

**Exploring the key factors to the success of the Organic Gardening
for Primary Schools Project and potential obstacles that may
reduce the efficacy of such initiatives**

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Abstract

This is a study that asks the question: Which factors are key to the success of the Organic Gardening for Primary Schools Project and what are the obstacles that may reduce the efficacy of such initiatives? Due to the nature of the research, a qualitative approach was used as it was deemed the most appropriate strategy, by way of utilising in depth interviews with professionals and specialists involved with the Organic Gardening for Primary Schools Project, that would yield the most comprehensive results. Themes that were considered significant in the findings are as follows: School Gardens; Effects on Child Behaviour; Children Learning; and the Mainstays of the Organic Gardening for Primary School Project. The findings illustrate the benefits of the School Garden and its importance in this present day regarding the observable impact on children concerning their social, food and environmental milieu, while also encompassing the current curriculum. The findings reflect the potential of a relatively simple initiative to impact on behaviour and on how this has important implications when considering how future generations could potentially interact with our planet. However, new insights resulting from the findings of the study in the areas of funding and resources for such initiatives suggest a need for further research.

Literature Review

The Organic Gardening for Primary Schools Project

The Organic Gardening for Primary Schools Project (OGPP) was developed in the mid-nineties, and it aims to establish living classrooms in Primary Schools, demonstrating that School Gardens have unlimited cross curricular potential. It was founded by Paddy Madden and included the Kerry Earth Education Project (KEEP), who were working on Living Classrooms projects at the time, and then went on to develop a teachers resource for the OGPP; enabling teachers to connect the current school curriculum with the Organic School Garden (Carroll, McGrigor, & Ni Dhuill, 2009). KEEP are an environmental education company that work directly with schools, community groups and special needs groups in the planning and development of sustainable organic gardens and native habitat projects, and are founder members of the Schools Environmental Education Development (SEED), in Ireland (SEED, 2012).

School Gardens

Rousseau, Ghandi, Montessori, and Dewey all advocated School Gardens as places of rich learning. When farms and green space were in abundance and regularly visited by children, the goal of school gardens was pragmatic and normative. It was recognised as a place to teach through experience, to connect children to pastoral nature, and to shape their moral outlook (Blair, 2009, p. 16). Despite this recognition, school gardening in the United States (U.S) was originally introduced for aesthetic purposes. It then went on to become a national movement; first in the early 20th century, and again with a focus on food production during World War Two. The waning of this movement has been put down to the focus on technology of the mid-20th century, and the development of the fast food industry (Blair, 2009, p. 16).

There is a lack of research, reports and documentation in the area of School Gardens in Ireland; as a result much of the literature reviewed here stems from the U.S. It is re-counted

by Blair (2009, p.15) that in the last two decades, the US has seen a return in the popularity of School Gardens. The evidence for this was outlined by the example of the movement of the Texas and California state departments, of education and university extension programmes, to actively encourage school gardening, based on curricular and evaluative research. Some of the research was examined and looked at; a quantitative study in the field, showed positive outcomes of school gardening initiatives, in the areas of science achievement and food behaviour. The same report presented no change in the children's environmental attitude or social behaviour. Issues of validity and reliability are also acknowledged in the results. On the other hand, qualitative studies documented a wider scope of desirable outcomes pertaining to the students, which include an array of positive social and environmental behaviours (p.15).

Amongst the research, the experience and position of the teachers involved in School Gardens, was emphasised in a number of ways. Blair (2009, p.15) outlines the level of enthusiasm among teachers as directly correlating with the amount of support they received, along with their personal level of horticultural confidence. A separate study shows that ninety two percent of educators who incorporate school gardening into their curriculum requested additional gardening education for themselves (DeMarco, Relf, & McDaniel, 1999, p. 276). The class teacher evidently has a major role to play in putting a School Garden into effect; it is suggested by Blair (p.35) that in order to maximise or sustain School Gardens, an embedded support mechanism is required to lighten the teacher's burden. This study also proposed that further research is needed in the form of longitudinal, qualitative and quantitative, accompanied with a need for an examination of successful School Gardens and the reasons for garden failure, also recommended is the exploration of creative means on maintaining gardens over time and moving the workload away from teachers (p.36).

De Marco et al (1999, p.279) also bring attention to the teachers, when they state that teachers perceptions of what can be learned by gardening, determine how gardening will be used in the curriculum. Furthermore the study indicated that for a teacher to be willing to make the commitment of time and energy, to school gardening, he or she must be aware of the value and diversity of the School Garden as a learning resource and recognise that it can both serve as a learning tool for teachers and enhance the education of the students. The solution offered to overcome this apparent obstacle, is that teachers reach out for support and further education in the area in the horticulture community, where they may find opportunities to develop their understanding of School Gardening, and its adaptation into the curriculum (DeMarco, Relf, & McDaniel, 1999, p. 280).

New Social Movements (NSMs)

Another review of the history of School Gardens traces the periods between 1891 and 1920, in America; where these dates are said to represent the rise and fall of the School Garden movement in the US. Here, School Gardens have been described as a national phenomenon of the time, that was rooted in the Back to Nature Movement, early education reform and Progressive governance (Trelstad, 1997, p. 161).

