

**GARDEN-BASED LEARNING IN PRIMARY SCHOOLS:
MEETING THE CHALLENGES AND REAPING THE BENEFITS**

By

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A thesis submitted in partial fulfilment of the requirements for the Master of
Education, St Patrick's College, Dublin City University

June 2017

I hereby certify that this material, which I now submit for assessment on the programme of study leading to the award of the Master of Education degree, is entirely my own work and has not been taken from the work of others save and to the extent that such work has been cited and acknowledged within the text of my work.

Signed:

Date:

Word Count: 21,951

Acknowledgements

I would like to take this opportunity to thank my Supervisor, Hugh Gash, for his invaluable advice, support and friendship throughout this research project. To my colleagues at both DCU Institute of Education and Marino Institute of Education I also extend a heartfelt thanks for the many ways in which they have helped me see this thesis through to completion. To my family and friends, thanks for your understanding and support, the hugs, the cuppas and the welcome distractions.

Most importantly, I thank the teachers and school principals who gave me access to their wonderful gardens and shared with me their insights and experiences. Their commitment to, enthusiasm for and belief in their school gardens as places of growth and wellbeing for the children in their care was abundantly evident in the time we spent together. Thank you for your support of this research and for giving so generously of your time.

Abstract

Garden-based learning can make an important contribution to primary education. The school garden can be a foundation for integrated learning in and across disciplines. The primary aim of this study was to build a picture of the many ways school gardens are used and valued in Irish primary schools. A qualitative approach, incorporating site visits and interviews with key drivers of school garden programmes, enabled a detailed and colourful picture to emerge. Schools use their gardens in a variety of imaginative ways to encourage children's development. A number of key factors drive the success of a school garden and enable schools to meet and overcome associated challenges. Teachers value their school gardens because they provide an arena for learning, space for pastoral care, a focus for school and community involvement and a source of pleasure for the entire school community. Insights from this study may prove useful to teachers, education professionals and policymakers across Ireland.

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Table of Abbreviations

BEd – Bachelor of Education

BoM – Board of Management

CnB – Curaclam na Bunscoile/Primary Curriculum

CPD – Continuing Professional Development

DES – Department of Education and Science (Ireland)

ETNS – Educate Together National School

GBL – Garden-based Learning

GOI – Government of Ireland

ICT – Information Communication Technology

ITE – Initial Teacher Education

NCCA – National Council for Curriculum and Assessment (Ireland)

NI – Northern Ireland

NS – National School

OL – Outdoor Learning

ROI – Republic of Ireland

RHS – Royal Horticultural Society

SEN – Special Education Needs

SESE – Social, Environmental and Scientific Education

SNA – Special Needs Assistant

UK – United Kingdom

USA – United States of America

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Picture credits: All photographs credited to Sandra Austin, with the exception of the following: Fig. 4.2C, Silverleaf school; Fig. 4.6C, Patrick Hunt/Wildhaven school; Fig. 4.7, Silverleaf school; Fig. 4.8, Goldenbough school. Photographs containing images of children or adults are already in the public domain.

Chapter 1 Introduction

Context and Background of the Study

Garden-based learning (GBL) can be loosely defined as an experiential education strategy that uses a garden as a teaching tool. GBL can contribute to all aspects of basic education, including academic and life skills, personal, social and moral development (Desmond, Grieshop, & Subramaniam, 2004). The garden can be a foundation for integrated learning in and across disciplines – including science, maths, art, geography and history, as well as literacy and numeracy. Growing and caring for plants provides active, engaging and real-world experiences that have personal meaning for learners. Schools growing programmes can be of particular benefit in urban and disadvantaged areas, where exposure to green space can be limited.

Internationally, there is a positive trend towards incorporating GBL into basic education. GBL, as a concept, is becoming increasingly important in Irish schools. However, little research has been done in schools in the Irish setting to examine how effectively they provide opportunities for garden-based learning as an integrated part of the curriculum.

Focus and Aims of the Study

The primary aim of this study is to build a picture of the use and benefits of school gardens in Irish primary schools. Given the dearth of research in this area there is therefore broad scope for study. The initial challenge was to define a framework for this investigation that would be achievable within the constraints of a Master of Education thesis. For this reason I chose to focus my research on the direct experiences of teachers in schools that have and use a school garden in order to answer the following questions:

- How do these schools use their school garden?

- What are the factors that enable the garden to flourish in these schools?
- Why do schools value their school garden?

My reasons for framing my research in this way are twofold. As a teacher educator, I have a role to play in preparing beginning teachers for their professional career. I have never been a primary schoolteacher, so for my own professional development, and for the benefit of the students I teach, it is important that I strive to gain an understanding of the school context by connecting with schools and practitioners. By probing the experiences, beliefs and values of the primary teachers in this study, I hope to gain a deeper insight into the value and benefit of school gardens from their perspective. This will then inform my practices as an initial teacher educator, making my teaching content and methodologies more reflective of the professional context, more relevant to young professionals and their future careers.

