understanding of what worked and what didn't, how it was experienced, what it cost and how it was valued.

# SUMMARY OF FINDINGS



## *INCREASED APPRECIATION OF DIVERSE, HEALTHY FOODS*

### *Willingness to try new foods*

With very few exceptions, children in focus groups reported that they were enjoying trying new foods, were more confident in trying new foods and were now eating a wider range of food than previously. They talked about eating more vegetables in particular, were confident that the food they were eating now was healthier and many also said they were eating less 'junk food'. Parents were reported by children and teachers to be happy about these changes. Many children also discussed enjoying trying foods from different cultures, mentioning Mediterranean, Asian and Moroccan as examples. In addition, children often indicated their appreciation of the fact that the food they grew was organic. Comments were made that one could taste 'the freshness' and that the fruits and vegetables tasted better than those from the supermarket.

While a number of children reported that they were already eating well at home before the introduction of the program, others made it clear that the SAKG program had made a significant difference to their eating habits. The following exchange represents a typical response to questions posed in child focus groups about how participants had changed since the program was introduced:

[I] just [have] a different taste range. I didn't used to eat much until I came into the kitchen garden

Because I used to eat not many vegetables.

Everything we eat here is vegetables and they are tasty!

All parents participating in the focus groups reported that their children had become more willing to try new foods and were more aware of issues of health and nutrition. Children were prepared to try new dishes, were making healthier choices and consuming more vegetables. In some cases the changes were quite dramatic. One parent remarked that, 'previously, potato wedges were the only vegetable some children ate all week'. Another parent reported that her child, who had previously been reluctant to eat vegetables, would now happily help to prepare vegetable soup and discuss all the

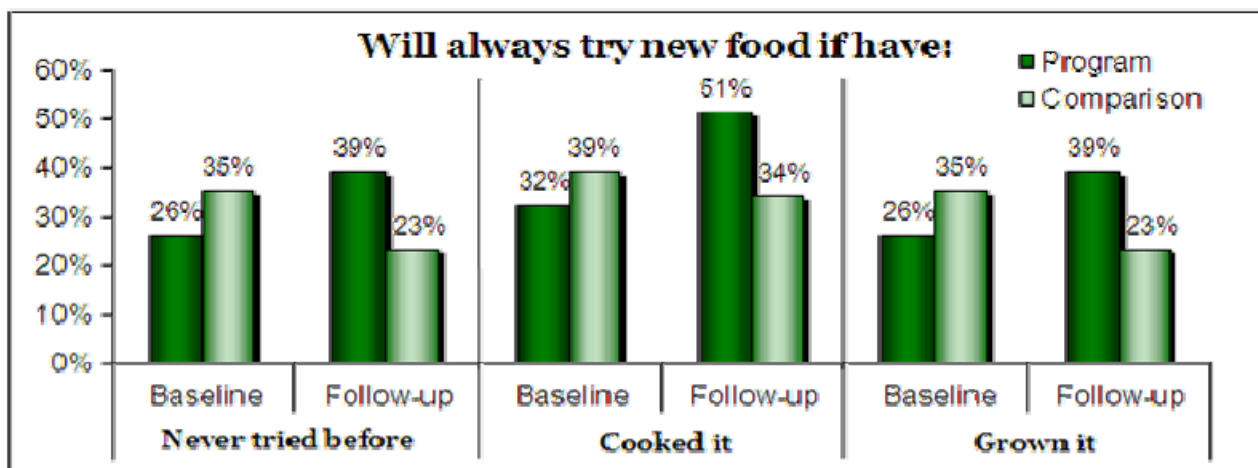
*"Everything we eat here is vegetables and they are tasty!"*

vegetables in it while enjoying it.

Children's willingness to try new foods was assessed quantitatively by parent and child responses on a four point scale from 'never' to 'always' in the parent and child questionnaires. Children were asked if they would try a new food if they had: 1) never tried it before; 2) if they had grown it themselves, and; 3) if they had cooked it themselves. As illustrated in Figure 1, program school children's responses that they would always be willing to try new foods increased from baseline to follow-up, if they had: never tried it (from 26% to 39%), cooked it (from 32% to 51%) and grown it (from 26% to 39%).

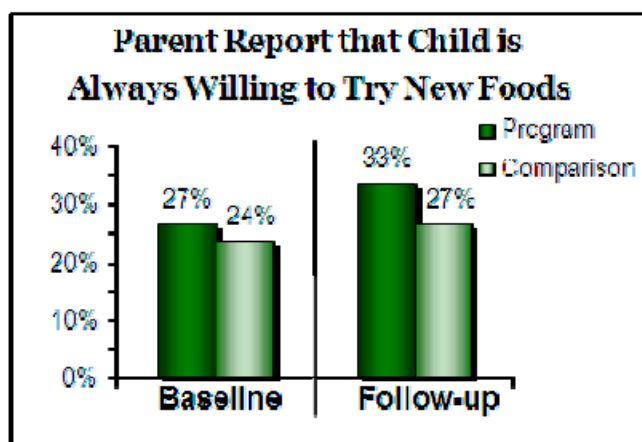
In contrast, comparison school children's reported willingness to always try new foods decreased from baseline to follow-up for all three categories. Of the three categories, both program and comparison school children were most willing to always try new foods if they had cooked it. Differences between program and comparison school children's responses were statistically significant.





**Figure 1 Percentage of children who report that they would be 'always' willing to try new foods if they have a) never tried it before, b) cooked it, c) grown it**  
 Note: Differences between program and comparison are statistically significant

Children's willingness to try new foods was also reported by parents (see Figure 2). Although at follow-up a greater percentage of program school parents reported that their child will always try new foods, 33% compared to 27% for comparison school parents, differences between the two groups were not statistically significant for parent reports.



**Figure 2 Percentage of parents who report that their child is 'always' willing to try new foods**  
 Note: Differences between program and comparison are not statistically significant

Children's observed increase in willingness to try new foods was seen as one of the most important outcomes of the program by teachers, kitchen and garden specialist staff and school principals. Teachers indicated at all schools that they had observed changes during the course of the program in children's preparedness to try new foods. Many children who had shown initial reluctance to taste things were now happily eating and enjoying a wide range of new foods and very few

children were said to be still reluctant to at least try a new dish.

While the teacher reports of the experience of the program were consistent within and across groups, program implementation varied according to the needs of particular schools and there were indications of different starting points in terms of nutrition between different schools. This was influenced by the socio-demographics of the school community. Staff in a metropolitan school said many of the children now remarked how they could taste the difference between vegetables grown in the garden and those bought from the supermarket. At a rural school, children were described as enjoying foods from different cultures, not otherwise readily available in their town. Vietnamese spring rolls and sushi had been particularly popular after the kitchen specialist returned from a shopping trip to Melbourne with rice paper and seaweed.

Teachers at several schools also reported that they had seen a noticeable difference in the nutritional quality of the food that children had been bringing to school for snacks and lunches since the program had been introduced. Teacher reports corroborated findings from the child focus groups that for some children, the nutritional benefits brought by the program served to reinforce messages about healthy eating which they were already receiving. For others however, the program was seen to provide opportunities for children to experience a range of fresh and nutritious foods that they clearly were not offered at home.

Volunteers too had observed a marked change over time in children's willingness to try new foods and this was considered to be amongst the most important outcomes of the program. Examples of volunteers' comments include:

I've had a lot of "I'm not eating that" and we get to the table and I tell them to just have one mouthful and "oh wow, this is really nice!"

And then they go back for seconds . . .

For some of them it's the first time they've actually eaten vegetables.



### *Food choices and food literacy*

Despite this compelling evidence that children were appreciating a more diverse range of healthy foods, there was no evidence of a significant program impact on children's choice or descriptions of favourite savoury foods which were assessed quantitatively.

Children were asked to list three of their favourite savoury or dinner foods to gauge the variability of their food choices and asked to describe the taste and texture of these foods to assess their food literacy. The sophistication of food choices identified as favourites by children was categorised according to whether or not they were takeaway/processed; the number of foods listed; and the complexity of ingredients or flavour. Responses including takeaway or processed food *only* such as "chips" or "KFC" were coded as 'Takeaway/Processed'. Responses with one takeaway option that included two other foods were coded as 'Limited Eater'. Responses with three

common foods with simple ingredients or flavours such as "pasta" "chicken" "spaghetti" were categorized 'Basic'. Responses that included a food or foods of complex flavour or unusual ingredients were coded as 'Sophisticated Eater'.

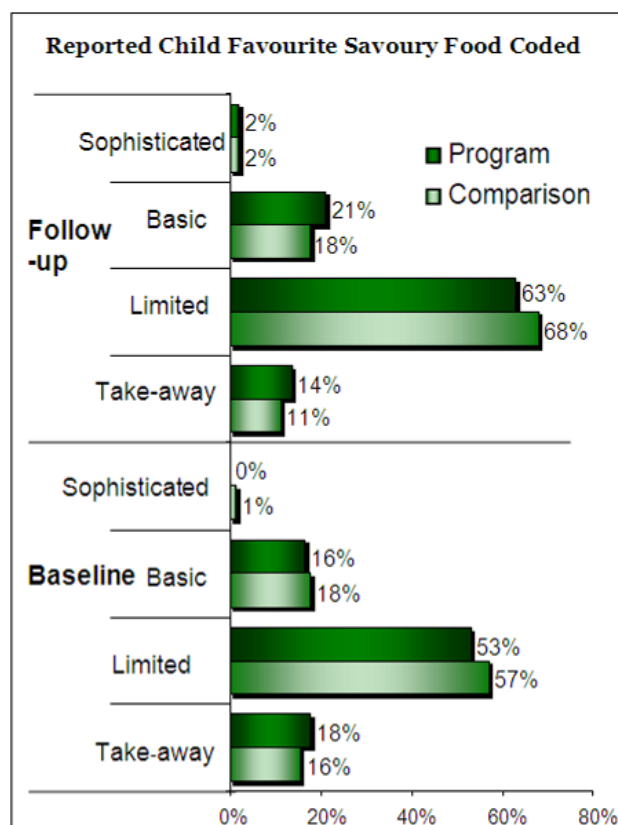
There was little difference between program and comparison schools and little change over the course of the evaluation in the foods children most commonly listed as their favourite savoury foods. However this does not capture the diversity in the majority of children's responses. While pasta remained a clear favourite with chicken, pizza and meat also popular (Table 1); many other foods were also listed. These included vegetables such as peas, broccoli, cauliflower, pumpkin and sweetcorn, sushi, risotto, calamari, enchiladas, tacos and soups.

**Table 1 Four most commonly reported favourite savoury foods reported by children**

MOST COMMONLY REPORTED FAVOURITE SAVOURY FOOD			
PROGRAM		COMPARISON	
BASELINE	FOLLOW-UP	BASELINE	FOLLOW-UP
Pasta (22%)	Pasta (15%)	Pasta (27%)	Pasta (15%)
Chicken (12%)	Pizza (8%)	Potato (11%)	Meat (8%)
Soup (10%)	Meat (8%)	Chips (9%)	Pizza (8%)
Potato (8%)	Chicken (7%)	Lasagne (8%)	Chicken (7%)

As can be seen in Figure 3, there was also little difference in the sophistication of food choices between baseline and follow up and any differences between groups were not statistically significant. Several limitations of this measure should, however, be acknowledged. As children were asked to list only their *favourite* foods, it gives no indication of the breadth of foods that the children may now be enjoying. It is also not possible to tell if a child has written 'pizza' for example, whether this refers to a takeaway pizza smothered in cheese and little else, or pizza which might have been cooked at home with homemade dough and a range of healthy toppings.





**Figure 3 Child reported favourite savoury foods coded according to: take-away/processed, limited, basic and sophisticated.**

Note: Differences between program and comparison are not statistically significant

Similarly 'chicken' could be KFC or a home-cooked roast. It may also be the case that a child who eats 'fast food' only very occasionally, might still list this as a 'favourite' food with the possibility that its very rarity makes it seem like a special treat.

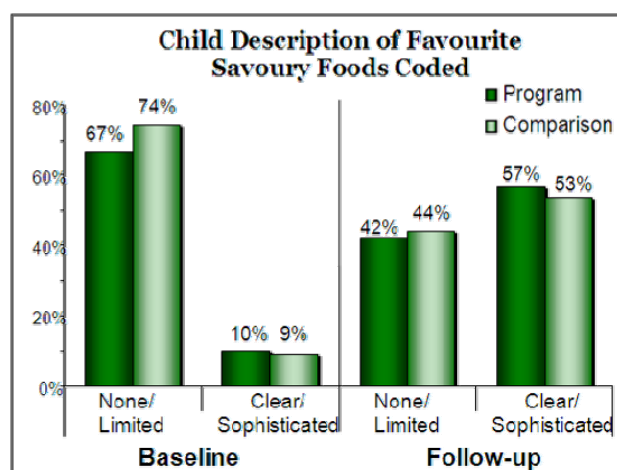
Children were also asked to describe the taste and texture of their favourite foods and the responses were used to assess food literacy by analysing the complexity of the description provided. Food literacy was coded according to level of detail and number of specific characteristics used to describe the food such as temperature, taste, texture and smell.

Responses that repeated the name of the food or used simple descriptors such as "yucky" or "nice" were coded as 'No Real Description'. Single concept responses regarding temperature or texture such as "warm" or "soft" or those describing how the food made the participant feel such as "makes me feel good" were coded 'Limited

Description'. Responses describing taste, texture, smell such as "chewy" or "creamy" were coded as 'Clear Description'. Responses that included multiple descriptors from the 'Clear Description' category such as "soft and wet and crisp" were coded as 'Sophisticated Description'.

As can be seen from Figure 4, while 57% of program school children and 53% of comparison school children provided a 'clear' or 'sophisticated' description of their favourite savoury foods at follow up, compared with 10% and 9% respectively at baseline, there was no significant difference between groups. This increase in food literacy can not therefore be attributed to the impact of participation in the SAKG Program but rather may reflect development in language skills over time, or participation in activities at comparison schools which had similar effects.