New Social Movements are thought by some sociologists as being agents of social transformation, with some having the power to bring about: “radical and emancipatory change in what is often seen to be an unequal, unjust and socially or culturally destructive modern society” (Share, Tovey, & Corcoran, 2007, p. 493). Share et al add, that theorists have hope in NSMs, in that they may replace the earlier class-based movements as agents of social change, and that they might succeed where those before them failed, in dethroning or transforming capitalist society (Share, Tovey, & Corcoran, 2007, p. 493).

An example of a highly influential social movement is the environmental or green movement, which is centred on the reversal of the damage inflicted on the Earth by human beings. This is

symbolised as a white man hacking his way through the Amazonian jungle bringing commerce and Christianity to the ignorant natives. This image is prevalent due to the spread of capitalism and its Multi and Trans National Corporations; as the producing regions for these companies become subordinate, with increasing dependency (McMichael, 2000, p. 23). McMichael explains that as the world food order is becoming increasingly fragile, it is supplemented by ad hoc assistant programs and countered by alternative agricultures; generating powerful opposition to the industrial movement (2000, p. 21). These counter movements believe in community agriculture and fresh, organic food, which parallels the demands of supermarkets, which in turn compromises local markets. Born from these counter movements are community supported and sustainable agriculture, community food security coalitions, organic food, principles of biodiversity and fair trade movements (McMichael, 2000, p. 22).

Cohen and Kennedy (2007, p. 483) note the emergence of concern about the human threat to nature in Europe in the early nineteenth century; where the main concern was the preservation and protection of the natural world, from areas of natural beauty to birds and animals. They discuss the growth in the number of people joining various environmental NGOs since the 1960s, and how environmentalism now encompasses a much wider range of problems. Which include the threat of pollution on the environment, diminishing biodiversity and climate change caused by global warming (p. 483). These are all issues or motivations entrenched in the dimensions of the organic farming movement (Devitt, 2006, p. 107)

Global Model of Agriculture

In considering agriculture and food production, the emphasis can most often be found to be economic, with the inclination being that the Western style economic system is spreading through the world and capitalising on food. The focus with these economic systems is on profit, with an ideology that revers individual and financial gain (McMicheal, 2000, p.22).

At the frontline of this model of agriculture are the Multi/Trans National Corporations (MNCs, TNCs). They profit from the increased level of economic globalisation, their power and influence pulls and pushes rich and powerful states while overwhelming poorer states (Cohen & Kennedy, 2007, p.9). The companies argue that their new biotechnologies reduce the use of pesticides and promise to end world hunger. Whereas critics dispute these claims, arguing that these technologies will discriminate against small farmers, threaten public and environmental health, while also narrowing available food choices (McMichael, 2000, p. 25). These Corporate companies are defined by having their economic activity in two or more countries, they are geographically flexible, their capital and material flows between plants in different countries and they are characterised, by their cultural influence of individualisation and consumerism (McMichael, 2000, p.26). It is important to note that TNCs are responsible for a large portion of world employment, production and trade. However, these companies skilfully mix and blend using multiple sourcing to gain maximum profits and cheapest labour (Cohen & Kennedy, 2007, p.179).

The movement to establish a corporate system is described as being; powerful, with a vision of; “organising the world as a single market, this is becoming evident in terms of food production and consumption” (McMichael, 2000, p. 22). When it comes to food, supermarkets and what we eat, it is most obvious that we are living in a global model of agriculture. Shopping trolleys are filled with fresh, frozen, processed, canned and bottled food from a variety of countries around the globe. The retailers are responding to consumer demands for fresh, exotic, high quality, cheap and out of season produce (Cohen & Kennedy, 2007, p.187). This is an example of our personal interaction with TNCs and our individual contribution to the global model of agriculture.

This kind of food production is argued by McMichael (2000, p. 23) as compromising local food security, and increasingly anchoring a system of global profiteering in food products, a

system where food travels from farm gate to dinner plate on an average of two thousand miles. He further argues that this global reorganisation of food culture is extensive and has social and environmental impacts that are irreversible (McMichael, 2000, p. 22).

Environmental learning

The Organic Gardening for Primary School Project directly links positive local action with global environmental issues such as Carbon Foot Prints, Fair Trade, Sustainability, Global Warming, Climate Change, Food and Seed Security and Food Miles (SEED, 2012).

It is expressed by one author that there is hope, that as a society we will continue to find ways to integrate the theoretical work stemming from such fields as sociology, nutrition, philosophy, economics, education and community development, into practical application for the development of sustainable food systems (Feenstra, 2002, p. 99).

The International Society for Ecology and Culture (ISEC), believe that global agriculture represents a crisis which constitutes of bankrupt famers and rural communities that have been destroyed by the globalisation of agriculture. Simultaneously, despite this crisis, the global trade in food is said to be booming and the distance between producers and consumers is increasing. It is suggested that the most powerful solutions will require a fundamental change in direction from globalised food economics towards localising production. The efforts required to effect these changes can be seen in the emerging locally 'grow food' movements that see people beginning to seek out produce, which is produced for local and regional consumption (Norberg-Hodge & Gorelick, n.d).

Local food systems promote local economics, as most of the money goes to the farmer, rather than to big business or a middleman. A Spanish farmer reported that he received three times as much for his vegetables when he stopped selling them through supermarkets, through which he would get very little (Norberg-Hodge & Gorelick, n.d).