Secondly, the schools chosen for this study all have well-established gardens that continue to flourish and which are an integral part of the life and culture of the school. Drawing on the knowledge and experience of the teachers in these schools documents and highlights areas of good practice that will be of benefit to others. The insights gained here may help to inform other teachers, education professionals and policymakers across the country.

Format of the Study

This study was designed using a qualitative approach, which aimed to build understanding and knowledge through the exploration of the specific, making connections with previous research and the academic literature. Although limited in scope, the findings presented here do provide insight into the use and value of gardens

in Irish schools, and provoke questions that merit exploration on a larger scale (as discussed in Chapter 5).

Briefly, I first undertook a comprehensive review of the literature, which served to shape my understanding of the issue, highlighted the gaps in current research, guided my initial interview questions and later helped me to analyse and confirm my findings.

Investigation was then carried out in six schools around the greater Dublin area that had been identified as possessing an established school garden. Interviews with teachers and other members of the school community were held over a two-month period beginning in February 2017. This systematic approach enabled me to more fully enter into the world of the participant teachers, to develop a shared understanding, to uncover the meanings and nuances of the issues studied (Rossman & Rallis, 2012)

Analysis of the data collected grew out of grounded theory research methodology (Sapsford & Jupp, 2006). I was particularly interested in thick and rich description, concept analysis and storytelling. In my analysis I have attempted to uncover a pattern of why gardens are valued in schools that have them, grounded in the information that I received from participants. I also endeavoured to consider the effects of my presence, assumptions, feelings and background on the nature of the data obtained and the analysis performed, thus bringing a reflexive quality to my analysis.

Content of the Study

This study is presented in five chapters. Chapter 1 contains an introduction to the context for the research, the format and content of the study. An overview of the relevant international research literature is given in Chapter 2. In Chapter 3 I will outline the methodologies used in this research, and the rationale behind their use. I will

present the findings of this study in Chapter 4. Chapter 5 will contain a synthesis and analysis of these findings, and suggest directions for future research.

Chapter 2 A Review of the Literature

This chapter presents a comprehensive overview of the literature relating to outdoor learning (OL) in general, and in particular garden-based learning (GBL) in the context of primary education. It begins with an introduction to the concepts of OL and GBL and the theoretical framework for learning which surrounds them. Secondly it situates these learning approaches within the context of the primary curriculum. It then goes on to outline both the benefits of and challenges to these learning approaches as recognised internationally. Finally, the context for GBL within the Republic of Ireland (RoI) will be summarised.

Connecting with Nature

Richard Louv, in his seminal book ‘Last Child in the Woods’, coined the term Nature Deficit Disorder to describe “the human costs of alienation from nature, among them: diminished use of the senses, attention difficulties, and higher rates of physical and emotional illnesses” (Louv, 2008). Enabling children to connect with the natural world, giving them access to green space, is widely recognised as vital, particularly in urban and/or disadvantaged areas (Moss, 2012). In the UK, this has been recognised at governmental level, the *Learning Outside the Classroom Manifesto* (Department for Education and Skills, 2006) arguing that outdoor learning can provide children with a powerful context for learning, particularly with regard to problem-solving, and can deepen and enrich classroom learning.

From a teaching and learning perspective, moving outside the confines of the classroom allows learners to ‘think bigger’ and ‘work bigger’; children can be messier, and have the freedom to work on a larger scale, independently of the teacher (Learning and Teaching Scotland, 2010). The natural environment has a plentiful supply of free teaching and learning resources, and children learn to think creatively in their choice

and use of these natural resources. The outdoor classroom also importantly provides the opportunity for children to learn to manage risk in their daily lives.

Garden-based Learning and the Primary Curriculum

There is certainly a role for GBL in the primary curriculum. At a fundamental level, growing activities can directly deliver school curriculum content; for example, garden-based learning activities comprehensively cover two of the four strands of the primary Science curriculum – *Living Things* and *Environmental Awareness and Care* (DES/NCCA, 1999). In fact, growing projects facilitate integration of learning from multiple disciplines – science, maths, history and geography, art, music, literacy and language, nutrition and physical exercise.

As outlined in Scotland's *Curriculum for Excellence* (Learning and Teaching Scotland, 2010), outdoor learning provides many opportunities for real learning. It develops additional knowledge and skills which complement learners' everyday classroom experiences; creates memorable experiences which link the affective and cognitive domains; impacts on children's self esteem, independence and confidence; promotes social development; builds communication skills, group cohesion and teamwork; connects children with the natural environment. Thus, through outdoor learning children can become successful learners and confident individuals, responsible citizens that contribute effectively to their communities.

Recognising the Benefits of Garden-based Learning

The movement towards school gardens is well established in the United States of America, partly due to the 2004 legislation that facilitated funding the initial costs of setting up a school garden provided it was linked with education on nutrition (Ozer, 2007).

The situation in the UK is somewhat different. While there is much in the literature regarding the benefits and challenges of outdoor learning, the focus tends to be on learning away from the school on adventure and residential trips.