There was little evidence of development of food literacy from participant observations of children in kitchen and garden classes as children continued to use simple terms to describe food in the classes that were observed.



**Figure 4 Child reported description of favourite savoury foods presented as no/limited description, clear/sophisticated description**

Note: Differences between program and comparison are not statistically significant

## *INCREASED ENJOYMENT, KNOWLEDGE AND CONFIDENCE IN RELATION TO GROWING, PREPARING, COOKING AND EATING FOOD*



### *Enjoying the kitchen and garden*

The most common description of the SAKG Program given by children was that it was 'fun!' Cooking, measuring, cutting, eating, trying new things, new skills, cooking at home, working in teams, meeting new people, being and playing in the garden and "chooks" were all frequently nominated by children as the best things about the program. When asked what they would tell friends from another school about it, almost all said that they should have it too.

Children were also asked if they would like to change anything about the program and most replied that they would like more time in kitchen. More desserts, more rain, more meat, and dishwashers were also requested. Some also wanted more time in the garden, though garden classes were clearly more popular at some schools than at others, with a number of children at some schools inclined to be negative about them. Reasons given by some children for not liking the garden were that it was 'boring', unpleasant when too hot or too cold and that some children did not like to get dirty. As one child explained:

If you get dirty you've got no clothes to change into and parents yell at you.

On the other hand, some children expressed a great sense of achievement from their 'hard work' in the garden. Children spoke of their satisfaction at having created a garden from 'bare earth' at one school, and from a 'mud-pile' at another. As the following child focus group discussion shows, some children clearly made a connection between the effort they expended and the pleasure to be gained.

(Interviewer) And what has it [the SAKG Program] been like?

Fun

Hard work

Really great

I'm the same - it was hard work watering the plants but it was fun eating all of the new foods

It was fun playing and working as hard as we possibly can. To think that we've actually made it!

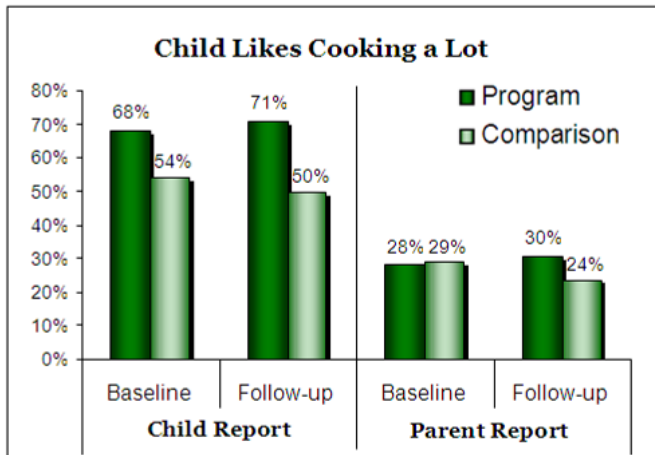
Teachers at some schools also acknowledged that the garden lacked appeal for a number of children and the repetition of the garden chores resulted in some of the children losing focus and playing up. However, all children were described by teachers as engaged in the kitchen. A school principal summed up this theme with:

Kitchen classes are the highlight of the week and all the children love them

Child enjoyment of cooking and gardening was assessed quantitatively (by responses on a 4 point scale from 'not at all' to 'a lot') to questions included in the child and parent questionnaires.

Significantly more program school children enjoyed cooking 'a lot' compared to comparison school children as reported by both children and parents. The percentage of program school children reporting that they enjoyed cooking 'a lot' increased from 68% to 71% over the course of the evaluation while for comparison school children percentages were 54% and 50% respectively. Program school parents were also more likely than comparison school parents to report at follow-

up that their child liked cooking 'a lot', with 30% and 24% respectively. The difference between program and comparison school children's enjoyment of cooking (as reported by both children and parents) was statistically significant (Figure 5).



**Figure 5 Percentage of children who like cooking 'a lot' as reported by children and parents**  
Note: Differences between program and comparison are statistically significant

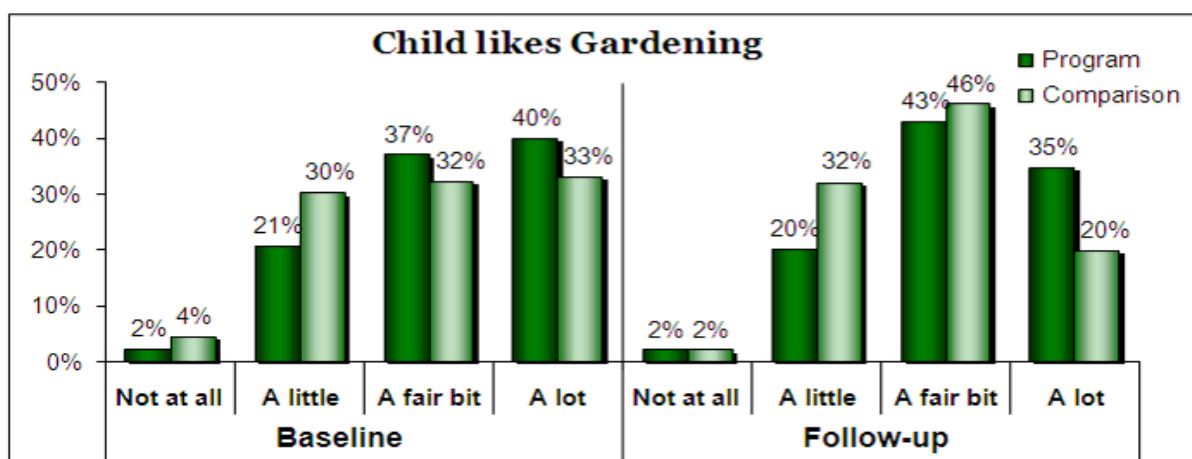
Despite program school children having a higher self reported enjoyment of gardening at follow-up compared to comparison school children (with 35% and 20%, respectively reporting that they like gardening 'a lot'), differences between program and comparison school groups were not statistically significant (Figure 6). This finding is in line with the qualitative findings that for some children, the gardening component of the program wasn't as enjoyable as the kitchen.



### *Development of cooking, gardening and environmental knowledge and skills*

Children talked a great deal about how much they had learned by taking part in the program. Cooking was seen by many children as a skill that would be useful and important when they were older and needed to cook for themselves or manage their own households. One focus group participant even expressed the opinion that it 'would help [him] to get a girlfriend' in the future. Learning how to use "proper" knives was raised as important by all groups. Being able to use knives in the kitchen appeared to be particularly valued as evidence of skill but also as a symbol of trust. Many children spoke of being taught how and trusted to use knives as a special aspect of the program. Other practical skills such as 'washing up' were also commonly mentioned.

Children frequently described the program as educational and listed knowledge of food, plants and the environment as important



**Figure 6 Percentage of children who like gardening: 'not at all', 'a little', 'a fair bit, or 'a lot'**

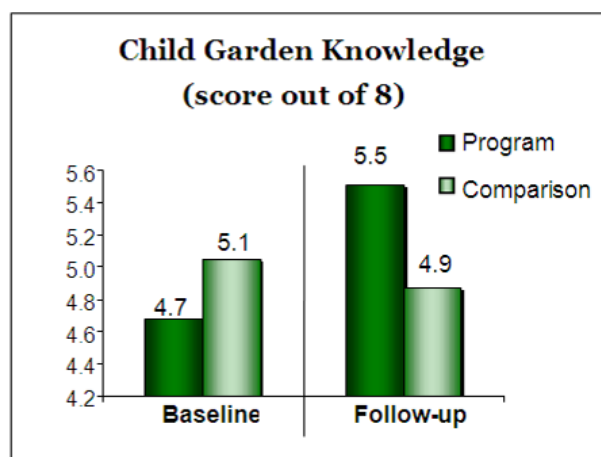
Note: Differences between program and comparison are not statistically significant



outcomes. Asked what they had learned about the environment, examples given included seasonal plants, compost, worm farms, water conservation, 'food miles' as well as 'bugs' in the garden and natural ways to control them without using pesticides. Children described numerous experiments they had performed and specialist staff described some of the sophisticated scientific concepts that had been incorporated in the program in some schools:

[We have] water quality problems so learned to let the water stand in buckets first for the chlorine to dissipate. This led to better results with seedlings. We also experimented with composting techniques. We compared manure on top with raw compost under soil, which gave better results. You can see the difference with some plants... [Then we] found that pea plants did better in unimproved soil over the longer term although they initially grew faster in improved soil. This is because they fix their own nitrogen. [We] dug them up and looked at the rhizomes.

Child gardening and environmental knowledge was measured by scoring children's responses to eight multiple choice garden questions (including: knowing when to harvest a sunflower, a tomato, and a potato; which part of the plant to water; which 3 vegetables grow in summer; how to make and use compost; and what growing food organically means). Each correct response scored 1, with scores ranging from zero (none correct) to 8 (all correct).



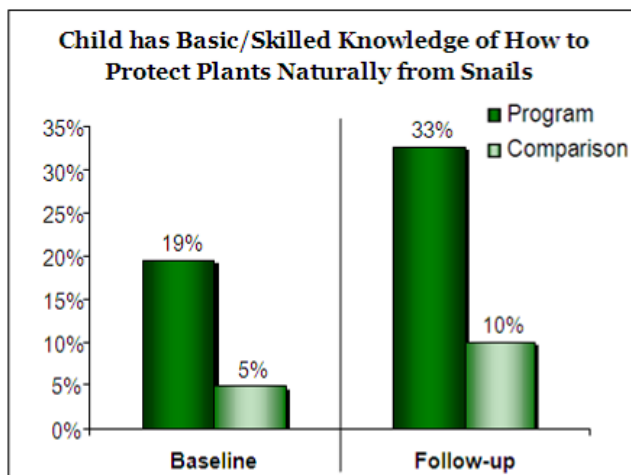
**Figure 7 Average child garden knowledge score (out of 8)**

Note: Differences between program and comparison are statistically significant

As can be seen in Figure 7, program school children's knowledge of gardening techniques increased during the evaluation; from an average score of 4.7 at baseline to 5.51 at follow-up. In contrast, comparison school children's garden knowledge slightly decreased from an average score of 5.1 at baseline to 4.9 at follow-up. These results indicated a statistically significant difference between program and comparison children's gardening knowledge. (It seems unlikely that comparison school children actually knew less about gardening at the end of the evaluation than at the beginning. It is more likely that this small decrease is due to chance as, with multiple choice questions, some correct answers will result from a lucky guess.)

Further knowledge of gardening was assessed by open-ended questions that asked children what plants need to grow, and how to protect a plant from snails. Children's responses were coded from 0 to 4 according to the accuracy and detail of the knowledge demonstrated (from no idea to limited, basic or skilled). Children's knowledge of natural methods to protect plants from snails was significantly different between program and comparison groups. The percentage of program school children who gave a correct answer increased from 19% to 33% between baseline and follow up, while for comparison school children it increased from 5% to 10% (See Figure 8). This considerable difference

in scores may be due to the fact that a high level of complex knowledge was required to correctly answer this question (i.e. knowledge of organic pest control such as beer and salt, or natural barriers such as crushed egg shells, and plant barriers).



**Figure 8 Percentage of children who have basic/skilled knowledge of how to protect plants naturally from snails**

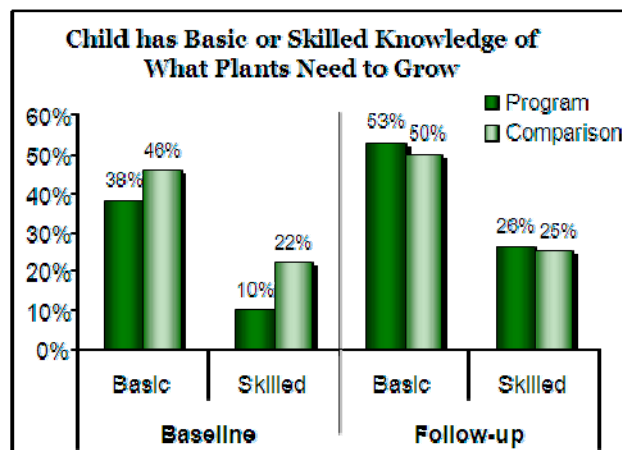
Note: Differences between program and comparison groups are statistically significant

Supporting anecdotal evidence for a difference between program school and comparison school children's level of garden knowledge was provided by the experiences of researchers when conducting questionnaires with children at program and comparison schools. While at a program school, researchers were given a guided tour of the garden during which children named all the plants, frequently stopping to offer us 'tastes' on the way. This was in marked contrast to an experience at a comparison school which had its own vegetable garden boasting an impressive crop of silverbeet. Despite this, many children needed to ask the researchers what silverbeet was when answering a question concerning how much assistance they would need to grow it. The point was well made that simply having a vegetable garden at the school did not necessarily lead to a diffusion of knowledge about its contents.

Conversely, knowledge of what plants need to grow required more common gardening knowledge, such as 'soil, sun, and water'. Consequently, knowledge levels were higher, with 48% (38% basic; 10% skilled) of program school children recorded a basic or skilled level at baseline rising to 79% (53% basic;

26% skilled) at follow up. Comparison school children's knowledge for this question was higher at baseline than for program school children with 68% (46% basic; 22% skilled) recording a skilled or basic level rising to 75% (50% basic; 25% skilled) at follow up (see Figure 9). However, these differences between groups were not statistically significant.

