National Heart Foundation Report

‘Investigating the efficacy of school based vegetable gardens’

Prepared for:

NSW Education and Communities

University of Wollongong Human Research Ethics Committee

Participating Schools

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Prepared by:
Joanne Reed
Bachelor of Public Health graduate
University of Wollongong
National Heart Foundation of Australia volunteer

Executive Summary

This research identified schools in the Illawarra Shoalhaven local government area that have active school vegetable gardens and established some of the barriers and enablers that were present in the initiation and continuation of the programmes. The aim of the research was to identify if school based vegetable gardens help to improve the overall health and wellbeing of students and the broader community. A survey was conducted of adult key stakeholders most involved in the facilitating of the garden projects with a broad range of questions to investigate the hypothesis that school based vegetable gardens lead to positive health benefits and better learning outcomes for participating students. Findings indicate that all stakeholders completing the survey believe school vegetable programs encourages healthy eating amongst children, there was a significant component stating physical activity was greatly increased, and a large majority believed the alternate style of education and hands on learning led to positive interactions with previously disengaged children. Many stakeholders believe the gardens are very efficient at engaging the school community but few said they encouraged broader community involvement. The results for piquing children's interest in sustainable living were very high. A high percentage of respondents that manage the garden programs cite the difficulties involved being mostly insufficient funds, lack of help from volunteers and stresses on an already heavy workload. Further, more detailed research needs to be conducted to support the findings of this small sample size but the findings were relatively consistent. School vegetable gardens have a positive impact on many outcomes of students, particularly healthy food consumption.

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1. Introduction

1.1 This report has been produced as the foundation for further research to investigate the efficacy of school based vegetable gardens. The Heart Foundation commissioned the research which was given ethics approval by both the University of Wollongong Human Research Ethics Committee and NSW Education and Communities SERAP.

1.2 There have been no hindrances placed upon the production of this report. The report has been sanctioned by the supervising principal researcher Andy Mark, regional health promotion coordinator at the National Heart Foundation. The author has no competing influences that may bias this paper.

One limitations of this research is that only a small sample of schools was used. Only gardens in one geographic region were studied with generalisations being made. A 72% response rate, which is considerably high, was recorded for the investigation from 25 schools with active gardens in the Illawarra Shoalhaven region. This indicates stakeholders are quite motivated to discuss their projects and wish to have a voice.

1.3 This report summarises the opinions and attitudes towards this project of adult stakeholders in the school vegetable gardens. Pertinent questions that were in the survey are reported on in section 3. Conclusions and recommendations are reported in sections 4 and 5.

1.4 Previous literature produced in relation to research based around school vegetable gardens shows more appropriate evaluation approaches need to be devised to give a clearer indication of outcomes. Gibbs et al. (2013) studied the principles and procedures used in evaluating the extensive Stephanie Alexander Kitchen Garden program and state although these projects offer promising indications of positive health outcomes, there is very little evidence in the current literature to support this.

2. Rationale for the research

School vegetable gardens have become increasingly prevalent in Australian schools in the last decade (NSW Department of Education and Communities 2015). The rationale for introducing school vegetable gardens is to improve the long-term health outcomes of students, in a financially viable way (Ratcliffe et al. 2011). Vegetable and fruit intake for school age children is generally inadequate and overweight and obesity levels continue to rise, leading to increases in chronic health conditions (WHO 2014).

It is believed intervention programs in earlier years are more effective at targeting these issues than interventions in later life (WHO 2014). The strategy behind the introduction of school based vegetable gardens, in combination with school based education programs aimed at improving nutritional knowledge, is focused on increasing vegetable and fruit consumption, encouraging healthy eating in the home and broader community, discovering food diversity, learning valuable life skills such as cooking and increasing self-esteem. School vegetable gardens are also being looked at as an alternate method of teaching.

3. Research questions and outcomes

A survey of 22 questions was designed using SurveyMonkey. The survey was distributed to 25 school principals within the Illawarra Shoalhaven region of NSW, with the request the principal forward the survey on to the relevant adult most associated with the garden project. A response rate of 72% was achieved indicating stakeholders are interested in discussion and promotion of the program.

3.1 What are the benefits to students of participating in the school garden project?

100% of respondents state the school vegetable garden encourages healthy eating in their students. With the Australian Bureau of Statistics (2011-2012) stating only just over half of Australian children aged 5-17 years meet their daily vegetable intake recommendations, with these figures dropping alarmingly to 15.2% of children in the 12-17 age bracket, this appears to have met one of the objectives of the program which is to increase fruit and vegetable consumption.

It is the perception of 90% of respondent's that this interest in eating healthy is carried into the home environment, thus has a flow on affect to the broader community, even though the broader community has not engaged directly with the program. This suggests that students actively take the newly acquired knowledge and their preferences home to share.

Over 77% of participants indicate that physical activity was encouraged and the school community was engaged, although the broader community not so in a hands on basis. The increase in childhood obesity prominent in most first world countries is one of the most serious public health challenges of this century (WHO 2014) and an increase in physical activity in childhood appears to be another positive outcome for these vegetable gardens.

Over 72% of respondent's state the program offers a successful alternative style of education for students that may not respond as well to traditional teaching methods. Biological studies, mathematics and particularly science were reported as being incorporated into the garden program.