A recent review (Malone, 2008) for the UK Farming and Countryside Commission neatly summarises the many potential benefits of outdoor learning. This review presents evidence that by experiencing the world beyond the classroom children:

- * Achieve higher results in knowledge and skills acquisition;
- * Increase their physical health and motor skills;
- * Socialise and interact in new and different ways with their peers and adults;
- * Show improved attention, enhanced self-concept, self-esteem and mental health;
- * Change their environmental behaviours for the positive, and their values and attitudes; also their resilience to changing conditions in their environment is increased.

The Royal Horticultural Society's Campaign for School Gardening, launched in 2007, has done much to promote the use of gardens in schools in the UK. Evaluation of that campaign (Passy, 2014) confirms that school gardens provide an interesting and effective way of engaging children with learning, with multiple affordances for personal, social and emotional development.

Academic Impact

Outdoor learning supports learners at both ends of the spectrum; low and high achievers learn something new for and about themselves (Lieberman & Hoody, 1998). Gardens promote both affective and cognitive learning. Over a decade ago, Stuart Nundy demonstrated that outdoor learning may achieve significantly enhanced cognitive and affective learning compared to that achievable within a classroom

environment (Nundy, 1999). Schools gardens provide an experiential learning setting, in which children have direct, hands-on experiences and construct new knowledge, skills and values (Bowker & Tearle, 2007).

Fuelled by concerns that opportunities for outdoor learning by school students have decreased substantially in recent years, the UK Field Studies Council commissioned a review (Dillon, Rickinson, Tearney, Morris, Choi, Sanders & Benefield, 2006) that critically examined 150 pieces of research on outdoor learning published between 1993 and 2003. The authors found substantial evidence that fieldwork and outdoor learning, when properly designed, planned, executed and followed-up, offered learners “opportunities to develop their knowledge and skills in ways that add value to their everyday experiences in the classroom.”

But why should academic success be the sole indicator of achievement and success in school? According to Diane Reay (2010), “we cannot all succeed academically. If we did, what counts now as educational success would lose its value”; changing economic conditions (global economic recession) have resulted in the working classes being “trapped in schooling, and increasingly further and higher education, just because there is no longer sufficient non-degree employment” (Reay, 2010). The middle classes, similarly, have had to engage in “more academic, practical and emotional work to ensure their social advantage”, and their relationship to schooling, particularly in the urban environment, has become “characterized by high levels of anxiety” (ibid.).

Thus, as educators we must ask ourselves how we can broaden the fields in which students might attain success and/or fulfilment beyond the narrow academic range such that children, regardless of their social class background, can experience success and achievement which is culturally relevant, meaningful and of long-term benefit to them.

The “failure” of certain students in Irish schools is “commonly constructed as a lack of (academic) success in examinations, often resulting from lack of participation, and is commonly understood within a framework for understanding educational disadvantage that identifies social class, gender, ethnicity and disability as agents of exclusion and oppression” (Hanafin, 2014). However, the narrow construct of intelligence prevalent in Irish system may also be a source of educational disadvantage and exclusion. Hanafin’s findings showed that integrating Multiple Intelligences theory into classroom practice directly benefitted students’ learning, motivation and self-belief. It also demonstrated how the narrow social construction of intelligence, and its influence on how young people are valued and educated, might be questioned and transformed. This provides the crux for discovering and valuing alternative strategies with which to deliver the curriculum, for moving beyond the classroom, for bringing teaching and learning outside.

Social Impact

Practices that exist and are utilized within the special education sector, those that “deliberately seek to include learners of diverse abilities in a range of curricular activities, value their individual intelligence profiles, draw on their intelligence strengths, celebrate their different achievements and provide opportunities for success and improved self-concept” are not visibly common in the policies of mainstream schools (Hanafin, Shevlin, & Flynn, 2002). There is a growing body of literature that indicates that promoting these approaches to learning in schools can ameliorate the impact of social as well as academic barriers.

Outdoor and garden-based learning are very effective for integration – not just the socially excluded or ‘poor’ but also children who are disabled or have special educational needs (SEN). Indeed, a recent Canadian study (Dyment & Bell, 2008) found that “green school grounds are more inclusive of people who may feel isolated on

the basis of gender, class, race and ability, suggesting that these spaces promote, in a very broad sense, social inclusion.” ‘Green’ school grounds provided a diversity of spaces that accommodated the play interests of both girls and boys. On a community level, many study participants commented that their green school ground was an especially important venue for inviting involvement from immigrant parents. Given the tangible and physical nature of gardening, commonly cited impediments to their involvement in school activities, such as language barriers, were removed or mitigated. There was a general improvement in social interactions in participating schools, with study participants reporting that when students were learning and playing on a green school ground, they were being more civil, communicating more effectively and were being more cooperative. These improvements were noted not only among students; interactions between students and teachers were also enhanced.

Places influence our character: as occupants of particular places with particular attributes, our identity and our possibilities are shaped (Gruenewald, 2003). Places are also profoundly pedagogical; as centres of experience, places teach us about how the world works and how our lives fit into the spaces we occupy. Reay (2010) talks about the geographies of schooling, recognising schools as classed places and spaces. Gardens and natural environments may perhaps form a complementary geography, spaces and places that are unclassed and egalitarian.