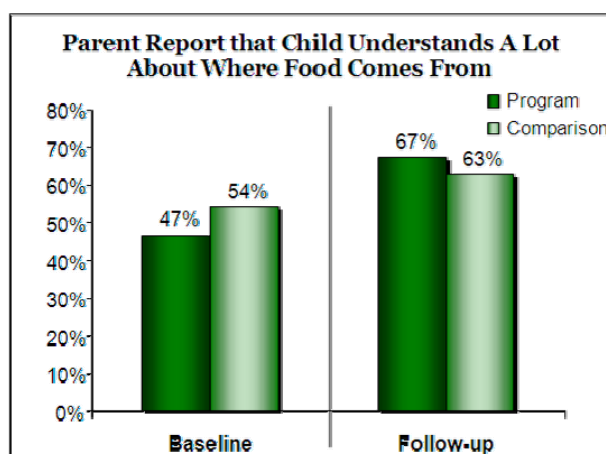
Children's understanding of where food



**Figure 9 Percentage of children with basic or skilled knowledge of what plants need to grow.**

Note: Differences between program and comparison are statistically significant

comes from was reported by parents on a four point scale from 'not at all' to 'a lot'. As illustrated in Figure 10, parent reports from program and comparison schools that their child understands a lot about where food comes from shifted from baseline to follow-up. At follow-up 67% of program school parents reported that their children 'understood a lot' where food comes which had increased from



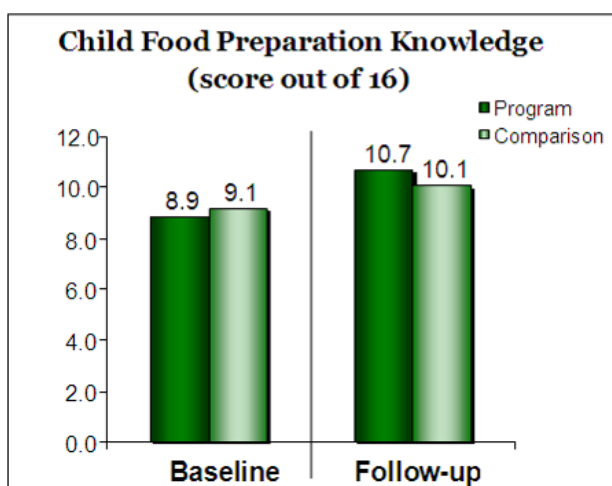
**Figure 10 Percentage of parents who report that their child understands 'a lot' about where food comes from**

Note: Differences between program and comparison are statistically significant



47% at baseline. For comparison school parents the increase was smaller – rising to 63% from 54%. These differences were statistically significant.

Children's knowledge of food preparation skills was measured using four open-ended food preparation questions (including listing ingredients for a salad, a soup, constructing a meal from given ingredients, and how to tell when a cake is ready). Participant responses were coded from 0 to 4 according to the accuracy and detail of the knowledge demonstrated, with a maximum score 16. As illustrated in Figure 11, program school children's average score increased from 8.9 to 10.7 between baseline and follow up while comparison school children's average score for knowledge of food preparation skills increased from 9.1 to 10.1 over the same period. These differences between program and comparison school children's food preparation knowledge scores were not, however, statistically significant.



**Figure 11 Children's average food preparation knowledge score**

Note: Differences between program and comparison are not statistically significant

### *Children's confidence in the kitchen and garden*

Participant observations provided insights into the ways in which children's confidence developed and was expressed in the kitchen and garden settings. With few exceptions, children in garden classes were able to self direct, remain engaged in and complete their allocated tasks. Similarly, in the kitchen, children demonstrated their knowledge of the

routine and would cooperatively complete preparation and cleaning tasks without instruction.



Children readily asked questions of any available adult if they were not clear about instructions or technique, indicating their expectation of being able to persist with the activity. They did not say "I can't" when given a role. In the cooking classes, children of all ages and cultures routinely demonstrated a breadth of cooking skills including chopping, mincing, blending, mashing, grating, vegetable recognition, kitchen hygiene and safety with competence increasing across the year. It was clear from discussions with children that some were building on skills they had already developed at home, while for others, this was a new experience.

Multiple factors appeared to reinforce growing student confidence. When asked about their experience of the kitchen garden, students from all the participating schools would refer to multiple past achievements, which included creating an established garden and making particularly explosive ginger beer. Student confidence was enhanced by the kitchen and garden artwork and written work on display in and around the kitchens and gardens in all of the schools.

Some of the observed schools used awards programs such as 'cook of the day' to single out students who made a good contribution to the kitchen class that day. Inadvertent rewards, such as an abundant crop of beans or a particularly successful recipe served to develop experiences of satisfaction and

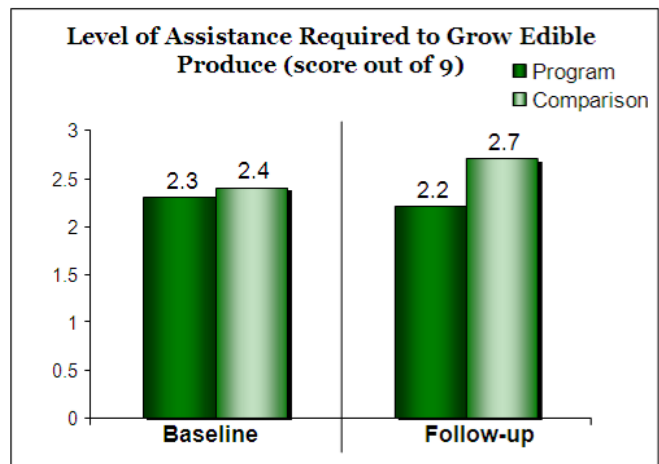
success in children. The observer, teachers and visitors to the kitchen expressed surprise at the standard and complexity of many of the meals the children had prepared.

Children's confidence in cooking was assessed quantitatively by asking them to list all the evening meals that they were confident to cook on their own. Responses were coded from 0 to 4 according to the level of sophistication and skill involved; with meals using a range of fresh ingredients scoring the highest (i.e. risotto, stir-fry, lasagne, and roasts).

Children's confidence in gardening skills was assessed using a measure adapted to assess self-efficacy with respect to growing three basic foods (broccoli, silver beet and pumpkin) and was scored on a four point scale from 'all by myself' to 'not at all'. Responses to the three items were coded from 0 to 3 and scored together to create a total gardening confidence score (0 indicating no assistance needed and higher self-efficacy and 9 indicating not confident at all).

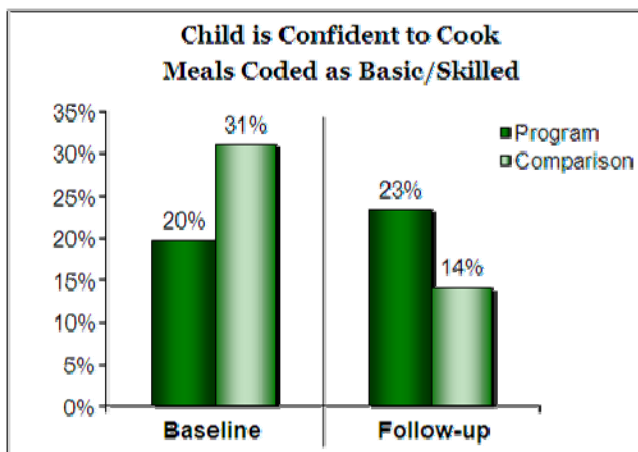
Figures 12 and 13 illustrate that program school children had significantly increased confidence compared to comparison school children. Program school children were more confident that they could cook basic or skilled evening meals (the two highest coding categories) at follow-up compared with comparison school children, with 23.3% and 14.11%, respectively. Program school children also had greater self efficacy when it came to

planting and growing edible produce, reporting that they required less assistance than comparison school children (mean scores of 2.2 and 2.7 respectively).



**Figure 13 Children's confidence in growing edible produce – level of assistance required (Note that lower score indicates higher level of self-efficacy)**  
Note: Differences between program and comparison are statistically significant

Interviewees and focus group participants also frequently spoke about increased confidence of children in the kitchen and garden. Children talked about being more confident with using knives in particular as well as with general kitchen safety and knowing what to do in the garden. Teachers, specialist staff, volunteers and parents were often keen to stress that this growth in confidence had extended beyond the kitchen and garden classes and this will be discussed in more detail in the following section of the report as one of the social impacts of the program.



**Figure 12 Percentage of children who were confident to cook evening meals coded as basic/skilled**  
Note: Differences between program and comparison are statistically significant



## *IMPROVEMENTS TO THE SCHOOL SOCIAL AND LEARNING ENVIRONMENT*

*“Hands-on learning”, “teamwork”  
and a “level playing field”*

The impact of the SAKG Program on the social and learning environment of participating schools reflects the way in which children and other members of the school community experience the program and the meanings they attach to that experience. Qualitative methods such as focus groups, interviews and participant observation are well suited to capturing these effects and this section of the report will therefore concentrate on the qualitative findings from the study which demonstrated strong evidence of positive social outcomes for children, schools and communities involved in the SAKG Program.

While several survey measures also had the potential to capture this aspect of the program they failed to produce statistically significant results. Reasons for this ranged from a need for much larger sample sizes to be able to demonstrate changes to school level outcomes such as academic achievement and absenteeism, to the likelihood that some of these social impacts would be expected to yield benefits that may only be quantifiable in the years to come.

In addition, the qualitative results suggest that some of the most significant outcomes occurred for children at the lower end of the academic achievement scale, some of whom would be considered at risk of long term disengagement from education. While such benefits may be regarded as particularly important from a policy perspective, they are unlikely to be demonstrated by quantitative techniques which detect changes to the average or mean scores for a school population.



### *Child wellbeing and school culture*

#### *Enthusiasm, engagement and confidence*

Children, teachers, parents and volunteers all described ways in which enthusiasm for kitchen and garden activities had resulted in increases in student engagement and confidence at school; with teachers frequently viewing such impacts as amongst the most important outcomes of the program. Children spoke about school now being more ‘fun’, no longer ‘boring’ and how much they looked forward to kitchen and garden classes:

On Tuesday we are waiting for kitchen garden

I want to go to school on Tuesday now because of the program

Even if you were sick you’d still come to school if it was Tuesday

As well as inducing a more positive attitude towards school, it was evident that participation in the program had impacted on children’s general confidence and self-esteem. Children were clearly proud of their achievements, referring frequently to their new skills, knowledge and accomplishments such as creating a garden from a patch of bare earth.

Specialist kitchen and garden staff commented on how they had seen children grow in confidence and self-esteem over time, as illustrated by the following remarks made at two different schools:



In classes we have a “chief chef” and assistant in each group of kids. This position rotates for each class. The children need to ask the “chef of the day” if they have any questions and that child has to find the answers. We’ve seen a marked increase in confidence with shy kids.

At the beginning I could see a range of confidence - I hadn’t been in a primary school since I was a child but you could see which kids weren’t academically successful. Now all kids are full of confidence. I’ve seen them change...they’ve become empowered.

This same staff member spoke of her belief that the children’s new openness to food ‘should - *must* - translate into other areas of life’.

An increase in their children’s confidence levels was raised as an important outcome in all the parent focus groups. This confidence was observed not only in the kitchen and garden but was seen to have extended into the home and classroom and into some children’s lives more widely. Children were reported to be more engaged and more enthusiastic about school. Several parents reported that the program had boosted their children’s self esteem. One child, previously discouraged by school, now felt that ‘I’m really good at this and I can do other things as well.’ Another was reported to have become more comfortable speaking in front of the class. One parent said of her child that he was proud of his achievements and that the kitchen garden program had ‘widened his world in a number of ways’.



## ‘A learning Community’

For some parents, observing their children participate in the program had also given *them* new confidence in their children. One parent expressed this as follows:

It taught me a lot because my kids are far more capable than I gave them credit for. And other kids as well. It’s a good experience for them. It’s a good experience for me!

Parents as well as teachers attributed many benefits to the way in which the program provided an active, ‘hands on’ practical way of learning that suited many children. Another aspect of the program that was highly valued by parents was that it created an environment at school that was a ‘level playing field’. It was described as an ‘equaliser’, which lacked the competitive structure of academic and sporting activities. A number of volunteers discussed the way in which the program facilitated creation of a ‘learning community’. They enjoyed seeing the children learn and grow in confidence over time and experience the satisfaction that came with overcoming obstacles. As one volunteer observed:

They are so happy when they do something themselves, they might be struggling but they’ll do it anyway. They are so fun and they get this boost of confidence.

Focus group participants also drew attention to the knowledge which some volunteers brought to the school and imparted both to the children and to the kitchen teachers. One volunteer had taught the kitchen teacher much about preserving. Another remarked that:

My mother-in-law helps in the kitchen and the older people too have a wealth of information about things we don’t cook anymore and I think everyone learns from them as well, which is a good thing.

## Engaging children with challenging behaviours... and 'non academic learners'

The program was considered particularly effective at engaging children with challenging behaviours and examples were given at each school of the success of the program in engaging 'non-academic learners'. For these children, as well as for those already doing well, engagement led to increased confidence. For certain children, participating in the kitchen and garden classes had given them their first opportunity to experience success at school. The following quotes from classroom teachers described two such cases:

A child who struggled and had learning disabilities ... and just her confidence and her ability to outshine other kids, who have strengths in other areas was just amazing and she was just really comfortable, in her element. She knew exactly what she was doing, she was in control, she was starring while she was organising the other kids. The building of confidence was just amazing.