It is evident that new social and economic movements may influence an ethical restructuring of the markets. Fair Trade has been identified as symbolic, of a new generation of social movements, which is deeply embedded in the context of economic globalisation, and its intentions are to influence the economy, in accordance with social and political concerns. It aims to question the traditional economic system and take action to renew it with more progressive trade systems. Being born from many alternative trade practices, Fair Trade has become a strong establishment, with its own official label, that has a visible and important presence in the food industry (Gendron, Bisailon, & Rance, 2009, p. 63).

Global warming and climate change are synonymous with each other and refer to science based evidence that the temperature of the planet is rising (Schuldt, Konrath, & Schwarz, 2011, p. 116). The most obvious impact of climate change is seen in the shift in the number, severity and location of extreme weather events. Physics explains this global phenomenon as an excess of energy being released into the atmosphere which in turn increases its temperature. This results; in a decline in cold weather, an increase in heat waves with changes in intensity and frequency of the dry and wet periods linked to drought and floods (Ward, 2013).

While it is difficult for anyone to attribute specific weather occurrences to Climate Change, it has been reported in a recent review by the Intergovernmental Panel on Climate Change (IPCC), with scientific research on extreme weather, that there is evidence to show that the amount of cold days around the world is decreasing and the amount of hot days is rising, and rainfall is also being reported to have experienced a change in pattern. In addition to this, the report revealed that the Global sea level is rising by 3mm per year which is said to contribute to the effect of a storm or flood (Ward, 2013).

The energy being released into the atmosphere can be referred to as greenhouse gas emissions, and are typically associated with an activity, group of activities or a product.

There is growing awareness about the contribution of modern food production and consumption to climate change. Areas have been pinpointed throughout the entirety of the food chain where changes can be made to increase the level of environmental responsibility, from cultivation, processing, transport and through to the final cooking technique. A life cycle assessment can be used to measure the carbon foot print of any stage of food production, which may be helpful in making government policy decisions around food production, distribution and consumption; with a view to reducing greenhouse gas emissions (Banu & & Sassilkala, 2012, p. 1).

Food sovereignty is a relatively new concept that was introduced for the first time in 1996 at a NGO Forum on Food Security. The concept has not yet received support by any inter-governmental forum and although there is said to be no official definition of food sovereignty, it most commonly refers to the right of peoples and sovereign states to democratically determine their own agricultural and food policies (Haugen, 2009, p. 261)

In February 2012, groups and individuals attended Ireland's first Community Supported Agriculture conference which was held in Cloughjordan in Tipperary. They met to further discuss establishing an Irish working Group for Food Sovereignty Ireland. The group planted the first seeds in developing a strong coalition of individuals and organizations interested in promoting an alternative framework for Food and Agricultural Policy in Ireland, Europe and Internationally (Food Sovereignty Ireland (FSI) (2011). The process continues, and the first green shoots are beginning to emerge as interest in Food Sovereignty continues to grow (Food Sovereignty Ireland (FSI) (2011).

Child Health

Learning about food has a health and nutritional dimension which may serve children in the School setting. Obesity is a rising concern across the Western world, it is estimated that 12.1% of children in the US, aged 2-5 are already obese (Reynolds, Jackson Cotright,

Polhamus, Gertal Rosenberg, & Chang, 2013, p. 8). In Europe a recent study on the Body Mass Index (BMI) of boys and girls aged 6-9 showed that stunting, underweight and thinness were rarely prevalent, and that 49% of boys and 42% of girls were overweight or obese (Wijnhoven, et al., 2013, p. 79)

Education is said to be key to the prevention of this health condition, and in this case the earlier the better. An American study emphasises the amount of time that young children spend in the education setting, with an example of a child in early childhood care reaching up to thirty hours a week. Initiatives have been set up across the board in the US, motivated by the early prevention concept. These initiatives highlight the standard steps for developing, implementing, and evaluating such projects, which include; systematic assessment of needs, opportunities and resources; funding sources; and training and professional development. These frameworks were reported to be imperative to the successful implementation and sustainability of projects (Reynolds et al, 2013, p.8).

Conclusion

The author has briefly outlined the Organic Gardening for Primary Schools Project, while going on to review the current literature in the area of School Gardens. This unearthed the consideration that there is a need for more study on School Gardens, in the form of qualitative and quantitative research, in order to establish a functioning framework. The literature in this area was mostly coming from the US, which points to the lack of research and literature in Ireland. However, when reviewing the work on School Gardening, the benefits have pointed to a positive change in social and environmental behaviour. In addition Blair (2000) and Demarco et al (1999), have emphasised the role of the class teacher in the success and sustainability of a School Garden.

School Gardening is relayed as having a context, which encompasses a wide range of global environmental issues and was identified by Blair (2000) and Trelstad (1997) as having been a

social movement, in and of itself. By discussing the social movements, and global issues that are embedded in the School Garden concept, the benefits of School Gardening are expanded from the classroom, out into the global sphere.

When pertaining to the personal benefits or influences the School Garden has on a child, a topical area is health, mostly nutritional health. The author touches on the obesity issue with young children, which inevitably turns into an adult issue. Early intervention in the form of education as early as possible, is offered as a preventative approach to children's health and mainly child obesity. Such initiatives in the US, have resolved that methodical assessments of needs, opportunities and resources, were the backbone to the sustainability and success of any educational project (Wijnhoven, et al., 2013, p. 79).