Impact on Health and Wellbeing

A recent review of the health and wellbeing impacts of school gardening (Ohly, Gentry, Wigglesworth, Bethel, Lovell & Garside, 2016), identified several cross-cutting themes among qualitative studies, including the observation that school gardens have “particular benefits for children who have complex needs (behavioural, emotional or educational) and do not thrive in an academic environment.” Children’s attitudes to food improved; participation in school gardening created a sense of connection to the

food grown, which encouraged children to be more adventurous and led to increased preference for vegetables. Children gained self-esteem and confidence through school gardening. For children with learning or behavioural difficulties, the garden “allowed them to shine in different ways and to experience success” (Ohly et al., 2016).

Gardening promoted teamwork, co-operation and social cohesion. In the UK, the RHS report identifies gardens as spaces for pastoral care, where children who are struggling can find respite (Passy, 2014).

Impact on the Wider Community

Gardens present a focus for school and community involvement, they are a place to celebrate and share success, a medium through which relationships between the school and the wider community can develop and flourish (Passy, 2014).

Reay (2010) points out that “the working classes bring to their experience of schooling family memories of educational subordination and marginalization”. Children negotiate school both through their own lived experience and the experiences of their parents and grandparents. Thus, an intergenerational approach, one that includes parents, grandparents and the wider community, has a greater chance of effecting change in this context. Getting parents and grandparents involved in school growing projects has the potential to break down barriers of social class.

It may also lead to other changes. Mayer-Smith and colleagues describe the power of an intergenerational food-growing project (Mayer-Smith, Bartosh, & Peterat, 2007) to nurture an emotional connection with the natural world, and to inspire stewardship of the environment in young children. In the research they describe, children working together with “elders” in a community garden learn from them a greater appreciation for plants, nutrition and environmental care.

Giving children the opportunity to care for plants and watch them grow is an important step towards engendering a love for and connection with nature. Childhood immersion in nature is positively related to adult environmental awareness and stewardship (Wells & Lekies, 2006). This alone would surely be a worthwhile argument for the inclusion of garden-based learning in schools.

Challenges and Barriers to Outdoor and Garden-based Learning

While there has been significant research into the value and benefits of school gardens, few studies detail *why* particular school gardens flourish. Rowena Passy, in her study on the RHS Campaign for Gardens in Schools (2014) identifies several factors that positively influence the development of a school garden. These include strong support from senior management; a key member of staff to take responsibility for the garden; giving garden activities a high profile within the school; and ensuring that garden-related tasks are manageable for staff. Ohly (2016) also identifies factors that contribute to success – integration into core curriculum; inclusion of cooking or food prep; support from stakeholders, including staff, volunteers and wider community.

There are also challenges to moving teaching and learning beyond the classroom. In the UK, the National Trust's recent Natural Childhood inquiry identified barriers to children spending time outdoors, and the policy changes needed to ensure that every child has the opportunity to develop a personal connection with the natural world (Moss, 2012). Barriers include an unreasonable health and safety culture, receding access to quality green and natural spaces, and crucially, finding time and space for nature in schools and learning.

Even when school gardens are created, barriers and challenges to their continued use exist. These may include difficulty in recruiting and/or maintaining volunteers; pressure of work; overcrowded timetable; financial challenges (Ohly et al., 2016).

Passy (2014) also identifies the physical care of the garden, maintaining and developing the site, planning lessons around the garden, and encouraging parents and carers to engage with the garden as the principal concerns among schools participating in the RHS project.

Curriculum overload is a common complaint with regard to finding time to take children out of the classroom. However, school gardens are a way to support formal education in schools within an informal learning environment. Growing activities can directly deliver school curriculum content, particularly with respect to social, environmental and scientific education (DES/NCCA, 1999).

When given the opportunity to talk about what is important to their lives, Irish children identify space and time to play outdoors as among their top priorities (Government of Ireland, 2000), yet the outdoors is increasingly marginalised in young children's everyday experiences (Kernan & Devine, 2010). A heightened sensitivity to hazard and risk in today's society is one of the major barriers encountered when proposing to move outside the classroom for teaching and learning. For example, in the early years setting:

In an increasingly risk averse society, especially with respect to children, this construction and experience of the outdoors in oppositional terms, through a discourse of autonomy/freedom versus one of protection/safety has given rise at best to the marginalisation of the outdoors from the experiences of many children in early years services and the ensuing invisibility of children in outdoor spaces. (Kernan & Devine, 2010)

However, life is full of risks and challenges, and learning to manage risk is a vital skill essential to children's progress and development; often, the perception of risk is

much greater than the reality. Many organisations provide clear and useful guidelines on assessing and managing risk in an outdoor learning environment¹.

Recognising the resistance to going outside that is often apparent in the Irish system, Kernan and Devine (2010) recommend that “an inter-disciplinary approach to training, support and mentoring of early years practitioner’s is required to improve pedagogical work in the outdoors, along with design of early childhood education and care settings that allows access to garden like spaces that invites children’s interaction across a range of dimensions”.