I've got a boy in my class who is academically poor, socially inept and you think when he gets older it's going to be really hard and in the kitchen he wants to be a chef. That's what he wants to do and I can see him following that through and if we

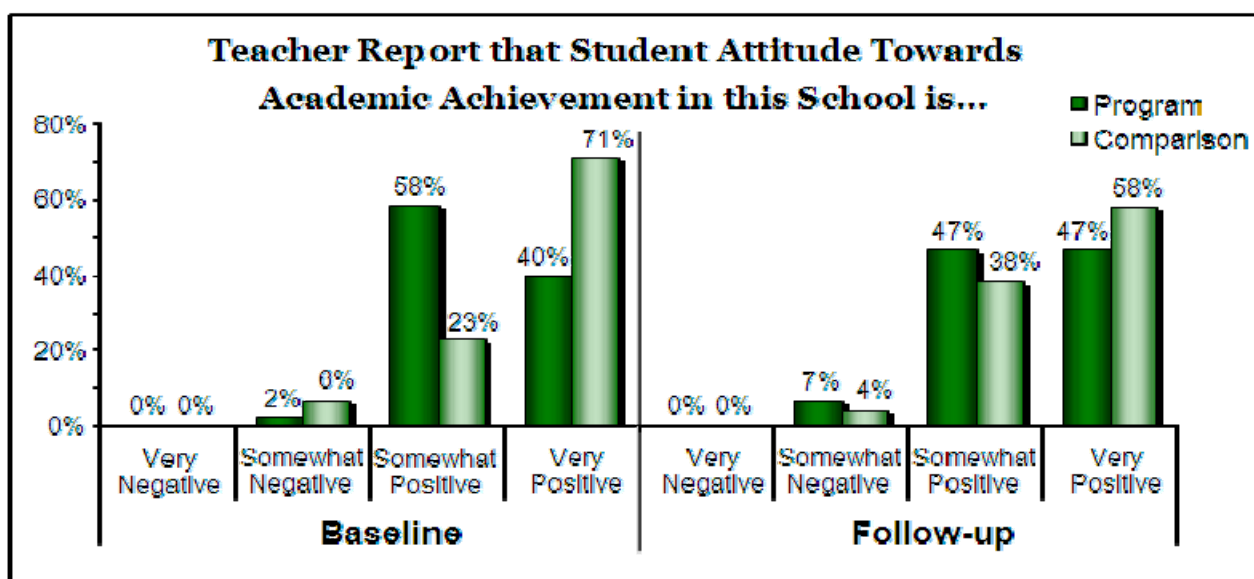
didn't have [the kitchen garden program] here he may have been someone who has gone on and is lost but now he might grow up to be that great chef.

This theme was reiterated in interviews with specialist staff:

Some of the boys are "hopeless" in the classroom but very, very good in the garden: interested, intelligent, capable...

As well as noticing an increased confidence in the children with their acquisition of new skills, classroom teachers' confidence in what the children are able to learn also increased. The teachers often mentioned that when they saw how adept the children quickly became with the chef knives, they were impressed and re-appraised what they expected of children.

As can be seen in Figure 14, at the beginning of the study significantly more teachers at the comparison schools regarded students' attitude towards academic achievement as 'very positive' compared with those at program schools. This disparity was markedly reduced by the time of follow up data collection, although a larger sample of teachers would be necessary to determine whether this change was a statistically significant effect associated with the program.



**Figure 14 Percentage of teachers who report a range of student attitudes towards academic achievement (from very negative to very positive)**  
Note: Differences between program and comparison are not statistically significant



## *“Academically, they’ve improved”*

Several of the school principals interviewed expressed confidence that the program was also improving academic outcomes. Such expectations were based on the perceived benefits of experiential learning as well as the improvements in engagement they had observed. One principal stated that the SAKG Program was:

Exemplified in children’s academic work – it crosses into maths and science.

While curriculum integration will be discussed more fully as an important component of program sustainability, it was also seen as a key to expected improvements in academic outcomes as expressed by this principal:

Curriculum integration is working well. We’re expecting changes in data too. We did the University of New South Wales English and Maths exams and this year saw significant improvement in the results for measurement.

All schools were also asked to provide school level data; including the average number of days absent per student, and academic achievement scores for literacy and numeracy. These consisted of average scores for children in years 3 and 5 for the AIM (Achievement Improvement Monitor) test used throughout the State in 2007 and NAPLAN (National Assessment Program – Literacy and Numeracy) test which replaced it in 2008. However, several schools did not provide this data and all scores that were provided were close to the Victorian state average. As much larger samples of such school level data would be required to detect statistically significant change, statistical analyses were not appropriate.

Reported absentee rates (median number of days per student per year) were 13.8 and 14.0 at baseline and follow up for program schools and 14.2 and 14.4 at baseline and follow up for comparison schools. Again, due

to the small sample of school level data, statistical analyses were not appropriate for this measure.



### *Teamwork and social skills*

Working in groups and teamwork were nominated by a large number of children, parents and teachers as important aspects of the SAKG Program. While most discussion of this theme was extremely positive; again, at some schools, teachers noted that a few children did not work so well together in the garden. Where this was the case, suggested reasons included the difficulty of ‘containing’ children in a large space as well as the fact that rewards were not as immediate as in the kitchen, resulting in loss of engagement for some. Many children commented that they felt they were learning and improving when it came to this valuable skill. Group work was also considered to be lots of fun:

We get to garden with our friends and when we are cooking we get to share and talk.

Parents commented that their children were learning important social skills through teamwork as well as developing better relationships with teachers and other adults in addition to their peers. Working in the kitchen

and garden in groups meant that children learned how to work with others who might not be their particular friends, which was both a valuable skill and a way of widening social networks. Teachers also described some cases of changed social dynamics among the children. For example, one child who was normally socially excluded, achieved 'hero status' in the kitchen classes because she could chop the onions without crying.

At all schools, teachers mentioned improved table manners, etiquette, table setting and cleaning up behaviours as important outcomes of the program. One teacher spoke about how sitting at a table to eat was quite new for some children. At their first kitchen class, children had told her that:

They usually sit at the telly or up on the bench - the whole idea of sitting around the table is just an amazing experience for some

### *Community connections*



All groups of interviewees spoke about ways in which the SAKG Program helped to create links between schools and the community.

Some of these links were driven by the necessity to recruit volunteers and fundraise for the program. However, community connections were also perceived to have a social value that went beyond satisfying these needs, benefiting both the school *and* the wider community and were often spoken of as one of the program's most important outcomes.

### *'Creating links between the school and the community'*

Many, though certainly not all, of the volunteers are also parents. A number of parents noted that volunteering in the kitchen and garden was a natural progression from helping in the classroom with 'readers' in the early years of school and served to maintain a connection with the school that might otherwise be lost. Some were also keen to emphasise that they found it more enjoyable than being in the classroom.

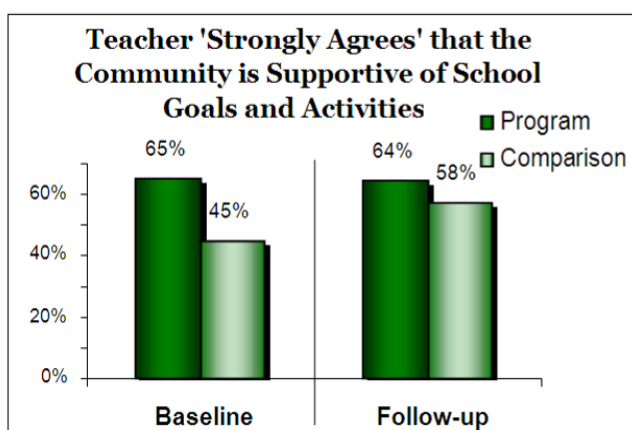
At one culturally diverse school, several teachers as well as the principal noted that the program was providing a way for parents from a non-English speaking background to be more involved in their children's education. At this school several parents volunteered in the kitchen who would have been uncomfortable doing so in the classroom because of their lack of English language proficiency.

Children were also appreciative of their contact with volunteers, describing their interactions as different from those with teachers. Several children commented that one of the big differences that the program had made to their school was that there were now lots of visitors. 'Visitors' referred not only to volunteers but also local media and other community members with an interest in the program. Children referred to the influx of visitors as a positive, both evoking pride in their school and adding interest to their time there.

The program was seen to have raised the local profile of schools. A specialist staff member described it as having a big impact on the whole community, with people taking pride in their local school and stopping teachers in the street to talk about it. Students too, were described as taking a new pride in their school, while entering produce in local shows and having neighbours come in to water gardens over the holidays all served to broaden and deepen connections. One principal even described how an event in which their garden had been vandalised was followed by a sense of increased community support and awareness. As another put it:

[The program has] caused us to create new goals for the school and to get the community to work towards them together ... we're all gaining confidence ...

Teachers who completed questionnaires at program schools were more likely to 'strongly agree' that 'the community served by this school is supportive of its goals and activities' (see Figure 15). However, at baseline and follow-up over 90% of all participating teachers at program and comparison schools responded that they either 'somewhat' or 'strongly' agreed that the community served by the school is supportive of its goals and activities and that their school has a strong sense of 'community' or 'family'. While changes to this measure over the course of the evaluation were not statistically significant, this may in part reflect the higher baseline score for program schools which may have been associated with community involvement in establishing the SAKG Program at the school in the first place.



**Figure 15** Percentage of teachers who strongly agree that 'the community served by this school is supportive of its goals and activities.'

Note: Differences between program and comparison are not statistically significant



### *EVIDENCE OF EXTENSION OF PROGRAM*

### *BENEFITS TO HOME AND COMMUNITY*

#### *Extension of the program to the community*

As already noted, program benefits accrued to communities as well as schools. Staff at one school described plans to extend the scope of the kitchen garden to create a 'community garden' within the school. It was anticipated that this would involve a local gardening club, using separate plots to begin with, and would be used by many older people in the town who were no longer gardening at home because of the extended drought and associated poor water quality in that area.

*'Program benefits accrued to communities as well as schools'*

Many of the volunteers also commented on how much they personally had learned from the program, with one asserting that the program had 'improved [her] as a person'. While some described the experience as intense and challenging, especially managing group dynamics, they also spoke of gaining new knowledge and confidence. One regional school had formalised this process of volunteer learning in partnership with a local adult learning centre. Hours spent volunteering at the school are logged and



short courses are offered at the school which allow participants to gain recognised certificates in areas such as Food Handling, First Aid and Coffee making.

Links between schools in an area were seen as both potentially and actually occurring because of the kitchen garden program. Teachers from local secondary schools were visiting the program after realising that high school food technology classes would need to be adapted to the higher skill levels and expectations of children from primary schools with the SAKG Program. In a smaller rural school, where the kitchen was only being used for part of the week, staff felt that there was potential to share both facilities and specialist staff with another school if it took on the program. Benefits were expected to occur in terms of community building as well as cost saving.

I like the idea of bringing schools together because you're creating more of a community. It's always nice and the kids like coming together and then they're going to high school together.

### *Extension of the program to the home environment*



#### *Eating new foods at home*

Children frequently reported that participation in the SAKG Program had resulted in them eating a wider range of foods at home. Many of these new foods were vegetables and children were keen to emphasise that their new diets were healthier than before. They had also reported these changes to

*"I made that leaf thingy... for my mum and she liked it too!"*

volunteers as indicated in the following anecdote related in a focus group by a highly entertained volunteer:

I had one child and he wouldn't eat the salad, just wouldn't touch it. "I'm not eating that, it's leaves" and then he tried them and thought they were actually quite nice. The week after, he came back and he said, "I made that leaf thingy that we made last week and I made it for my mum and she liked it too". How good is that!

Children's claims were well supported by parents and teachers. Many of the parents who participated in focus groups had found that their children were more willing to try new foods at home and conveyed a sense that this was an extremely welcome change:

They love it, they absolutely love it! My son would never eat vegetables, would never eat what was on his plate and all of this and from being in the kitchen and having to try new things he's learned that it's not such a bad thing to eat a vegetable. If you do it a bit different, it's not a bad thing. So he sits and eats all of his vegetables. It's amazing how they'll sit and eat everything now whereas before he wouldn't.

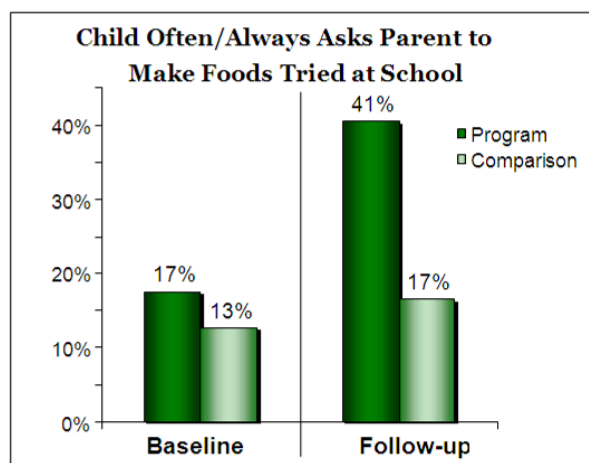
Parents who also volunteered in kitchen classes reported on occasion that their own, as well as their children's, culinary worlds had expanded:

I think I've learnt to be a bit more flexible in my kitchen at home and try out new things like the Vietnamese rolls, my kids love those and I would have never have made them. They look too complicated but I now know they aren't too complicated. I think it's made a big difference. I don't mind cooking it's just the thinking of what to have - it's good to have other things suggested to you and then you know how to go about making them.

One of the questions included in the parent questionnaire which aimed to capture this transfer of program impacts to the home environment asked how often children asked parents to make food tried at school. Results showed a significant difference between



program and comparison groups with 17% of program school parents at baseline reporting that their child 'often/always' asks for foods tried at school rising to 41% at follow-up; compared to 13% and 17% for comparison school parents, respectively (Figure 16).



**Figure 16 Percentage of parents who report that their child 'often/always' asks parent to make food that he/she has tried at school**

Note: Differences between program and comparison groups are statistically significant

Teachers, specialist staff and principals reported much positive feedback from parents about children's newfound enjoyment of vegetables. They had also dealt with occasionally bemused responses by parents to children's requests for new and 'exotic' ingredients. The first of the two quotes below came from a specialist staff member while the second was from a principal at another school:

One parent came in to ask "What are capers? My child wants them on her pasta!"

A parent came to tell me that her child now wanted to know why there wasn't any turmeric in the cupboard; saying – "so now I have to have turmeric in the cupboard!"