In conclusion, School Gardening is an educational concept that can reap a vast array of individual and collective benefits. It is also established that there have been standard steps suggested, by US initiatives in early prevention for child obesity, that require the systematic assessment of the needs and opportunities of a project; which corresponds with the objective and questioning of this research. The research contained in this paper intends to address the need for further study in Ireland on the area of School Gardening.

Methodology

Research Question: Which factors are key to the success of the Organic Gardening for Primary Schools Project and what are the obstacles that may reduce the efficacy of such initiatives?

2.0 Design

Due to the exploratory nature of the research a qualitative approach was used as it was deemed the most appropriate for the research design, data collection and data analysis.

Qualitative research can be described as a situated activity locating the observer in a world; it consists of interpretive material practices that then make that world visible. These practices reveal and present this world in a series of representations including field notes, interviews, photographs and memos (Ritchie & Lewis, 2003, p. 2).

Qualitative research involves an interpretive naturalistic approach to the world, studying things in their natural setting, intending to make sense of, or to interpret phenomena (p.2). In-depth interviews are a main method of data collection used in qualitative research and were chosen for this research due to their features and quality; the importance of talking to people has been emphasised as a significant method of grasping their perspective which is exactly the purpose of the research. Adding to that, personal accounts are seen as being vital in social research because of the power of language to illuminate meaning (Ritchie & Lewis, 2003, p. 139).

A qualitative approach was the most appropriate to answer the research question; Which factors are key to the success of the Organic Gardening for Primary Schools Project and what are the obstacles that may reduce the efficacy of such initiatives? In order to collect rich, in depth qualitative data, semi-structured interviews were used with an interview schedule to act as a guide; combining structure and flexibility (p.141). Semi structured in-depth interviews are interactive by nature, and intend to generate naturally occurring data (p.168).

Preceding with this research approach, the researcher used a specific sampling method to access participants. Once the participants had agreed to take part in the study; a location and time was agreed to carry out the semi-structured in depth interviews. On meeting the participant, an information sheet was given to them (see appendix three), explaining the research topic, their right to withdraw and relevant contact details in order to uphold the SAI standard of ethics (SAI, 2008). In addition, the information sheet contained contacts for outside resources of support, if needed. The researcher explained the relevant ethical considerations and obtained informed consent (see appendix two). The interviews lasted twenty to forty minutes on average.

2.1 Materials/apparatus

An interview schedule was compiled with the intention of answering the general research question (see appendix one). In developing the questions, themes were identified which were influenced by the research question along with the literature review. Peer review journals were used to assemble the literature review which contributed to the formation of the general question.

A Sony Dictaphone was used to record interviews, with granted permission. The interviews were then transcribed verbatim into Word Documents and saved on a password protected USB, which will be destroyed after one year. The transcriptions were then imported into NVIVO 9, which was the computer assisted qualitative data analysis software used for managing and organising the data in preparation for analysing using codes and themes.

2.2 Participants/Sampling Method

The sample size was six participants, which included three female and three male. This gender ratio was not intentionally sought after by the researcher, however it may provide a more balanced perspective. The participants were chosen based on their involvement with the Organic Gardening for Primary Schools Project (OGPP) , and in order to get a range of

experience and perspective, four were chosen who were involved in developing and implementing the project across the country, and two were teaching at a school where the project was being employed.

The sample selection being criterion based meant that participants were chosen due to their experience in the area of teaching in conjunction with the project being explored. The participants had to be directly involved with teaching children under the Board Bia Organic Gardening for Primary Schools Project. This approach is criterion based or purposive sampling (Ritchie & Lewis, 2003, p 78). The sample units were chosen because they have particular features or characteristics which will enable detailed exploration and understanding of the central themes and puzzles which the researcher wishes to study.

Criterion sampling aims to choose a sample that will represent a location or type, in relation to a key criterion. By choosing sample units whom are involved in implementing the OGPP, the researcher aimed to ensure that all the key criteria is in place for the purpose of answering the research question. The researcher also aimed to achieve diversity within the sample so that the impact of the characteristic can be explored.

To achieve this diversity, the researcher chose samples from a Primary School that are currently implementing the project and also from the Kerry Earth Education Project (KEEP), who were involved in the creation of the project and have been involved in implementing it over the lifespan of the project. This will ensure that there is a range in perspective, drawing from differences in experience, gender, and age group (Ritchie & Lewis, 2003, p 78).

2.3 Data Analysis

The interviews were transcribed verbatim which was then saved in Word Documents; it was then imported into Vivo computer software. The researcher used this software to code the data, revealing themes and patterns. From there, themes or concepts within the data were categorised by the researcher. In this way the researcher explored the data with the intention

to generate descriptions that are meaningful and display content that is informative, according to the research question (Ritchie & Lewis, 2003, p.261). When themes were established, the data was organised into key themes, concepts and categories. The data was then analysed in relation to the research question and in comparison with the literature from the literature review. This method is called thematic analysis.

2.4 Ethical consideration

Reflecting the Sociological Association of Ireland's view, that responsibility for the highest standards of conduct in research rests with individual (SAI, 2008), ethical consideration was imperative. In considering the intimate nature of the data collection, it is essential to acknowledge the responsibility of the researcher to ensure that the welfare of the research participants is not adversely affected by their research activities (SAI, 2008). There were several means by which the researcher achieved this.