The Irish Context for Garden-based Learning

In the *Better Outcomes, Brighter Futures* report (Government of Ireland, 2014), the government commits to improving the health and wellbeing of all children in Ireland. The emphasis is on early intervention and prevention in a range of areas, including tackling obesity and youth mental health, “to ensure that all children get the best foundation in learning and development, have social and emotional wellbeing, and are engaged in and achieving in education.” (Government of Ireland, 2014)

Indeed, an increasing number of government and state agency programmes are aimed at encouraging children to grow their own food and care for their environment², but it seems few teachers have the skills or confidence necessary to carry these out successfully. Little has been done to date to assess the effectiveness of any of these programmes in real terms. In the absence of research into the extent to which the greening of schools is achieving its objectives, it is hard to say whether or not the continued investment in programmes such as these is actually providing the many and diverse benefits that garden-based learning has been proven to deliver. The aim of the

¹ For example, the excellent Outdoor Learning Pack from The Woodland Trust, available at <https://www.woodlandtrust.org.uk/mediafile/100146207/Getting-outside-the-classroom-learning-pack.pdf>

² See, for example incredibleedibles.ie; www.greenschoolsireland.org

current study is to explore in depth the implementation and success of school gardening programmes in a number of Irish schools, and to use these findings to assess their potential impact on teaching and learning in Irish primary education.

Chapter 3 Research Methodology

This chapter provides a description of the research design for this study. The rationale for a qualitative research approach is set out, followed by a discussion of the organisation of the study and methods used. Finally, the limitations of the study are addressed.

Rationale for Study Design

Using a Qualitative Approach

Given the time and space limitations inherent in an MEd thesis, and the dearth of research in this area within the Irish context, I felt it was appropriate to take a qualitative approach to this study, collecting data that reflected the practices and perspectives of individual Irish practitioners. This afforded an in-depth exploration that garnered the ideas, feelings and experiences of individuals actively involved with school garden projects. Using Creswell's principles (2009, p.4), data were collected in the participants' setting (the school and the garden), data analysis built inductively from particulars to general themes and included the researcher's interpretation of the meaning of the data.

The design of this study involved the intersection of three components; a paradigm (philosophical worldview), a strategy of inquiry, and specific research methods (Cresswell, 2009, p.5). The paradigm for this study is a pragmatic one. As clarified in Chapter 2, there is abundant literature from an international context that indicates the benefits of GBL. Many of the barriers to GBL have also been identified. However, little research has been done in an Irish context. I am concerned to find out 'what works' about school gardens, and why they are valued in the schools that have them. The strategy of inquiry I have chosen most closely approximates the grounded theory approach (Corbin & Strauss, 2008, p.50). I hope to derive a general theory regarding

the value and benefit of school gardens derived from the views of those individuals most closely involved with them. Constant comparison of data collected will allow common themes to emerge from the data without preconception. Ultimately, the aim is to uncover a pattern of why gardens are valued in schools that is grounded in information collected from the participants in the study.

Role and Perspective of the Researcher

As a teacher educator I have a definite set of ideas and beliefs about the value of growing projects and the importance of connecting with the natural world for children's growth and wellbeing. However, I am also an outsider in the primary school context, never having been a primary school teacher. This study is in part an attempt to understand more deeply the perspectives of teachers in schools; to examine whether or not it is realistic to promote the value and benefits of outdoor programmes to schools, or whether the circumstances and challenges facing primary educators are such that they cannot be expected to include yet another 'good idea' in their working day.

Thus, to gain a deeper understanding of what it is really like for teachers in primary schools, I interviewed a number of teachers who 'make it work' in a primary context, to see why they feel it is worthwhile to have a school garden, and what it is that they find challenging about it. Questions were designed to be as open as possible in order to allow the perspectives of the teachers to shape the themes that emerge from the data.

Through the idea of reflexivity, it is recognised that researchers are inescapably part of the social world that they are researching, thereby potentially undermining the notion of objectivity (Cohen, Manion, & Morrison, 2009, pp.167-168). My life experiences, emotions, values, attitudes and expectations may affect the lens through which I interpret the data. Drawing on personal experience can be an important tool in data analysis (Corbin & Strauss, 2008, p.80). As long as we take care not to impose upon

the data, drawing upon life experiences we may share with our participants gives us insight into what those participants are describing, and enables us to bring up other possibilities of meaning.

Methodologies Used

Setting

This study focused on primary schools that (i) were situated within 50km of Dublin city centre, for ease of access, and (ii) had well-established school gardens (> 3 years old) that were (iii) actively used by the school community. A profile of each school is summarised in Table 3.1.

Table 3.1

Schools participating in this study.