While most families were reported to be positive about their children's new palates, teachers and specialist staff were also aware of cases where the home environment was

*"What are capers? My child wants them on her pasta!"*

less supportive and unlikely to change. One expressed her expectation as well as her hope that:

Children's food choices will be influenced and broadened in the future even if they are still eating take-away at home now

She also related a poignant story of one child whose parents had been invited to the school to share the meal prepared by his class. While the child enthusiastically ate all the dishes offered, the parents were reluctant to try anything other than cake, and staff had observed that:

The father pushed the salad around his plate and said "I didn't know that you had to eat rabbit food here!"



### ***Cooking and gardening at home***

Most of the children spoke about cooking at home. Some said they had always enjoyed cooking but many reported that they were cooking more now than before their involvement in the program. Examples given included bringing recipes home that had been cooked in classes, cooking complete meals for the family, as well as 'helping Mum' in the kitchen.

Parents also reported that their children were now more interested in cooking at home and were participating actively in meal preparation. While some children had been keen cooks previously, those who had previously been interested only in making 'cookies and cakes', were now eager to help prepare the evening meal or cook whole meals on their own. A few parents commented that children were teaching younger siblings, who were not yet participating in the program, the things that they had been learning at school. This newfound zeal was accompanied by a corresponding increase in independence, competence and skills. Skills such as using knives, washing up and table setting were commonly mentioned.

Teachers had also received positive feedback from parents about this aspect of the program:

I've had some children's parents say they are actually wanting to cook at home instead of watching TV or playing the Play Station and they're actually helping out at home a bit more which is really good.

The degree to which interest in gardening was transferred to the home was more variable. At some schools only a few children were enthusiastic about gardening while at others quite a number of children claimed gardening as the best thing about the program. At one school, where the children were regularly sent home with seeds and seedlings from school, seven out of eight children in one focus group claimed to have started vegetable gardens at home since the SAKG Program was introduced.

A number of parents reported that their children had become more interested in gardening at home. One parent described how impressed she was with her child's new knowledge and how she too has learned, as follows:

Coming from knowing nothing about gardening at all to coming and learning so much and watching how much my son's learned and being able to put it all together..



Parents also discussed their children's increasing awareness and knowledge of environmental issues. They reported that their children were more aware of the techniques for and importance of, composting, "worm farming", water conservation and the ecological roles of insects. Some families who had not previously been doing so had also started composting at home.

#### *Additional impacts on families*

Some parents felt that the Stephanie Alexander Kitchen Garden Program had led to significant changes in family dynamics. As well as appreciating children's willingness to try new foods, a parent reported her new attitude to her children in the kitchen at home:

I'm a lot more relaxed than I used to be. I used to get angry and frustrated and I'd be like, 'get out of the kitchen!' Whereas now I've learned to step back and I've learned to go, 'right you can take this . . .'

At one school with a large proportion of students from migrant families with culturally and linguistically diverse backgrounds, parents discussed the impact the program was having in terms of learning about local culture. Their children had discovered new 'non-Asian' vegetables and now knew they were healthy. This focus group, with much laughter and appreciation, also described through an interpreter how 'in traditional Vietnamese culture, men don't cook'. Now their sons were coming home, wanting to

cook and encouraging their fathers to do so too!

*“It is really good for the generations”*

In one family at another school, new levels of intergenerational dialogue were attributed to the program. A parent described how her child now had more to share with his grandmother. Instead of her asking ‘how is school going?’ - generally felt to be an unrewarding question by this parent, ‘especially with boys’ - the pair now discussed cooking and gardening. The ‘conversation just opens up. . . it is really good for the generations.’

#### ***DETERMINATION OF THE FEASIBILITY, ACCEPTABILITY AND COSTS OF CONDUCTING THE SAKG PROGRAM IN THE PRIMARY SCHOOL CONTEXT***

##### ***Program feasibility and sustainability***

Several perceived challenges to program sustainability were identified from the principal interviews conducted at baseline. The most pressing of these was the need to secure ongoing funding of the program.

Recruiting sufficient volunteer support to run classes was also anticipated as a difficulty by several of the school principals, as was creating time for new classes within an already ‘overcrowded curriculum’. A degree of initial ambivalence towards the program was reported at some schools. This was related to parents and, in some cases, staff feeling that the school’s emphasis should remain on core areas of the curriculum such as literacy and numeracy.

Some modifications to program structure were initiated by schools at the outset in response to these constraints and concerns. Examples included providing kitchen and/or garden classes fortnightly rather than weekly, or having one specialist staff member cover both components of the program.

As outlined in Table 2 the average amount of time dedicated to the SAKG Program per class ranged across the schools from 1.25 to 2.5 hours per week. This variance between the schools may potentially influence outcomes as children from different schools are effectively receiving varying ‘doses’ of the program.

An extended discussion of factors affecting program sustainability was included in the June 2009 Progress Report. A summary of the findings pertaining to the three key potential barriers: funding; volunteer support; and an ‘overcrowded curriculum’ will be presented here. The following section on

**Table 2: Outline of SAKG Program structure for each of the program schools**

<b>School</b>	<b>Kitchen Classes provided</b>	<b>Garden Classes provided</b>	<b>Number of Classes involved</b>	<b>Total hours of class time spent on SAKG per week</b>	<b>Average SAKG time per class per week</b>
1	Grades 3-6 (1.5hrs per week)	Grades 3-6 (45 mins per week)	6	13.5	2.25
2	Grades 3-6 (1.5hrs per fortnight)	Grades 3-6 (1.5hrs per fortnight)	4	6	1.5
3	Grades 3-6 (1.5hrs per week)	Grades 3-6 (1hr per week)	4	10	2.5
4	Grades 3-6 (1.5hrs per fortnight)	Grades 3-6 (1hr per week)	8	14	1.75
5	Grades 3-6 (1.5hrs per fortnight)	Grades 3-6 (1.5hrs per fortnight)	10	15	1.5
6	Prep-grade 6 (1.5hrs per fortnight)	Prep-grade 6 (1hr per fortnight)	14	17.5	1.25



funding also includes a discussion of the related issue of specialist staff qualifications. It should be noted that efforts made to overcome these challenges to sustainability were also linked by many evaluation participants to some of the programs greatest perceived benefits. Seeking funds, donations, and applying for grants as well as recruiting volunteers were all seen as activities that enhanced community engagement and connections with the school. Curriculum integration, seen as the solution to any problems associated with fitting the program into an overcrowded curriculum, was also recognised as providing many advantages.



### ***Funding***

The principals at all of the program schools were interviewed towards the end of the two-year period of external funding for the SAKG Program. To varying degrees, all were concerned about the cost of maintaining the program and this was seen as the key challenge to its sustainability. However, at most schools there was also a clear sense that the program was valued extremely highly and that *somehow* the money would be found for it to continue. Only at one school was it suggested that continuation of the program may be threatened by funding pressures. The principal and staff at this school detailed concerns over additional costs associated with the program such as electricity, cleaning and insurance for the kitchen as well as a consciousness that the demands of the SAKG

Program meant they were unable to afford other resources such as electronic whiteboards.

For some kitchen and garden specialist staff, funding was also reported to be a source of considerable anxiety. Uncertainty over the future, both in terms of the program itself and their own employment security was raised as an issue and it was also suggested that low rates of pay were responsible for a high turnover in these positions.

Many schools had devoted considerable time and energy to fundraising in order to support the SAKG Program. In addition to activities such as raffles and sausage sizzles, schools had held a number of community events such as a *Fresh Food Fair*, which was described as highly successful. Principals, specialist teachers, school council members and parents had also been engaged in going out into the community to seek donations from individuals, businesses, tradespeople, community groups and service clubs. Donations included cash, food and materials for the kitchen and garden as well as services and labour provided by school families, local tradespeople, businesses and other groups.

*‘There was a clear sense that the program was valued extremely highly’*

Applying for grants was also discussed as a way of supporting the program. Some of the schools had been successful in applying for water and environment grants. These had been used for water tanks and, at two schools, were being put towards solar panels to supply power for their kitchens. While such grants were also available to schools without the SAKG Program - and at least one of the comparison schools had received a water grant for tanks - it was indicated by a program school principal that it was the kitchen garden that had provided impetus for these applications.

At another school however, it was pointed out that applying for grants was both time-consuming and an unreliable source of funds. In this area too, there was a perception that some schools were advantaged. It was



suggested by one principal that schools with lower socio-economic status families could link the SAKG Program to welfare and ESL (English as a Second Language) programs, providing a greater range of options for seeking funding.

Teachers at one school proposed that a way in which the program could be maintained at a lower cost would be to have staff with teaching qualifications take over the roles of the kitchen and garden specialist staff. Although qualified teachers might be paid a higher salary, the total costs would be lower as this would alleviate the need to have a classroom teacher present during kitchen and garden classes. However, evidence from the interviews and focus groups would suggest that such an approach might be counterproductive. At one school a classroom teacher explicitly voiced a reluctance to take on that role:

Actually when I was applying here for a job I was a little worried that we were expected to take the sessions and plan every week, you just don't know. So that panicked me a little bit even though I love cooking and gardening I didn't know whether I'd be prepared to teach it.



In some instances, participants also noted additional value in the specialist staff not being teachers. It was felt that this helped to create a different type of learning environment from the classroom.

Classroom teachers were learning new skills alongside their students. Kitchen and garden classes were considered to be a positive time for students and teachers to relax and enjoy.

### *Cooking and gardening expertise a vital component*

There was 'less need for discipline' and this was seen to have a positive effect on relationships between students and staff.

Even though some specialists spoke of a steep learning curve associated with their prior lack of teaching experience, several also expressed a strongly held view that their cooking or gardening qualifications were a vital component of the program. In addition, numerous comments made by a variety of focus group and interview participants stressed an enormous appreciation of the subject-specific knowledge and skills, as well as passion, brought to the school by specialist staff. Specific organisational skills were also frequently mentioned as being important and apparent in the kitchen. At a school which had previously employed a more highly qualified garden specialist, volunteers had observed a decreased level of engagement of children in the garden since she had left. The previous teacher was described as having:

A very refined technique for bringing a quite sophisticated consciousness to the [younger children] and there was never any problem comprehending. And watching them listening to her! She had their attention ...every time she presented something it was quite a complex thing but so simple and they took it on board. So they then understood the ingredients and became adventurous, the two go hand in hand.

Perhaps the most compelling evidence concerning specialist teacher qualities was provided indirectly by the children themselves. There was an appreciable difference between schools when it came to engagement with the gardening component of the program.

In schools where the garden specialists had fewer qualifications and/or experience, children were far more likely to describe garden classes as 'boring'. Although it must be stressed that the sample size of six schools is small, and particular individuals

may be exceptional, combining evidence from all sources strongly suggests that a sophisticated level of subject knowledge and skill is critical when it comes to successful program delivery.

### *Volunteer support*



Many of the program school principals and kitchen and garden specialists reported that finding enough volunteers to run the program was an ongoing challenge. While parents were the main source of volunteers, some schools had also attracted volunteers from other parts of the community. These included students from a local high school, residents of an aged-care home, local bank employees and retirees. Non-parent volunteers were often passionate supporters of the program and in some cases included people with particularly relevant skills, such as a retired chef in one school and a horticulturalist in another. These skills were a highly valued resource for the school.

At some schools, recruiting volunteers was unproblematic while at others it was perceived as extremely challenging. An inner urban school in a well-educated community advised they had no difficulties in finding enough volunteers. At another, in an area of lower socioeconomic status where it was reported that many parents were unemployed, the principal suggested that even though in theory, one might expect they would have time to volunteer, 'chaotic and difficult lives' meant that this was not the case. In yet another, with a culturally different, though socioeconomically similar,

parent base – a creative and formalised volunteer program appeared to have solved this problem. In this program (detailed in the December 2008 Progress Report) hours spent volunteering at the school were combined with short courses in subjects such as food handling to provide qualifications for unemployed and disadvantaged parents.

Along with wanting to make a contribution that benefitted children, the school and the community; for both parents and non-parent volunteers the reasons put forward for volunteering can be summarised as:

- It's fun!
- You learn a great deal
- It provides an enjoyable social network

### *An overcrowded curriculum and curriculum integration*

It was reported at some schools that there was still an element of tension between the demands of teaching the 'core curriculum' areas of literacy and numeracy and the SAKG Program. According to one principal:

Some teachers have reservations, mostly about timetabling. Two and a half hours per week takes a lot of time from core curriculum and teachers feel pressure because of this.

Another felt that pressure to improve academic outcomes could ultimately threaten the program because spending the resources currently allocated to the SAKG Program on a literacy teacher might seem a more appropriate response to the problem of low test scores.

While teachers know that the program is making a difference, it is difficult to demonstrate in terms of hard data.

*"The [program has] numeracy, literacy... art, potential design... science...just about a whole curriculum in one.."*



Occasionally, teachers and parents also voiced ongoing concerns. One felt that it had made timetabling inflexible; and another suggested that 'three hours per week' taken up by the program was 'a lot', and that she would suggest kitchen and garden classes be conducted fortnightly rather than weekly to allow more time for 'core academic curriculum'.

However, whilst some teachers and parents admitted having early anxieties in relation to this issue most were satisfied that the benefits of the program far outweighed any impact on other areas of the curriculum.

Amongst all focus group and interview participants, it was most commonly agreed that the answer to any problems posed by maintaining the SAKG Program in an overcrowded curriculum lay in recognising and enhancing its potential for curriculum integration. This was summed up by one volunteer as follows:

I just wanted to jump in and say that the crowded curriculum is a common issue that most teachers will see that as the first reaction, 'there's too much we have to teach, why add one more thing?' and I think it's well worth finding the time ... I met with an educational psychologist and she asked me about the program and I said it was great, you've got numeracy, literacy, you've got art, potential design ... and it could be strengthened further because it's almost everything and there's science in there as well. Kitchen science, it's just about a whole curriculum in one program.

All of the principals discussed integration with the wider curriculum as an important part of the program. Students used their SAKG Program experiences as material for writing reports and compositions in their journals. A range of maths skills, science, health and environmental learning were encompassed naturally and easily. The kitchen and garden provided an ideal environment for incorporating and displaying art and design.