Informed consent was essential prior to conducting any of the interviews; this was sought and obtained from all participants prior to the interview. Each participant signed a consent form which included details of the study and their rights; considering that their participation was voluntary and they had the right to withdraw at any time, in addition the confidential nature of the data collected, and stating that the interview will be securely stored on a password protected USB. They were also informed that if after the interview was complete, they wish to have their interview removed from the study, this could be done up until the research study was complete. Participants were also informed that pseudonyms would also be used to protect their identity, respecting the anonymity, privacy and confidentiality of the participants (SAI, 2008).

Findings

This section will interpret the raw data, identifying and reporting themes and patterns that emerged from within the data.

3.0 School Gardens

An observable theme was School Garden's and the different benefits they had displayed evidence of bringing to children. Under this theme, sub themes became clear pertaining to children's learning, child behaviour, and environmental benefits.

Curriculum

The general consensus from the Environmental Educators, the Primary School teacher and the School Principal, was that the School Garden served as more than just a feature. The garden was a massive resource for the students and teachers that could incorporate and enhance all of the subjects on the curriculum. Participant five emphasises the scientific basis of the School Garden; the participant expresses the value for children of seeing the connection between the natural world around them and what they are learning in books.

It is not just us harping on about stuff, it actually is happening outside and they get to go out, have a look and get involved

The environmental educators held the attitude that a large portion of the curriculum could be taught through school gardening. Again with the sentiment that the hands on experience in the garden functions as a practical tool to understanding the subjects they are learning in the classroom. Using the example of Maths and English, Participant four describes the relevance of using numbers or figures, for planting seeds and yielding plants. While including the need to name plants and describe what one has done, in the form of stories or poetry, which also lends itself to other languages, such as Irish and French.

This draws attention to one of the obstacles of the Organic Gardening for Primary Schools Project (OGPP), which was identified as the push by the Government on Maths, literacy and Science. Participant five expresses his concerns;

Stuff like the garden probably will start to fade away when the push and pressure from the government to improve literacy or numeracy starts to come on

Child Behaviour

A plethora of benefits were discussed by each participant regarding the positive affect of School Gardening on the behaviour of the children. Giving the children responsibility was something that was mentioned by most of the participants, which had a multifaceted beneficial effect. For some children it was taking care of something growing, which taught them to take care of their environment. The class teacher explores;

They do really get into it and they start to worry, you know, ‘this stuff is not growing’ if they think that a bit of damage has been done to something they get quite annoyed and they want to fix it

For others it was being given the responsibility of an important job with specific tools, which was observed by one of the environmental educators as having an impact on their interest and engagement in a learning role and as part of a team;

Very often when you start off with a class the teacher will say, ‘oh watch out for little Jimmy’, or whatever, ‘he is a real trouble-maker’ ‘don’t give him the sledge hammer’ or something like that, or the secateurs or whatever because he is a terror. And it is something that I have seen time and again happen. Little Jimmy, is the one who is really benefiting from the gardening

The outdoor classroom concept is expressed as intending to transform the school ground environment from tar mac and concrete into a stimulating place with trees for children to hang out of, with vegetable beds and willow fences, making the school setting more interesting and stimulating for children, while also relaxing them. The Principal reported that;

Some of the difficult children who were giving trouble in class, and you know, didn’t like school, have the garden as a kind of an outlet and it is something that the teachers can direct them towards if they are having a difficult time. If they want to release a bit

of the pressure that is building up in the class room, they can divert them to the garden which is absolutely brilliant.

Participant six gives an account; where the environmental educators convinced a school caretaker to leave a wildflower meadow for the children, where they strimmed a path, so the children could wonder through. When the children came along they were observed as they naturally played in it.

The kids just came along and made a nest in it, you know, it was something just really instinctual that they all did, they just loved doing it, you know it was like they were doing a bit of art, it was creative and they were having a bit of fun and it was real relaxing.

Amongst the direct impact on the student's behaviour, another beneficial outcome observed by the Principal was that some children had an increased interest in school.

Teachers will tell me that some of the children that have got involved in the garden, their behaviour is improved and their interest in school; they are coming to school now with a particular thing in their head that they want to do.

Another emergence in the findings was acknowledged by both the environmental educators and the teacher, which was the positive social aspect of gardening. The children were observed as relaxed, chatting and just being with each other in a natural way.

They get to have a chat and stuff, because you're out in the open air and you don't necessarily get to do that in the class, most of the time you are doing quiet work. So socially definitely there is a benefit

Environmental Benefits

Most of the participants drew on how the school garden heightened the children's awareness of the environment and the role they can play in preserving it, as participant five recognised;

So it is good that they are having that awareness and they are actively trying to get involved in looking after the environment.

The same participant emphasises the value of the children looking after their environment and tells of how he took his senior infants class out on litter patrol around the garden and he recounts how the children saw directly the affect it had on the natural environment, such as

plastic bags stuck in trees, and the damage it does to the plants. Further to that he specifies how the children realised just how easily nature can be damaged, and how they connected with this in a caring way.