School*	Number of Pupils (DES 2015-16 ³)	Number of Teachers (DES 2015-16)	Type	DEIS Status	Teaching Principal	Local Authority
Orchard ETNS	429	20	Mixed (Junior Infant-6 th class)	Non-DEIS	N	Fingal County Council
Berryfield NS	465	20	Girls only (JI-6 th class)	Non-DEIS	N	Dublin City Council
Greenwood NS	547	24	Girls only (JI-6 th class)	Non-DEIS	N	Dun Laoghaire Rathdown County Council
Wildhaven Senior NS	457	22	Mixed (3 rd -6 th class)	Non-DEIS	N	South Dublin County Council
Goldenbough Senior NS	432	30	Mixed (3 rd -6 th class)	DEIS band 1	N	South Dublin County Council
S N Silverleaf	151	9	Mixed (Junior Infant-6 th class)	Non-DEIS	Y	Kildare County Council

*School names are pseudonyms chosen by the researcher to represent participating schools.

Sample Selection

A purposive sampling strategy was employed in this study, both at the school and participant level. It was important to invite participation from schools that were already committed to using a school garden, and so had well-established school garden

³ <http://www.education.ie/en/Publications/Statistics/Data-on-Individual-Schools/>

programmes. Within these schools, I chose to talk to participants who were actively involved in the school garden programme, either in co-ordinating the programme, maintaining the garden or working with children in the garden. Interviewees were suggested by the school principal based on their involvement with the garden. The views and insights of these committed and experienced practitioners may be of great value to others; teachers, teacher educators and policymakers.

Convenience was also a factor in sampling for this study. Participating schools are all within a restricted geographical area, due to time and travel constraints. Schools that might be suitable for inclusion were recommended via word of mouth from colleagues in primary schools and Institutes of Education. Schools were selected based either on these recommendations (Wildhaven, Goldenbough, Berryfields), or because the researcher had personal knowledge of the school and its garden (Silverleaf, Greenwood, Orchard).

Gaining access

Formal access to the participating schools was sought initially via an email to the Principal of each school, in which the purpose and methodology of the study was explained, and access to relevant school personnel was requested (See Appendix 1).

Research Instruments and Protocols

Data Handling

NVivo qualitative data analysis software (NVivo 10.2.2 for Mac) was used to manage all of the data generated in this study. Documents, audio files, images and PDFs were imported into the software analysis package. A study-specific NVivo Project was created to contain and manage all source materials. Data was coded and categorised with the aid of the NVivo software.

Face-to-face Interview

Interviews were conducted in person with individuals (alone or in pairs) at their school setting, and were recorded using an Olympus WS-321 digital voice recorder. Audio recordings (in either WMA or .mp4 format) were imported to NVivo for transcription, coding and analysis.

A semi-structured interview format was employed, which provided a framework for the interview while allowing the participant to set the tempo and order of conversation and catering for the emergence of unexpected themes. Initial questioning was based on a prepared Interview Schedule (Appendix 2). This interview schedule was developed based on concepts derived from the literature and on my own preliminary fieldwork with teachers and students. Respondents were also given freedom to talk about the topic and give their views in their own time.

The interviews generally began with or included a tour of the school garden with the interviewee, during which photographs were taken to illustrate specific features of the garden or topics raised in the interview. Touring the gardens with participants helped to cement the relationship between researcher and interviewee, and gave the researcher additional insight into the emotional connection between the interviewee and the site.

The use of interviews for data collection has advantages and disadvantages (Creswell, 2009, p.179). Face-to-face conversation helps the researcher to garner information about beliefs and insights, affords flexibility within questions, and enables participants to give historical information about the project. However I am also conscious that information I receive has been filtered through the view of participants, my presence probably affects the responses of the interviewees, and not all people may be equally articulate or perceptive.

Images provided by participants

Some, though not all, participants shared additional data in the form of photographs of the garden. These images provided an opportunity for participants to directly share their reality. Generally, the intention behind providing the garden images was to show the garden being used for teaching and learning or for celebration and was reflective of the teachers' inherent desire to show the garden in a positive light.

Other data

One school (Wildhaven) provided a detailed plan of their revised garden landscape for illustrative purposes. Another school (Greenwood) provided their garden curriculum, which they have created to ensure that their school garden fully integrated into the teaching and learning curriculum for the school.

Research Sites and Participants

A total of eight interviews were conducted with ten people across six schools. Table 3.2 details the date and duration of interviews, the participants and their role in the school community, and other information relevant to the study. As discussed earlier, interviewees were generally selected by the school principal as being staff members most actively involved with the school garden programme in their school.

Table 3.2

Data collected

Interview Number (duration in min:sec)	Interview Date	School	Participant(s)*/Role	Includes Garden Tour (Y/N)	Other data provided by participants
Interview 1 (35:55)	10/3/17	Berryfield NS	Tony, garden manager and husband of one of the teachers <i>and</i> Daithi, caretaker	Y	
Interview 2 (25:20)	10/3/17	Berryfield NS	Susan, learning support teacher, head of Green School Committee	N	Images
Interview 3 (44:57)	13/3/17	SN Silverleaf	Jim, school principal and learning support teacher	Y	Images
Interview 4 (62:26)	15/3/17	Orchard ETNS	Don, learning support teacher	Y	
Interview 5 (14:31)	24/3/17	Wildhaven SNS	Ted, school principal		
Interview 6 (37:07)	24/3/17	Wildhaven SNS	Maura, learning support teacher <i>and</i> Sally, classroom teacher	Y	Images (website) and Garden Plan
Interview 7 (84:46)	24/3/17	Goldenbough SNS	Mella, deputy principal and learning support teacher	Y	Images
Interview 8 (57:35)	14/4/17	Greenwood NS	Barbara, learning support teacher	Y	Year Plan for Teaching in the Garden

* Participant names are pseudonyms chosen by the researcher to protect identity.