The program was seen as engaging children in integrated learning, not only by including a wide range of disciplines and subjects, but also through encouraging a range of learning styles. As one principal described it:

The program highlights multi-skills and multiple intelligences. It has transformed the school into much more than VELs [Victorian Essential Learning Standards].

### *'Engaging children in integrated learning'*

There were many examples reported of specific ways in which a wealth of experiential learning was incorporated in the program. Children, parents, volunteers, teachers as well as kitchen and garden specialist staff all described numerous activities with enthusiasm and appreciation for the diversity of concepts involved.

Much learning was adapted to local environments and communities. At a culturally diverse school, chopsticks as well as knives and forks were laid at all tables, and meals were an occasion to discuss different cultures and customs. Meaningful opportunities for language enrichment and practising oral language skills were viewed as valuable for all children and ESL students in particular.





Some children also demonstrated an awareness of how the program incorporated other aspects of the curriculum as the following child focus group discussion revealed:

The kitchen garden program takes up our class time

(Do you think you still manage to learn everything in class?)

Yes

Even more

(How's that?)

Well we learn maths in the gardening and cooking with our measurements and we learn other skills for life

Like reading

You are still learning

Teachers described many ways in which the program provided opportunities for integration but also recognised opportunities to extend this:

... we've just been doing fractions and we've talked about what is a half cup, what is a quarter cup. So you can actually refer back to those hands on experiences that we've had and they know what you are talking about.

We've done a lot of graphs, a lot of growth measurement. Planted seedlings, measured them and predicted at sixteen weeks, forecasting what size they will be. They are graphed and monitored every fortnight.

And we've talked about sustainability, compost and everything just ties in.

We've used maths, perimeter, and volume in the garden.

Cubic metres.

That would have been a really good one for the [grade] five/sixes, if they had actually bought the soil, found out the costing. A lot of things like that you think of in retrospect.

There's still more scope to have time in the regular curriculum and a more consistent approach, to have more of a strategic approach.

Many of the volunteers were also very aware of the ways in which the SAKG Program enhanced learning in other areas of the curriculum. The point was made that children could more easily understand concepts because they were applied in the kitchen and garden to bring about practical outcomes. Having volunteers in the kitchen and garden classes also meant a greater ratio of adults to children so that things could be explained to children individually when necessary. One volunteer described how she had spent considerable time using measuring spoons and cups with a child who had been having difficulty understanding fractions.

*"We learn maths in the gardening and cooking with our measurements and we learn other skills for life"*

### *Costs and resources*

Economic analysis, as part of the overall evaluation of the SAKG Program, aimed to assess the costs of the program to all stakeholders in order for these costs to be compared to or weighed against all of the outcomes achieved (reported in earlier sections of this report). Resources invested in the SAKG Program were measured from school financial accounts and from the retrospective recall of school principals, kitchen and garden specialists and parents. Reported resource use was valued in 2008 Australian dollars using standard unit cost estimates.

We found no evidence of a significant cost impact on the families of children in program schools: levels of parent-reported expenditure on the family garden and on weekly household food shopping were similar between program and comparison schools.





Schools were asked to report on all resource use associated with the establishment and running of the SAKG Program over the period of the evaluation (1/1/2007 – 31/12/2008). All six SAKG Program schools provided data on three main categories of resource use:

Resources that were purchased by the school using grants and additional funding assigned to the SAKG Program

The labour use of kitchen and garden specialist staff, both in terms of the formal paid employment of these SAKG workers and in terms of their self-reported additional investment of donated labour and other resources

The labour use of volunteers for SAKG Program classes in a standard school week

In addition, schools were asked to report on all other resource use associated with the establishment and running of the SAKG Program over the period of the evaluation. This “other investment” category was reported to different extents and in different formats across the six program schools. Some schools provided a comprehensive list of donations received by the SAKG Program; others provided a rough estimate of all additional investments; others provided an estimate only of volunteer time inputs, with no data provided on donated goods and services.

## Financial income and expenditure

State government provided grants to schools to contribute towards the costs of establishing and operating the SAKG Program. These grants were explicitly a contribution towards full costs; they were not intended to cover costs fully and schools were expected to use local networks to elicit additional donations of time, money and other goods and services. The value of these government grants provided to all Victorian SAKG Program schools in 2008 Australian dollars amounts to \$64,075 per school over the two-year evaluation period (Table 3: note that the figures in the table include additional government grants provided to schools, which are discussed below). This funding covered 59% of the average financial expenditure associated with the SAKG Program.

Schools were on average able to raise an additional \$8,000 in further government grant income and \$16,747 in grants and cash donations from local philanthropic organizations and businesses. By the end of the evaluation period the kitchen garden program itself had begun to contribute towards funding, with four schools selling garden produce and/or providing catering. However, the balance of funding was sought in different ways by the six schools in the evaluation: one school was successful with philanthropic funding; three schools

**Table 3: Program finances: average income and expenditure across six SAKG Program schools**

Average over 6 schools	1st Year: Establishment	2nd Year: Implementation
<b>Income:</b>		
Government grants	\$38,984	\$33,096
Charitable & business funding	\$16,113	\$634
Funding from school sources	\$12,150	\$1,783
Other donations, fundraising & sales	\$420	\$12,975
<b>Total Income</b>	<b>\$67,666</b>	<b>\$48,489</b>
<b>Expenditure:</b>		
Specialist SAKG staff	\$30,988	\$29,327
Unassigned or general expenditure	\$27,422	\$4,818
Kitchen expenditure	\$6,097	\$4,357
Garden expenditure	\$3,165	\$2,125
<b>Total expenditure</b>	<b>\$67,671</b>	<b>\$40,627</b>

contributed significantly from school funds; and in one school the kitchen garden program benefitted from a broader fundraising event.

### *Value of resources invested in the program*

Financial income and expenditure provides one perspective on program costs. However, a broader perspective is provided by valuing all the resources reported to be invested in the establishment and implementation of the SAKG Program. Table 4 summarises the value of all resources used in terms of the average value of resources invested for the six program schools over the two years of the evaluation. Although the employment of kitchen and garden specialist staff represents a substantial part of all resources invested, the largest investment is the time donated by volunteers.

**Table 4: Value of resources invested: average across six SAKG Program schools**

Average over 6 schools	1st Year: Establishment	2nd Year: Implementation
Paid SAKG staff time	\$30,988	\$29,327
Unpaid SAKG staff time	\$6,807	\$11,511
SAKG class volunteer time	\$42,917	\$81,642
Other volunteer time	\$10,034	\$5,557
<b>All time resources</b>	<b>\$90,745</b>	<b>\$128,036</b>
Kitchen expenses	\$6,097	\$4,357
Kitchen donations	\$5,798	\$798
Garden expenses	\$3,165	\$2,125
Garden donations	\$3,739	\$33
Unassigned or general expenses	\$27,422	\$4,818
Unassigned or general donations	\$18,028	\$1,500
<b>All equipment/materials</b>	<b>\$64,248</b>	<b>\$13,632</b>

For the six program schools in the evaluation, the average value of donated labour (valued at the average Australian wage rate) was \$59,758 in the establishment year and \$98,710 in the subsequent year: a total per SAKG student of \$1,003 over the two year period.

In addition to the donation of labour time to the SAKG Program, schools received many donations of goods and services. The average value of these donations across the six intervention schools over two years was \$29,896, or \$189 per student. However this average figure conceals a large divergence in the reported donations of goods and services



across schools. Two schools were able to raise donated kitchen and garden construction, fixtures and fittings of over \$40,000, while the other four schools reported total value of donated goods and services of between \$0 and \$18,500.

The level of additional fund-raising and the level of donations of time and other resources achieved by the six schools can be seen as a substantial cost of the SAKG Program or as a positive outcome of the financial structure of the program funding (where government funds were only intended to cover part of total costs). In terms of value-adding to government resources, for every \$1 of government funding the schools were on average able to raise an additional \$0.43 of cash donations (excluding funds diverted to the SAKG Program from general school funds). In addition to these cash donations, schools were on average able to elicit \$0.39 worth of donations of goods and services and \$1.11 worth of donations of labour (volunteer time). These six schools, therefore, on average generated \$1.93 of additional resources for every \$1 of government funding invested in the SAKG Program.

### **Valuing the program**

As well as determining the costs and resources expended by schools in running the SAKG Program, the economic analysis included an assessment of the values that different stakeholder groups attach to it. The



first step in assessing stakeholder values is to discover what each stakeholder group perceives to be the most important characteristics of the program. The next step involves economic valuation techniques which assess the respondent's willingness to trade, in terms of their observed or stated willingness to give up something they own in order to attain or sustain participation in the program of interest.

Key characteristics of the SAKG Program for identified stakeholder groups were determined through analysis of the qualitative data obtained from the focus groups held with children, teachers, parents and volunteers. These characteristics correspond to stakeholders' perceptions of important program outcomes which have been presented in the earlier sections of this report.

They include children's increased appreciation of a diverse range of foods; increased enjoyment, knowledge and confidence in the kitchen and garden; improvements to the school social and learning environment; and extension of program benefits to the home and community.

Focus group participants were also asked, hypothetically, what they might be prepared to *trade* or *pay* in order to keep the program (for example, if it were threatened by lack of funding) in order to gain a sense of how the program was valued. Responses varied between different groups but could be categorised as including a willingness 'to pay' or 'trade' money, time, personal possessions, school programs and school facilities. A summary of these responses, according to stakeholder group, follows:



## Children

In order to ascertain a sense of the value that children placed on the SAKG Program, they were asked whether they would be prepared to trade something of their own if the school were no longer able to afford to keep it. Children were assured that, to the best of our knowledge, there was no evidence that this would occur, though some children were already aware that funding the program was an issue for some schools. Various children told us that they would be 'sad', 'unhappy', 'disappointed' and even that 'it would be the end of the world' if the kitchen garden program were to be discontinued at their school. Different groups of children came up with an assortment of ways in which they might be 'willing to pay' for it to be maintained if that were necessary.

One of the most popular suggestions was that they would contribute time for fundraising; suggested amounts of time that children thought they would contribute ranged from half an hour up to two or three full days per week. A few children also said they would donate money, with offers ranging from 'one dollar' to 'a hundred dollars'. Some groups of children took readily to the idea of 'trading' other things for the program. Items offered for trade ranged from personal possessions such as a 'Nintendo', 'best baseball cap', 'TV', to, somewhat less seriously, their siblings and teachers.

Children were generally also happy to suggest giving up other subjects for the sake of the program, with LOTE (Language Other Than English) most commonly proposed. Other school facilities were also considered by some to be expendable for the sake of the SAKG Program; suggestions here included computers, playground equipment, basketball courts and 'smart boards'. One student put forward the idea that if the kitchen garden were threatened, she would prefer the school to save money by having larger class sizes.



### *Teachers*

Most teachers were uncomfortable with the notion of trading other valuable programs and while they discussed some options it did not seem to be a decision-making process that the teachers would normally be involved in. However, some teachers made the point that such choices had already been made. For example, one school had chosen to use locally raised funds for the SAKG Program rather than for technology such as electronic white boards, which also were needed.

Teachers generally felt that if financial contributions were needed to keep the program running it would be most appropriate to ask parents to make them. At one school, two teachers said they would consider accepting a lower paid position (by up to \$2,000 per year) at a school that had the SAKG Program over a higher salary at a school without it. Others in the group felt that while they valued working in a school with the program, they would have to put the financial security of their own families first.

Many of the teachers taking part in the focus groups had contributed time to the program especially when it was first being established in the school. This included being involved in extra committees and meetings associated with the SAKG Program and for some teachers, coming in to the school to water the garden on weekends and holidays. Some teachers said that if it were necessary, in order to maintain the program, they would contribute further time at lunchtimes or after school. However, teachers at all schools

indicated that any additional time spent on the SAKG Program would be time taken away from other school programs.

### *Parents*

Parents were generally more comfortable than teachers when considering questions about their 'willingness to pay' for the program. Parents are already asked to pay voluntary fees and levies, understood to cover such things as excursions, books, and other 'extras' as well as to volunteer time for school activities. This provided an established context for the idea of parents contributing by way of a levy to the cost of running the SAKG Program.

Many parents participating in the focus groups said that they would be prepared to make a, generally unspecified, monetary donation if it were necessary to maintain the program at their children's school. The amount considered appropriate varied between one and five dollars per school week (i.e., between \$40 and \$200 per year). The amount specified was generally lower at schools where many families were on lower incomes and participants in one group suggested that concessions should be available where needed.

*'Willing to give time to maintaining the program'*

Most parents interviewed also indicated they were willing to give time to maintaining the program. Many were already volunteering and suggested that they would give as much time as they could if it would alleviate a threat to the program continuing. For those not already giving large amounts of time (discussed below under Volunteers) this ranged from an hour a fortnight up to one or two mornings per week.



## Volunteers

Clearly, volunteers were already demonstrating their 'willingness to pay' for the kitchen garden program by donating their time. The weekly commitment of volunteers varies from one session to several days and many have demonstrated a willingness to temporarily increase their donation of time, for fundraising events for example. Many of the participants also said they would give more time if possible and necessary to maintain the program.

A few volunteers, committed to the program in general, had already made monetary donations to the Stephanie Alexander Kitchen Garden Foundation. When asked if they were prepared to contribute financially in order to retain the program at the school, most of the parent volunteers, as discussed above, were prepared to do so in their role as parents. Some of the non-parent volunteers also said they would contribute. In these cases, amounts varied from 'a little' to specified donations of one hundred dollars, two hundred dollars and, in one case, four to five hundred dollars per year. Volunteers were also prepared to consider donating supplies. Examples given included 'cans of beans' and 'lemons'.