They were quite annoyed and shocked that people were so careless with the environment

All of the teachers and educators saw the children's response to becoming engaged in their natural surroundings. The environmental educators expressed their wish to demonstrate to the children that there is a way of producing food from the soil without damaging the soil or the environment. Participant four relays;

Some people think 'oh, you can't feed the world without genetics', and then you look at a documentary on some place in India and they say genetic farming is destroying our community, destroying our soil

Teaching children about environmental degradation is proposed by the project leaders as being fundamental yet the objective is to provide a working solution with Organic Farming methods, promoting biodiversity and preserving natural habitats. As participant six describes;

Well you can't be full on with kids about climate change and all the problems of the world, so actually your just doing a solution

This teaching objective is further conveyed with the wish to literally sow seeds in the minds of the children that will connect them with their capacity to care for the environment and everything in it. An environmental educator describes this objective;

If children go through Primary School getting this sense of trees, fruit and vegetables, wildlife, bugs and bees; and not to stamp on them when they see them; which is just a standard response, or pull their legs off. So you start respecting bugs, beasts, animals, you know the biodiversity

3.1 Child Health

Food Education

This was an all prevailing theme that emerged as an objective for the environmental educators in teaching children, and for others it was a standout observation, the school teacher describes how the children learn about where their food comes from. Commonly it was referred to; how for most children food was something seen on the shelves of a supermarket.

I know before they come into the school, they haven't got a clue where stuff comes from; it is just on a shelf in a supermarket
It is such a revelation for some of them that for example; that cucumbers grow upwards on a vine

It was also mentioned that children had developed a growing appreciation for food; in how precious the seeds are, the amount of work it takes to make sure the plants survive, and the skills that are needed. Participant six added to this by outlining the importance of the children knowing what to do with food when it comes out of the ground. This was said to be achieved by using everything that was harvesting by the children and including them in the kitchen, or sending it home with them. This also served as promoting the healthy eating lessons that would feature in the classrooms as described by the teacher;

I suppose the potato thing is a big one yea, the kids dig up potatoes and see that is where the chips are coming from

Developing Skills and Knowledge

Basic life skills and fundamental knowledge were attributed by most of the participants to the School Gardening Project.

We harvest everything in September each year and this year the kids got to make soup. So, they cut up all the veg and they used the kitchen to cook the soup, a batch of soup and they really enjoyed it

Children learning practical skills like tying knots, using tools, propagating and cultivating plants, caring for the environment and preparing fresh food were seen by all participants as

being a fundamental part of education. Participant two pointed out that teaching children how to learn was an imperative; encouraging inquisition, and guiding them to find out things for themselves;

Rather than teaching them facts that they kind of have to learn off by heart, or teaching them all the names of plants, you teach them how to use a key to find out what plants are.

And participant six pointed out;

One of the biggest, I suppose eye openers, for me was when we were making willow fences and the kids couldn't tie knots, because they all have Velcro shoes

She further expressed how the two places that the children spend most of their time are in school and in the home, referring to where they acquire such life skills and knowledge.

Vision for the future

The garden was recalled as having been a massive influence throughout the early and mid-20th century, in Primary schools. It was then identified that people may have forgotten the importance of it, yet also that there is a push at the moment to try and get it back. Concern was expressed by a teacher, in the hope that maths, numeracy and literacy would not push out other subjects, like the garden in particular because of the joy it brought to the children.

Because not everything in school is enjoyable {.....} you can make things enjoyable out there in the garden, I suppose, everything is enjoyable, it doesn't matter what you are doing out there, once they are out there they are happy you know

The vision conveyed by several participants was that children could learn to grow trees and with the skills and knowledge of how to create a nice environment to live in. In particular one that can supply your own food and energy, or that can be nurturing and nourishing in many ways. As directed by participant four;

You don't have to import you know grain from America, and da da da. You know, the quality of life even is better

It was illustrated previously by participant six that the intention of the School Garden Project is to practically demonstrate and include the children in a solution to environmental problems.

3.2 The Mainstays of the Project

Teachers

The teachers teaching the children in the Primary schools were identified across the board as being paramount in terms of the success of a School Gardening Programme. The Principal relayed;

The teachers are crucial, if the teachers didn't buy into it I would be wasting my time because I couldn't obviously do it myself on my own {.....} they are not all passionate about gardening, some of them have never grown anything in their life, but I am saying into it, as in supporting it and supporting the children

However, to indicate a contradiction, the teachers also symbolised as an obstacle for the success of OGPP. There was a unanimous awareness of the lack of confidence in teachers which ties into the lack of training in this area for teachers and which was identified as having being partly responsible for a lack of interest.

The environmental educators described themselves as coming up against the teacher's perception of the School Garden as extra work, which created reluctance in engaging in the outdoor classroom. Contrary to this a teacher explained that in his experience it is not extra work at all. However, he recognises that this occurs when one knows what one is doing, along with the openness to *'get out there and give it a go'*.

His confidence he puts down to courses and training;

I think it is just the initial fear people have really, I am just judging by the way I felt before I did the course. Em, I would have had a little bit of apprehension towards using a garden because I just didn't really understand what I should be doing or what benefits there are there

Government and funding

The Principal speaking from his experience of the project, expressed how he would love if the staff could get more training. While identifying a few outside courses that are available to the teachers at term time, he pointed to the benefits of getting people into the school to train them. Doing gardening classes that included the teachers and children, so that they would all learn and up skill together.