Data Analysis

The constant comparative method was employed for data analysis. In general, data analysis followed seven phases; organising the data, immersion in the data, generating categories and themes, coding the data, offering interpretations through analytic memos, searching for alternative understandings and finally, writing the report (Marshall & Rossman, 2010, p.209). Dominant and recurrent themes were identified and combined to constitute categories of meaning and then re-evaluated. Findings are presented in line with conceptual themes from the literature review and data collection instruments.

Ethical Considerations

This research was carried out in adherence to recommendations regarding ethical guidelines from the Research Ethics Committee at DCU Institute of Education, Dublin.

Informed consent

Consent to interview was checked a number of ways. Participant's consent was received orally and in written form through a cover letter/informed consent form (See Appendix 3). In addition, consent for access to school personnel and grounds was sought via email from the school principal prior to visit.

Anonymity

Efforts were made to ensure the confidentiality of the participants was respected through two layers of anonymity. First, at a broader level, school names were omitted and only general details given when appropriate. Second, at an individual level, pseudonyms replaced participants' names, and details concerning personal information were replaced or omitted from results.

Risks to participants

Risks to participants centred predominantly on identification and adherence to ethical guidelines. Data collection procedures were explained in detail to both the gatekeepers (school principals) and participants before commencement. Data collection instruments were cleared by the DCU Institute of Education Research Ethics Committee before distribution. Participants were informed that data collected would be used for this research only, would be viewed by the researcher alone and held in a secure location throughout the research process, and would be anonymous when used for contextual purposes. Interview participants were reminded that participation was voluntary and that they could withdraw from the study at any time.

Trustworthiness and Validity

Several of the strategies recommended by Cresswell (2009) were employed to ensure the validity of this study. Where possible, data was collected from multiple sources within a school for the purposes of triangulation (multiple interviewees, school website, photographs). Every effort was made to conduct interviews similarly with each participant, and to phrase questions in the same way across interviews. Similarly, I have tried to provide rich and thick description of the participants and settings under study, so that readers can more easily make decisions about transferability to other situations. Consciousness and clarification of researcher bias has been integral to the writing of this report.

Limitations of this Study

Potential for Bias

Since the aim of this study is to more closely examine the perspectives of those who are already committed to having and using a garden in their school, it is clear that the data collected will reflect this viewpoint. Rather than being a source of bias, this fits

with the purpose of the research to uncover aspects of GBL that are valued and of potential benefit to others.

My role as interviewer during data collection obviously opens up the danger of researcher bias. I am conscious that I am researching a topic on which I have strong views and a keen interest. Regular reflection on and questioning of my practice during data collection and analysis, coupled with triangulation of data where possible, helped to ensure that researcher bias was minimised.

Other Limitations

All of the schools visited are situated within the greater Dublin area. To be a truly representative study, schools from around the country, in both urban and rural environments would need to be visited. It would also be desirable to include a greater number of schools, and to have equal numbers of DEIS and non-DEIS schools represented. Also missing are the perspectives of school personnel who are not actively involved in the garden, and of course the voices of the children themselves.

This study is too small to include a quantitative element. However, the themes identified here could be used to survey Irish primary schools more widely, informed by the findings that emerge from this qualitative research.

Chapter 4 Results of this Study

For this study, I chose to examine the experiences of several schools that have well-established and successful school gardens, where successful is defined as gardens that thrive and are used by staff and children in the school. My three questions were: how do the schools use their gardens? How have they achieved success? What is it about the gardens that they value?

Interviews with members of the school community actively involved with the school garden and associated programmes helped me to elucidate some answers to these questions. I will present my results chapter in four sections, beginning with a section describing in detail the context for each interview (school, school garden, interviewee profile). Each subsequent section will address one of the three questions above. Within each section I have identified a number of themes that emerged during the course of my analysis. These themes and the connections between them will be discussed further in Chapter 5. Themes highlighted in my earlier review of the literature will be revisited in light of the findings presented here. There is obviously some overlap of themes among the sections. Where a theme straddles several sections I will indicate that in the text.

Context: The Schools and Gardens in This Study

The school garden programmes in each of the schools visited vary widely in their size and scope, intensity of participation, and integration into the regular school curriculum. I will thus begin this Chapter with an introduction to each of the gardens and how it is used in the school. Unless otherwise stated, the information in each of these profiles was gleaned from interview data and the garden visit undertaken by the researcher.

Berryfield Girls' NS

This is a large all-girl school on the North side of Dublin city. There are 480 girls in the school, divided into 16 classes (2 of each class level), and 27 teachers. The personnel interviewed at this school were Susan, a teacher in learning support with responsibility for the Green Schools Programme, and Tony, the husband of one of the other teachers in the school, who acts as volunteer gardener for the school garden.