*"It is just a great program... every skill is there and every school should have it!"*

### *Weighing up costs and benefits:*

### *Sustainability linked to value of the program*

The SAKG Program is associated with substantial financial cost and even greater community investment in terms of the time, effort and materials donated to the program by staff, parents and other volunteers over and above the paid employment of staff and purchase of materials. Whether this required investment is worthwhile for other parts of Australia (or for other countries) is a judgement to be made by potential funders.

Despite the concerns about sustainability discussed above, the overwhelming response by school principals and all other stakeholder groups in this evaluation was that the SAKG Program was worth the effort required to maintain it. When asked whether they would recommend the program to other schools, interviewees and focus group participants invariably replied that they would and, more often than not, added that it should be in all schools. The program was often described as transformational for the school. One principal remarked that it had 'given the school a new lease of life ... we were already a good school, now we are a better school!' As one passionate parent volunteer added:

I would just like to see it stick around for as long as possible. It's just a great program ... every skill is there and every school should have it. I know it is very expensive and it is a government-funded thing but we spend billions and billions of dollars a year, the government do, on stuff. Put it into your children's education and their future ...

# CONCLUSIONS



The Evaluation of the Stephanie Alexander Kitchen Garden Program has demonstrated that the program is for the most part being implemented as intended and is achieving the majority of its objectives in the first two years of program extension to schools in Victoria.

This comprehensive evaluation of the SAKG Program makes an important contribution to the international literature on kitchen gardens and garden based nutrition programs. It included matched comparison schools, some of which had a strong gardening program and in some cases a limited cooking program. In doing so it provided an opportunity to assess the SAKG Program against what is being achieved by schools without the benefit of the design, funding and resourcing of the SAKG Program model.

The strong additional benefits of the SAKG Program to the school community were clearly demonstrated in terms of child engagement in learning, increased child willingness to try new foods, improved child knowledge, confidence and skills in relation to cooking and gardening, improved school social environment, and increased school-community connections.

There was some indication that the SAKG Program is of greatest benefit to students of greatest disadvantage thereby addressing health inequities in a way that is difficult to achieve in health promotion programs. Further research is required to confirm this finding.

Economic analyses highlighted the value placed on the program by all stakeholders and the success of the funding model in leveraging funds to support schools' implementation of the program. The evaluation showed that the program would benefit from improvements to the components addressing food literacy, specialist qualifications in area of expertise, and curriculum integration. Schools also require greater support and guidance in relation to funding and volunteer recruitment to ensure the sustainability of the program.



# KEY REFERENCES

- AGUILAR, O. M., WALICZEK, T. M. & ZAJICEK, J. M. (2008) Growing Environmental Stewards: The Overall Effect of a School Gardening Program on Environmental Attitudes and Environmental Locus of Control of Different Demographic Groups of Elementary School Children. *HortTechnology*, 18, 243-249.
- ALEXANDER, J., NORTH, M.-W. & HENDREN, D. K. (1995) Master Gardener Classroom Garden Project: An Evaluation of the Benefits to Children. *Children's Environments* 12, 123-133.
- AZUMA, A., HORAN, T. & GOTTLIEB, R. (2001) A Place to Grow and a Place to Learn: School Gardens in the Los Angeles Unified School District. A Survey, Case Studies, and Policy Recommendations. IN GHAZNAVI, M. (Ed.). Los Angeles, Centre for Food & Justice, Urban & Environmental Policy Institute, Occidental College.
- BLAIR, D. (2009) The Child in the Garden: An Evaluative Review of the Benefits of School Gardening. *The Journal of Environmental Education*, 40, 15-36.
- CANARIS, I. (1995) Growing Food for Growing Minds: Integrating Gardening and Nutrition Education into the Total Curriculum. *Children's Environments*, 12, 134-142.
- CASON, K. L. (1999) Children are "growing healthy" in South Carolina. *Journal of Nutrition Education*, 31, 235-236.
- GRAHAM, H., BEALL, D. L., LUSSIER, M., MCLAUGHLIN, P. & ZIDENBERG-CHERR, S. (2005) Use of School Gardens in Academic Instruction. *Journal of Nutrition Education and Behavior*, 37, 147-151.
- HEIM, S., STANG, J. & IRELAND, M. (2009) A Garden Pilot Project Enhances Fruit and Vegetable Consumption among Children. *Journal of the American Dietetic Association*, 109, 1220-1226.
- HERMANN, J. R., PARKER, S. P., BROWN, B. J., SIEWE, Y. J., DENNEY, B. A. & WALKER, S. J. (2006) After-School Gardening Improves Children's Reported Vegetable Intake and Physical Activity. *Journal of Nutrition Education and Behavior*, 38, 201-202.
- KLEMMER, C. D., WALICZEK, T. M. & ZAJICEK, J. M. (2005) Growing Minds: The Effect of a School Gardening Program on the Science Achievement of Elementary Students. *HortTechnology*, 15, 448-452.
- KOCH, S., WALICZEK, T. M. & ZAJICEK, J. M. (2006) The Effect of a Summer Garden Program on the Nutritional Knowledge, Attitudes, and Behaviors of Children. *HortTechnology*, 16, 620-625.
- LAUTENSCHLAGER, L. & SMITH, C. (2007a) Beliefs, Knowledge, and Values Held by Inner-City Youth About Gardening, Nutrition, and Cooking. *Agriculture and Human Values*, 24, 245-258.
- LAUTENSCHLAGER, L. & SMITH, C. (2007b) Understanding gardening and dietary habits among youth garden program participants using the Theory of Planned Behavior. *Appetite*, 49, 122-130.
- LINEBERGER, S. E. & ZAJICEK, J. M. (2000) School Gardens: Can a Hands-on Teaching Tool Affect Students' Attitudes and Behaviors Regarding Fruit and Vegetables? *HortTechnology*, 10, 593-597.
- LIQUORI, T., KOCH, P. D., CONTENTO, I. R. & CASTLE, J. (1998) The Cookshop Program: Outcome Evaluation of a Nutrition Education Program Linking Lunchroom Food Experiences with Classroom Cooking Experiences. *Journal of Nutrition Education*, 30, 302-313.
- MCALLEESE, J. D. & RANKIN, L. L. (2007) Garden-Based Nutrition Education Affects Fruit and Vegetable Consumption in Sixth-Grade Adolescents. *Journal of the American Dietetic Association*, 107, 662-665.
- MORRIS, J. L., BRIGGS, M. & ZIDENBERG-CHERR, S. (2000) School-Based Gardens Can Teach Kids Healthier Eating Habits. *California Agriculture*, 54, 40-46.
- MORRIS, J. L., KOUMJIAN, K. L., BRIGGS, M. & ZIDENBERG-CHERR, S. (2002) Nutrition to Grow On: A Garden-Enhanced Nutrition Education Curriculum for Upper-Elementary Schoolchildren. *Journal of Nutrition Education and Behavior*, 34, 175-176.



- MORRIS, J. L., NEUSTADTER, A. & ZIDENBERG-CHERR, S. (2001) First-Grade Gardeners More Likely To Taste Vegetables. *California Agriculture*, 55, 43-46.
- MORRIS, J. L. & ZIDENBERG-CHERR, S. (2002) Garden-Enhanced Nutrition Curriculum Improves Fourth-grade School Children's Knowledge of Nutrition and Preferences for Some Vegetables. *Journal of the American Dietetic Association*, 102, 91-93.
- MURPHY, J. M. (2003) Education for Sustainability: Findings from the Evaluation Study of The Edible Schoolyard. *Education for Sustainability*. Berkeley, Centre for Ecoliteracy.
- NEWELL, S., HUDDY, A. D., ADAMS, J. K., MILLER, M., HOLDEN, L. & DIETRICH, U. C. (2004) The Tooty Fruity Vegie Project: Changing Knowledge and Attitudes about Fruits and Vegetables. *School of Education Papers*. Southern Cross University.
- O'BRIEN, S. A. & SHOEMAKER, C. A. (2006) An After-school Gardening Club to Promote Fruit and Vegetable Consumption among Fourth Grade Students: The Assessment of Social Cognitive Theory Constructs. *HortTechnology*, 16, 24-29.
- OZER, E. J. (2007) The Effects of School Gardens on Students and Schools: Conceptualization and Considerations for Maximizing Healthy Development. *Health Education & Behavior* 34, 846-863.
- PARMER, S. M., SALISBURY-GLENNON, J., SHANNON, D. & STRUEMLER, B. (2009) School Gardens: An Experiential Learning Approach for a Nutrition Education Program to Increase Fruit and Vegetable Knowledge, Preference, and Consumption among Second-grade Students. *Journal of Nutrition Education and Behavior*, 41, 212-217.
- PHIBBS, E. J. & RELF, D. (2005) Improving Research on Youth Gardening. *HortTechnology*, 15, 425-428.
- PIGG, A. E., WALICZEK, T. M. & ZAJICEK, J. M. (2006) Effects of a Gardening Program on the Academic Progress of Third, Fourth, and Fifth Grade Math and Science Students. *HortTechnology*, 16, 262-264.
- POTHUKUCHI, K. (2004) Hortaliza: A Youth "Nutrition Garden" in Southwest Detroit. *Children, Youth and Environments*, 14, 124-155.
- POSTON, S. A., SHOEMAKER, C. A. & DZEWALTOWSKI, D. A. (2005) A Comparison of a Gardening and Nutrition Program with a Standard Nutrition Program in an Out-of-school Setting. *HortTechnology*, 15, 463-467.
- ROBINSON-O'BRIEN, R., STORY, M. & HEIM, S. (2009) Impact of Garden-Based Youth Nutrition Intervention Programs: A Review. *Journal of the American Dietetic Association*, 109, 273-280.
- SKELLY, S. M. & BRADLEY, J. C. (2000) The Importance of School Gardens as Perceived by Florida Elementary School Teachers. *HortTechnology*, 10, 229-231.
- SKELLY, S. M. & ZAJICEK, J. M. (1998) The Effect of an Interdisciplinary Garden Program on the Environmental Attitudes of Elementary School Students. *HortTechnology*, 8, 579-583.
- SOMERSET, S. (2009) The Potential for School Gardens to Enhance Health. *The Scientific Newsletter, International Fruit and Vegetable Alliance*, 35, 4.
- SOMERSET, S., BALL, R., FLETT, M. & REBECCA, G. (2005) School-Based Community Gardens: Re-establishing Healthy Relationships with Food. *Journal of the HEIA*, 12, 25-33.
- SOMERSET, S. & MARKWELL, K. (2008) Impact of a School-Based Food Garden on Attitudes and Identification Skills Regarding Vegetables and Fruit: a 12-Month Intervention Trial. *Public Health Nutrition*, 12, 214-221.
- THE EDIBLE SCHOOLYARD (2009) The Edible Schoolyard Berkeley, <http://www.edibleschoolyard.org/>.
- WALICZEK, T. M., BRADLEY, J. C. & ZAJICEK, J. M. (2001) The Effect of School Gardens on Children's Interpersonal Relationships and Attitudes Toward School. *HortTechnology*, 11, 466-468.
- WALTERS, L. (2008) Cooking with Kids: Hands-on Food and Nutrition Education for a Healthy Future. Senate Health, Education, Labor and Pensions Committee Field Hearing "Confronting Childhood Obesity: Creating a Roadmap to Healthier Futures". Cooking with Kids, Inc.



# APPENDICES

---

Appendix 1: Child Questionnaire

Appendix 2: Parent Questionnaire

Appendix 3: Teacher Questionnaire



## STEPHANIE ALEXANDER KITCHEN GARDEN EVALUATION CHILD QUESTIONNAIRE

Child Id

Date:  /  /

Admin Init

**Where there is a set of boxes next to a question or statement, please cross the one box which most matches your answer to the question. Where there is a blank line or larger blank space, please write in your answer.**

Mark your answer by placing a cross in the box like this ☒

1. Are you a boy or a girl? Boy ☐ Girl ☐

2. Class: Grade 3 ☐ Grade 4 ☐ Grade 5 ☐ Grade 6 ☐

3. How long have you been at this School? \_\_\_\_\_

4. Do you like gardening? Not at all ☐ A little ☐ A fair bit ☐ A lot ☐

5a. Is there a garden where you live? Yes ☐ No ☐ (if no go to question 7)

b. If yes, do you help in the garden at home? Never ☐ Sometimes ☐ Often ☐ Always ☐

6. What kinds of things do you help with in the garden at home?

Vegetables ☐ Flowers ☐ Herbs ☐ Weeds ☐

Grass ☐ Fruit ☐ Trees ☐ Nothing ☐

7. Do you help with cooking at home? Never ☐ Sometimes ☐ Often ☐ Always ☐

8. Do you like cooking? Not at all ☐ A little ☐ A fair bit ☐ A lot ☐

9. Do you eat with your family in the evenings? Never ☐ Sometimes ☐ Often ☐ Always ☐

10. Do you eat your dinner in front of the TV? Never ☐ Sometimes ☐ Often ☐ Always ☐

11. Can you tell me what ingredients you might put in a salad?

---

---

12. Can you tell me what ingredients you might put in a soup?

---

---

13. What could you make with a piece of pumpkin, some potatoes and 2 or 3 other ingredients? *(Please describe the dish and name the additional ingredients you would use).*

---

---

---

14. How do you know if a cake is ready to come out of the oven? (If there is no timer).

---

---

---

15. Please list all the evening meals you feel confident you could cook on your own.

---

---

---

**16. How much help would you need to prepare the following foods from beginning to end (without using a packet).**

*(cross one box for each meal listed)*

I could make it:	All by myself	With a little help	With a lot of help	Not at all
a. Hand-made pasta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Mixed salad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Vegetable and cheese	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**17. How much help would you need to plant and grow the foods listed below?**

*(cross one box for each food listed)*

I could grow it:	All by myself	With a little help	With a lot of help	Not at all
a. Broccoli	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Silverbeet seedling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Pumpkin seed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**18. What gardening tools have you used? *(cross the ones you have used)***