I had a guy approach me recently, he is a horticulturalist and he is a teacher, and he would love to come in and do gardening classes with the children, and that would be absolutely brilliant {.....} but again the funding isn't there for that

This school generated part of their own finances for starting the project by selling Christmas cards, and the rest was funded by Board Bia. Although this funding has been available, the Principal focuses on a major problem they have with bills; distinguishing the funding as public money coming in, and then going back out ten-fold in water charges, which the school has been metred for, for the last five years.

One of things that could definitely kill it off (the School Garden Project) will be the Board of management looking at the bills and saying 'we really can't give this priority if it is costing us so much in water' and I would hate to see that happen

Another participant directs attention to economics and the approach to economics pertaining to the Government and relevant Departments. He addresses the need for a shift in the emphasis on money, to generating wealth in a local community, for a local community, which is expressed by participant four;

They (the Government) don't get economics, they only get money, you know the wealth generated in a local community for the local community is completely different to bringing in multi-nationals and importing masses of chemicals to spray on our land because it is good for big business. So you know, there is no comparison, and one is long term damaging.

Discussion

This study sought to explore which factors are key, to the success of the Organic Gardening for Primary Schools Project as well as any obstacles that may reduce the efficacy of such initiatives. To gain insight into this area, in-depth interviews were carried out with professionals and specialist, who were involved with the Organic Gardening for Primary Schools Project, including Environmental Educators and Primary School teaching staff.

Through gaining a deeper understanding of the concept of School Gardening from those with first-hand experience in the area, the essential requirements and possible restrictions involved in such a project were highlighted.

A review of the previous literature exposed a lack of Irish research in this area. Themes that were generated through the literature review were: School Gardens; New Social Movements; Global Model for Agriculture; Environmental Learning and Child Health. Many themes emerged from the interviews; some novel, along with some of the pre-established themes, which brought to light new insights into School Gardening. Themes that were deemed significant in the findings are as follows: School Gardens; Effects on Child Behaviour; Children Learning; and the Mainstays of the Organic Gardening for Primary School Project. The following section will outline and review the findings of this study and discuss them in relation to the literature.

School Gardens

The findings revealed that there is potential for cross curricular learning through the School Garden, which can be of great value to the children. This was illustrated by a teacher, who focused on the value for the children in recognising the connection between the natural world and what was being learned in class from books. It was also conveyed by the environmental educators who explored the notion that the majority of the curriculum can be taught through the garden. In the literature, School Gardens are depicted as historically having been a normal

and natural part of a child's education, at a time when farms and green areas were plentiful (Blair, 2009). It is further suggested that with the rise and fall of the School Garden movement, an understanding of the value and the potential for cross curricular learning through the School Garden may have been lost. Although, Blair (2009, p.16) recounts that the Education Departments of Texas and California, have demonstrated a movement toward the advocacy of School Gardens, based on curricular research. In spite of this, School Gardens are not considered to have continued to grow, which Blair (2009) cites as one argument for further research and study in this area, with a focus on ways of supporting teachers and establishing working frameworks.

The literature signifies the transition from a time when the outdoor classroom was common place in a child's world to a time where more industrial thinking dominates (Blair, 2009). The presence of this in today's school curriculum was pointed out by one participant in the fear that the push by the government for maths, numeracy and literacy would compromise other subjects; mainly the garden. While at the same time it was revealed by most of the participants that the garden could be used to enhance these very subjects, supported by the literature that reports positive outcomes in scientific achievement. Additionally, these positive outcomes pervade the areas of food, social and environmental behaviours (Blair, 2009).

In the interviews a conflict of views was identified, where some participants emphasised the perception that the garden was extra work for teachers, which corresponds with De Marco et al's (1999) suggestion that the burden needs to be brought away from the teachers. On the other hand it was recounted that with the development of skills and knowledge, along with utilising whatever support is available, comes confidence, which can convert the garden into a valuable teaching resource rather than extra work. A teacher spoke from his direct experience, as he saw his own confidence grow after attending a training course on School

Gardening. He relayed that the more he learned about gardening the more confident he felt about what he should be doing, and the more aware he was of the benefits. This is backed up by Blair (2009) and DeMarco et al (1999), who both reported that the level of interest from teachers corresponded with the support they received, and that embedded support mechanisms for teachers are required for the success of a School Garden.

Effects on Child Behaviour

The literature on the benefits of School Gardening does not appear to divulge much about the nuances of the positive social affects for children. While social benefits are touched on by Blair (2009), the findings of this study reveal the impact and details of this aspect of gardening with children. In the findings a diverse range of positive effects of School Gardening on the children's behaviour are conveyed. Some children were described as responding to the responsibility of taking care of something growing, whilst for others it was having an important role within a team, and how they engaged in this role.

This theme also emerged as one of the rationales for creating a School Garden, aspiring to convert the children's playground from tar mac and concrete into a stimulating and relaxing natural setting. It was observed that this environment was ideal for the children to socialise together, in a relaxed form, and that they benefitted from this break in working individually and quietly in the classroom. It was also reported that children's behaviour in class generally improved and some had an increased level of interest in school; they were now coming to school with a purpose, and those who struggled with their behaviour were using the garden as a channel for this energy.