A cooking component is also integrated into some of the school garden programs. As there is mounting evidence that suggests people do not have the basic cooking skills necessary to support a healthy and balanced diet, which may lead to food insecurity and increased risk of chronic disease, this may be considered another successful outcome of school based vegetable gardens. An overabundance of energy dense, low nutritional value food from fast

food outlets contributes to poor diet, particularly in areas of social disadvantage (Fleischhacker 2009). Learning cooking skills at an early age may lead to beneficial health outcomes as adults and those schools with cooking classes incorporated in the garden programs researched report high levels of interest from children. Children in the garden programs are reported as having a willingness to sample food prepared using the fruits and vegetables they have grown themselves.

Respondents indicated that students gain invaluable experience managing a complex system. Nearly 95% state the exploration of sustainable living was of great interest to students involved.

Other positive outcomes reported by respondents include developing an understanding of the cultural diversity of food (61%), improving planning and decision making skills (39%), and an increase in student self-esteem (72%). Over 83% of respondents claim students go on to share their new knowledge with younger students, parents and the broader community.

3.2 Barriers and enablers

One of the key enablers to the introduction and ongoing effective school based vegetable gardens was an encouraging and supportive school principal. Over 72% of stakeholders state this as the catalyst for the beginning of school garden programs.

Another key enabler to the effective functioning of school garden programs was the availability of an enthusiastic teacher. More than 72% of respondents claim it was only through a teacher's preparedness to embrace the extra work load that made the initiation of the garden possible.

Over 60% of stakeholders claim the school gardens were only made viable due to grants from external sources. For instance, the Heart Foundation sourced a grant from the Federal government and contributed $25 000 towards the development of one school based

vegetable garden in the Illawarra Shoalhaven region. Further funding by other groups such as the Aboriginal Medical Service has been secured through collaboration between interested bodies, particularly for schools with low socio economic status or minority groups.

One stakeholder made the comment that the school garden project was made possible because funding was made available to pay a permaculture expert to take classes.

Just over 16% of respondents acknowledge that the school Parent and Citizen (P&C) Association were actively supportive either in the establishment of the garden or involved in the ongoing costs associated with the programs.

The majority of barriers to effective school based vegetable gardens had reoccurring themes. Nearly 89% of respondents state increased responsibilities placed upon teachers involved with the garden are a leading barrier. The lack of funding for most schools to employ professional permaculture specialists and a lack of regular volunteers means desired advancement's on the future direction of the gardens projects may be curtailed.

Over 76% of stakeholders claim initial set up costs are a major barrier. Some schools receive funding from within their own departments but with garden programs considered extracurricular activity they therefore do not have funding allocated from within the Department of Education and Communities. More than 83% of respondents would like to see ongoing funding provided by government agencies. Majority of money comes from grants, many of which are sourced by non-government organisations like the Heart Foundation. With garden establishment costs ranging considerably from $1 000 to $80 000 per annum and ongoing costs estimated at anywhere from $500 to $20 000 per annum, funding is an issue for many schools.

These issues, respondents claim, make it difficult for school gardens to maintain effective programs on very tight budgets and the added burden of chasing elusive funding through fundraising, appealing to the P&C, local business sponsorship, selling excess produce through school stalls and suggest applying for grants is very time consuming. The lack of

reliability in this type of funding is burdensome for those involved in the planning and running of these programs.

Other barriers include difficulties fulfilling the desires of stakeholder in expanding on the garden program as some stakeholders would like to. Some schools would like to keep livestock such as chickens to continue with the sustainability theme and encourage further learning for students. Long holiday periods coupled with a lack of volunteers makes this too difficult and projects are unable to further develop.

Other barriers to establishing effective school based vegetable gardens include having the appropriate knowledge base to start and having those with the appropriate people skills to motivate and engage stakeholders (35%). Finding those prepared to embrace the key role and responsibility for the garden can be difficult (47%).

4. Conclusions

All respondents claim in their opinion school based vegetable gardens are beneficial to students for a number and variety of reasons, particularly improving nutritional knowledge. Whilst these outcomes are very positive, further longitudinal data is needed.

Without longitudinal type data and in depth research with the principal stakeholder, the students, no causal relationship can be accurately stated. However, the results indicate a positive correlation between school based vegetable gardens and increased fruit and vegetable intake, better learning outcomes for specific types of students and general positive experiences for the school and its community overall.

Key enablers are an encouraging and supportive school principle and a teacher willing to take on extra responsibilities. The major barrier in establishing successful gardens is the establishment and ongoing costs associated with the programs.

Notice must be taken of the burdens that arise from school based vegetable garden and an awareness of what is involved in their initiation and ongoing maintenance. Undue pressure placed upon key stakeholders may lead to lack of desire by schools to initiate programs, disappointing outcomes and high garden failure rates. Support from governing bodies, particularly financial, would most likely lead to more uptake of what is by general consensus, very worthwhile health intervention programs.

5. Recommendations

The expanding interest in the feasibility of school based vegetable gardens as a viable, cost effective health and educational intervention merits further investigation. The potential benefits of increasing healthy food consumption, physical exercise, food knowledge and diversity, introducing cooking programs and offering alternative teaching methods to help instil self confidence in students is recognised by many educators, health professionals and policy makers and is deserving of further research.

Should these programs be considered by the board of studies and developed into the syllabus in primary schools, it would be easier to measure objectives and outcomes, expressed by an increase in students' knowledge, understanding and life skills developed.

Consideration should be given to increasing funding for these programs, particularly as part of the school curriculum. Should these programs prove to have the potential health and education outcomes suspected, the potential from a public health perspective is enormous. Public health preventive programs with such small financial outlays have the potential to greatly reduce chronic illnesses in the future, decreasing the burden on the future health care system.

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