Hose <input type="checkbox"/>	Shovel <input type="checkbox"/>	Fork <input type="checkbox"/>	Hoe <input type="checkbox"/>
Watering can <input type="checkbox"/>	Spade <input type="checkbox"/>	Trowel <input type="checkbox"/>	I don't know <input type="checkbox"/>

**Cross the one answer for each question that you think is most correct:**

**19. How do you know when a sunflower is ready to harvest?**

When the petals are unfolding <input type="checkbox"/>	When the bees are collecting nectar <input type="checkbox"/>
When it looks dried up <input type="checkbox"/>	When the leaves are bigger than my hand <input type="checkbox"/>
I don't know <input type="checkbox"/>	



**20. How do you know when a tomato is ready to harvest?**

When there are flowers on the vine ☐

When the fruit is green ☐

When the fruit is red ☐

When the fruit falls off the vine ☐

When grubs start eating the fruit ☐

I don't know ☐

**21. How do you know when a potato is ready to harvest?**

If the potato is green when you dig into the soil ☐

After the flowers die and the leaves start to go yellow ☐

You can smell that it is ready ☐

When you are ready to cook it ☐

I don't know ☐

**22. When watering on a warm day with a watering can which part of the plant do you water?**

The leaves at the top of the plant ☐

The stem down close to the ground ☐

The flowers, fruit or vegetables growing on it ☐

Any new shoots I can see ☐

I don't know ☐

**23. Which 3 vegetables can you grow in summer?**

Pumpkin, carrots, artichoke ☐

Asparagus, potatoes, beetroot ☐

Tomatoes, capsicum, sweet corn ☐

Spinach, mushrooms, bok choy ☐

I don't know ☐

**24. How do you make compost?**

Put all your rubbish in a bin and mix it up ☐

Put all your vegetable and fruit food scraps, leaves, lawn clippings, paper scraps ☐  
in a pile or container, water, turn and cover, and leave to mature for a few months

Turn over the soil in the garden ☐

Collect all the dog poo and put it in a pile ☐

I don't know ☐

**25. How do we use compost in the garden?**

Spread it around the garden to cover up the weeds ☐

To fill in holes where we don't want them to be ☐

Dig it into the soil where plants will be grown or plants are already ☐  
growing to improve the quality and nutrients of the soil

Lay it down to create a footpath through the garden ☐

I don't know ☐

**26. What does growing food organically mean?**

Growing foods as fast as possible ☐

Using the smallest amount of water you can ☐

Growing food with natural fertilisers that provide better ☐  
nutrition for the soil, the plants and people

Working in the food garden with friends and family ☐

I don't know ☐

**27. What do plants need to grow?**

---

---

---

**28. What is a natural way of protecting a plant from being eaten by snails?**

---

---

---

**29. Can you list 4 pairs of plants that grow better when together?**

---

---

---

**30. When thinking about how you like working with other people, do you agree with these statements: *(cross one box for each question)***

	Never	Sometimes	Often	Always
<b>a. I can work with other people</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>b. I work well in a group</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>c. I think what other people want to say is important</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>d. When I am in a group I do what I am supposed to do</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>e. I think that all people in a group should help doing a job</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



31. What are your favourite savoury or dinner foods, and what words can you think of to describe the taste and texture of them?

<u>Favourite savoury food</u>	<u>Description</u>

32. What are your favourite sweet foods, and what words can you think of to describe the taste and texture of them?

<u>Favourite sweet food</u>	<u>Description</u>

33. What are your favourite fruit and vegetables and what words can you use to describe the taste and texture of them?

<u>Favourite fruit and vegetables</u>	<u>Description</u>

**34. Will you try a new food if you have.....** *(cross one box for each question)*

- a. Never tried it before?      Never ☐    Sometimes ☐    Often ☐    Always ☐
- b. Cooked it?      Never ☐    Sometimes ☐    Often ☐    Always ☐
- c. Grown it in the garden?      Never ☐    Sometimes ☐    Often ☐    Always ☐

**35. How often....**

	Never	Not very often	Quite often	Often	Very often	Always
Have you felt fit and well?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have you felt full of energy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have you felt sad?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have you felt lonely?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have you had fun with your friends?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have you had enough time for yourself?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have you been able to do the things you want to do in your free time?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have your parent(s) treated you fairly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have you got on well at school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have you been able to pay attention?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Thank you for your time.**



# STEPHANIE ALEXANDER KITCHEN GARDEN EVALUATION PARENT QUESTIONNAIRE

Id no

Date:  /  /

Admin Init

\* Please mark responses LIKE THIS **X**    \* Mark only ONE BOX, unless instructed    \* Use a DARK pen

1. Your gender:

Male ☐

Female ☐

1a. Can you please indicate which of the following school or post-school qualifications you (the parent/guardian filling out this form ) have completed ...(cross the highest level completed)

Year 10 or less ☐

Year 11 ☐

Year 12 ☐

Technical apprenticeship ☐

Technical diploma ☐

Tertiary degree ☐

Post graduate degree ☐

Other ☐

2. Other parent/Guardian:

Male ☐

Female ☐

2a. Highest level of school or post-school qualifications completed.

Year 10 or less ☐

Year 11 ☐

Year 12 ☐

Technical apprenticeship ☐

Technical diploma ☐

Tertiary degree ☐

Post graduate degree ☐

Other ☐

Q3. Your country of birth:

Q4. Main language spoken at home:

Q5. Is your child a: Boy ☐ Girl ☐

Q6. Child's Class: Grade 3 ☐ Grade 4 ☐ Grade 5 ☐ Grade 6 ☐

Q7. How long has your child been a student at this school? Years ☐ Months ☐

Q8. Do you like cooking? Not at all ☐ A little ☐ A fair bit ☐ A lot ☐

Q9. Does your child like cooking? Not at all ☐ A little ☐ A fair bit ☐ A lot ☐

Q10. Does your child help with cooking at home?  
Never ☐ Sometimes ☐ Often ☐ Always ☐

Q11. Do you enjoy cooking with your child?  
Not at all ☐ A little ☐ A fair bit ☐ A lot ☐

Q12. Does your child ever ask you to make food that he/she has tried at school?  
Never ☐ Sometimes ☐ Often ☐ Always ☐

Q13. Is there a garden where you live? Yes ☐ No ☐ (if **no**, go to question 17)

Q14. What kinds of things do you grow in the garden at home?  
Vegetables ☐ Fruit ☐ Flowers ☐ Herb ☐

Q15. Does your child ever help in the garden at home?  
Never ☐ Sometimes ☐ Often ☐ Always ☐

Q16. Do you enjoy gardening with your child?  
Not at all ☐ A little ☐ A fair bit ☐ A lot ☐

Q17. Do you like gardening? Not at all ☐ A little ☐ A fair bit ☐ A lot ☐

Q18. Does your child like gardening?  
Not at all ☐ A little ☐ A fair bit ☐ A lot ☐

Q19. Does your child understand about where food comes from (e.g. beans are grown on plants)?  
Not at all ☐ A little ☐ A fair bit ☐ A lot ☐

Q20. Is your child willing to try new foods?  
Never ☐ Sometimes ☐ Often ☐ Always ☐



**Q21. Does your child ask you to buy or make new types of foods or meals (not snacks like chips or biscuits)?**

Never ☐ Sometimes ☐ Often ☐ Always ☐

**Q22. Is your child involved in deciding which foods to buy for the family (Not snacks like chips or biscuits)?**

Not at all ☐ A little ☐ A fair bit ☐ A lot ☐

**Q23. On how many days in the past week did your child actually:**

	0	1	2	3	4	5	6	7
a) help in the garden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) help to prepare food for the evening meal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) help to cook the evening meal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) eat the evening meal that had been prepared at home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) eat the evening meal together with most of the family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) eat dinner in front of the TV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Q24. During the last 2 years, have you been directly involved in planning or doing any of the following activities at your child(ren)'s school? (please cross one box only for each activity)**

	Not at all	Planning only	Doing only	Planning and doing
a) Cooking classes for children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Garden establishment and/or maintenance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Gardening classes for children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Special events (e.g. open days, fetes, etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Other (please name)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Q25. Thinking about when your child works with other people, do you agree with these statements:**

	Never	Sometimes	Often	Always
a) Your child can work with other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Your child works well in a group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Your child thinks that what other people want to say is important	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) When in a group, your child does what she/he is supposed to do	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Your child thinks that all people in a group should help doing a job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

● **Q26. How many serves of fruit does your child eat every day?** ( A serve = an apple, orange, banana or pear, OR two pieces of fruit such as kiwi fruit, or apricots, OR a handful of grapes OR a cup of chopped fruit)

Number  Don't know

**Q27. On average, how many different types of fruit does your child usually eat each week?**

Number  Don't know

**Q28. How many serves of vegetables does your child eat every day?** ( A serve = a cup of salad, or 1/2 a cup of cooked vegetables)

Number  Don't know

**Q29. On average, how many different types of vegetables does your child usually eat each week?**

Number  Don't know

**Q30. On average, how many drinks of soft drinks (e.g. Coke, Fanta, Sprite, Solo, etc) does your child generally drink every day? (Please don't count diet soft drinks). Please cross one box.**

None <input type="checkbox"/>	1 can <input type="checkbox"/>	1 bottle (600ml) <input type="checkbox"/>
1 glass <input type="checkbox"/>	2 cans <input type="checkbox"/>	1 bottle (1L) <input type="checkbox"/>
2-3 glasses <input type="checkbox"/>	1 bottle (390ml) <input type="checkbox"/>	More than 1L <input type="checkbox"/>

**Q31. On average, how many drinks of diet soft drinks does your child generally drink every day? (Please don't count normal soft drinks). Please cross one box.**

None <input type="checkbox"/>	1 can <input type="checkbox"/>	1 bottle (600ml) <input type="checkbox"/>
1 glass <input type="checkbox"/>	2 cans <input type="checkbox"/>	1 bottle (1L) <input type="checkbox"/>
2-3 glasses <input type="checkbox"/>	1 bottle (390ml) <input type="checkbox"/>	More than 1L <input type="checkbox"/>

**Q32. On average, how many drinks of cordial or sports drinks or fruit juice does your child generally drink every day? Please cross one box.**

None <input type="checkbox"/>	2 glasses <input type="checkbox"/>	1/2 glass <input type="checkbox"/>
More than 2 glasses <input type="checkbox"/>	1 glass <input type="checkbox"/>	1 juicebox (250ml) <input type="checkbox"/>

**Q33. How much in an average week do you spend on household food?** \$  ,  .

**Q34. In the last six months, approximately how much money have you spent on your garden including tools?** \$  ,  .

Thank you for your time



ID No:

Date:   /   /

Admin Init

Name of school:

Gender: ☐ Male ☐ Female

What grade/s do you teach: ☐ 3 ☐ 4 ☐ 5 ☐ 6

How long have you been a teacher at this school?  Years  Months

**Q1. Have you been directly involved in planning or doing any of the following activities at your school?**

*Please cross one box for each activity*

Activity	Not at all	Planning only	Doing only	Planning and doing
a) Cooking classes for children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Garden establishment and/or maintenance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Gardening classes for children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Related classroom activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Special event (e.g. open days, fetes, etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Other (please describe)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Q2. Please indicate whether you strongly disagree, somewhat disagree, somewhat agree, or strongly agree with the following statements. Please cross one box for your response to each statement below.**

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
a) There is a great deal of cooperative effort among the staff members	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) The amount of student tardiness and class cutting in this school interferes with my teaching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) I am generally satisfied with being a teacher at this school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) The community served by this school is supportive of its goals and activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Order and discipline are maintained satisfactorily in the school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Student absenteeism is a problem in this school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Student health is a problem in this school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Q3. Please cross the appropriate box to complete each of the following statements:**

	Very negative	Somewhat negative	Somewhat positive	Very positive
a) Students attitude towards academic achievement in this school is	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) General teacher morale in this school is	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Student regard for school property is	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Q4. Please indicate how well you agree with each of the following statements:**

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
a) Students in my class are fully alert in the hour before lunch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Our school has a strong sense of "community" or "family"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Students cooperate well with other students in this school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Student social behavior in this school is good	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Students in this school pay attention during class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Students in my class look forward to coming to school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Students in my class are enthusiastic about most subjects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Students in my class are punctual to class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) Students in my class are disrespectful and don't respond well to authority	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) Students in my class don't respond well to encouragement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k) Students in my class have a short attention span	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l) Students in my class enjoy hands on learning experiences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m) Students in my class learn effectively	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Q5. How much fruit should a primary school child eat to stay healthy? (One serve equals an apple, an orange, a banana or a cup of chopped fruit. ) Please cross one number.**

- |   |  |
|---|--|
| <input type="checkbox"/> At least 1 serve a week  | <input type="checkbox"/> At least 1 serve a day  |
| <input type="checkbox"/> At least 2 serves a week | <input type="checkbox"/> At least 2 serves a day |
| <input type="checkbox"/> At least 3 serves a week | <input type="checkbox"/> At least 3 serves a day |
| <input type="checkbox"/> At least 5 serves a week | <input type="checkbox"/> At least 5 serves a day |

**Q6. How much vegetable should a primary school child eat to stay healthy? (One serve equals half a cup of vegetables.) Please cross one number.**

- |   |  |
|---|--|
| <input type="checkbox"/> At least 1 serve a week  | <input type="checkbox"/> At least 1 serve a day  |
| <input type="checkbox"/> At least 2 serves a week | <input type="checkbox"/> At least 2 serves a day |
| <input type="checkbox"/> At least 3 serves a week | <input type="checkbox"/> At least 3 serves a day |
| <input type="checkbox"/> At least 5 serves a week | <input type="checkbox"/> At least 5 serves a day |

**Q7. Over the past 4 weeks, the children in your class demonstrated that they**

	Never	Sometimes	Often	Always
a) Can work with other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Work well in groups	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Think that what other people want to say is important	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Do what they are supposed to do when in groups	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Think that all people in a group should help doing a job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>