Children Learning

Environmental awareness is both an objective of the School Gardening Project, and an observable outcome of the children's learning. While the children were reported as relating to their natural environment with increased levels of care and attention, there was awareness on the side of the educators about the efficacy of demonstrating solutions to environmental degradation, rather than simply teaching them the facts of the extent of the damage. This unfolded further as another educator described the intention to sow seeds in the children's minds, connecting them with their capacity to care for the environment and everything in it, whilst instilling a respect for bugs, animals, natural habitats and biodiversity. The importance of children being exposed to this subject is highlighted by literature around the environmental or green movement, which is said to be centred on the reversal of the damage inflicted on the Earth by human beings (McMichael, 2000).

Environmental and food behaviours in children are cited by Blair (2009) as being positively impacted on by School Gardening likewise in the current study. Food education was a pervasive theme amongst all participants by means of introducing the children to the life cycle of food, and the skills and knowledge needed to produce it. It was recognised as a valuable connection to the healthy eating lessons that exist throughout the school, whilst harvesting and preparing the food further expanded the development of skills and knowledge for the children.

The Organic Gardening for Primary School Project's objectives can be seen to be rooted in food awareness as much as environmental issues (SEED, 2012). Greenhouse gas emissions and carbon foot prints were touched upon in the literature and in relation to the life cycle of food; where education can serve to enhance environmental responsibility, from cultivation through to the final cooking technique (Banu & Sassilkala, 2012). The literature drew on the health and nutritional dimension to learning with a School Garden, via its promotion of food

behaviour and knowledge (Blair, 2009). In addition to this, the significance of children learning about food in relation to their own health is supported by Wijnhoven et al, (2013) - with the consideration of educational initiatives for young children as being preventative of obesity and other health concerns.

The Mainstays of the Organic Gardening for Primary School Project

The mainstays of the project can be divided into two sub themes; teachers and funding. As previously discussed, the teachers were identified, in the literature, as being crucial to the success of the School Gardening Project; this was highlighted by all participants in several different ways. The Principal noted that it would have been impossible to start the project without all of the teachers being willing. Excluding personal interest and training, the significance of the willingness of the teachers to support the project and support the children was emphasised. This echoes the literature, for example by Blair (2009) and De Marco et al (1999) who advocate the position of the teacher as imperative to the success of the School Garden.

The central role of the teachers was further explored and developed by the findings of the current study, that they could be seen as both the strength of the project and potential obstacles to its success. As already mentioned, there is evidence in the findings indicating that the lack of confidence in teachers affects their willingness to get out into the garden, and their ability to use the garden as a teaching resource. Taken from the first-hand experience of a teacher, the findings reveal that training in this area could increase teacher confidence and enhance their engagement in the School Garden. De Marco et al (1999) indicated that for a teacher to be willing to make the commitment of time and energy, to school gardening, he or she must be aware of the value and diversity of the School Garden as a learning resource. So the teachers being willing and open is a crucial starting point, yet knowledge and skill are necessary to translate this in to effective outdoor learning.

The need for funding for Schools to implement the Project was obvious in all responses, from the indication of the need for teacher training and the employment of outside support. Whilst the literature did encourage training and support, the source of finance, to sustain such processes was not covered, nor were creative solutions offered as to how to secure funding. At the same time the Principal recounted how his school generated a sum of money by selling Christmas cards, which combined with the funding from Board Bia to develop the project. It was revealed by the Principal that in his opinion, the biggest threat to the project was the disparity between expensive bills the school must pay and the funding it receives. The school is stated as having been metred for water for the past five years, which is subsuming the funding for such educational initiatives.

Limitations and Recommendations

It is important to acknowledge the limitations of this study. The most significant drawback was the small sample size being small and the limitations of using one school. Further limitations were the amount of time allocated to carry out the study. These are realised as allowing only limited insight into School Gardening in Ireland. Future recommendations for a similar study would be to include teachers from different schools to gain a more in depth understanding of the needs of those implementing the project. Further evidence from such studies could help to provide a rationale for funding a large scale study comparing, for example, educational gains seen in schools randomly assigned to either School Gardening or a control camp group. This kind of randomised controlled study could provide the type of quantitative evidence needed to persuade the educational authorities to provide more funding to School Garden initiatives. As the subject of funding and school bills became clear in this paper, it would be of benefit to investigate further potential sources for funding.

Conclusion

Many themes emerged from the interviews; some had been considered by previous literature, such as the role of teachers, the need for teacher training and support and how School Gardens can enhance the children's social and environmental awareness. Other themes offered new insights around the capacity of the School Garden as a teaching resource, rather than a burden, and the conundrum of financing such projects when high bills outstrip the funding coming in to a school.

The participants for this study were experienced and passionate about the subject of School Gardens, demonstrating that, with appropriate training and support, staff in other schools may be encouraged to develop an interest in this area. The benefits of the School Garden are of great importance in this present day; all of the participants gave different reasons for this in terms of its benefit on social, food and environmental behaviours, while also encompassing the current curriculum. The significance of these benefits was backed up by the literature in terms of the ever-relevant prominence of environmental issues, food and child health issues in the modern world. The potential of a relatively simple initiative to impact on behaviour has important implications for how future generations interact with our planet. However, the funding and resources for such initiatives was considered an issue, this report has therefore identified a lack of clarity concerning funding going in and out of a School budget. Further investigations could seek to address this uncertainty by researching and advising on potential methods to obtain funding and reduce costs with School Gardens.

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