The garden at this school is located at the rear of the school, beside the playing fields and on the perimeter of the school grounds. It is a rectangular space, approximately 200m², and enclosed by a wire mesh fence with a single entrance. The garden consists of several large raised beds. Those around the perimeter contain soft fruit bushes, while those in the middle of the garden are used to grow vegetables like potatoes, rhubarb, onions, peas and broad beans (Fig. 4.1).



Figure 4.1 The garden at Berryfield School. Note the raised beds throughout the garden (A), containing a mix of seasonal vegetables (B) and soft fruits (C), and the bags of leaf mulch and compost at the far end of the garden (A).

The garden is wholly maintained by Tony. A keen horticulturist, he spends up to 30 hours per week tending to the plot, depending on the time of year. Tony does most of

the sowing and growing of the garden produce; while a few years ago the children may have helped him with sowing and planting, now the main function of the garden is to provide for two Harvest Days each year, one in June and one in September, in which all of the children in the school participate. As Tony describes,

I would have everything ready, so I'd have all the bags, boxes, all lined up. So then we get down one class at a time or sometimes two classes depending on which year [...] I'd bring them round all of the garden, and I might ask them what's this plant or what's that plant to see if they know. And then I'd inform them what plants are growing and then I'd say ok well today we're going to do such and such [...] they'd all get to pick a vegetable, put it in its box [...] afterwards when all the sixteen classes are finished I would then sort enough for each classroom for each child to bring something home. Sometimes I'd put it in small bags, or I'd give the bags to the teacher and I'd drop up a big box of vegetables and she could divide them out.

Thus, every child in the school has the opportunity to pick, eat and bring home a selection of foods from the garden. Tony chooses which fruit and vegetables to grow based on whether or not they are likely to be ready for harvest in June or September. This can be challenging, as for most plants harvest season is more likely to fall in July and August. As Tony says,

The strawberries are kind of hit and miss, depending on how good the summer is up to June[...] Everything I do is for June and September, everything [...] Now it doesn't always work out that way, you might miss it by a week or two. Last year, a few things I grew I missed it by, I'd say six days with the peas, they all got mildew and if I'd done it [Harvest Day] the week before they'd have been fine. It's a fine balance you know.

This quote illustrates Tony's anxieties regarding the uncertainty of providing for Harvest Day. Given that the main interaction for the children revolves around these two occasions, he is under considerable pressure to provide an adequate harvest. For this reason, he has recently expanded the fruit areas of the garden to include apple, plum and cherry trees, and exotic berries such as Honeyberries and Chokeberries, to ensure a more abundant and reliable September harvest.

Access to the garden is restricted, and children may only visit the garden in the company of a teacher.

Silverleaf NS

This is a medium-sized school set in a village about 45km from Dublin city. There are just shy of 150 children (boys and girls) in the school, divided into 6 classes. There are 10 teachers in the school, which is non-DEIS though its catchment area is identified as disadvantaged/very disadvantaged. The school principal, Jim, was interviewed for this study. Jim has been a teaching principal at the school for over 9 years, currently working within learning support.

At Silverleaf, the outdoor space is utilized in a number of ways. There is an area containing natural play apparatus and a willow tunnel (Fig. 4.2A). The tunnel was created through the Artist for a Day Scheme, an initiative of their local Education Centre.

There is also a separate area containing a Willow Dome (Fig. 4.2C), which is often used as an outdoor classroom, reading space or quiet space. A local willow artist, through the Heritage in Schools scheme, worked with the children to build this space.



Figure 4.2 Garden areas at Silverleaf school. (A) Play apparatus and willow tunnel, (B) Polytunnel, (C) Willow Dome, (D) Orchard, (E) Composting area and Insect Hotels

About 4 years ago, the school won a polytunnel (Fig. 4.2B) in an Incredible Edibles schools competition. This is where they do much of their herb and vegetable cultivation, growing radishes, lettuce, cucumbers, strawberries, courgettes and a variety of salad leaves. All of the plants are sown, cared for and harvested by the children.

Just outside the tunnel, potatoes and strawberries are grown in raised beds and planters (some made from old tyres). There are a small number of fruit trees (Fig. 4.2D) and a composting area (Fig. 4.2E).

Children have free access to all of the garden/play areas, including the polytunnel, and many choose to spend time during breaks watering and weeding the growing plants.

Greenwood GNS

This is a large all-girls school in South County Dublin, with over 500 pupils across all class levels. Barbara, interviewed for this study, has been a teacher at the school for 23 years, and has worked in a learning support role for the past 4 years. She has recently (in the past couple of years) assumed responsibility for the garden from a colleague who has retired, and she also chairs the Green School committee.

The school garden was established about 30 years ago, and is arranged over a large area (approx. 5,000m²). It includes woodland areas (Fig. 4.3C, D), a pond area, vegetable beds (Fig. 4.3E) and an orchard (Fig. 4.3F). There are several living willow structures, including a hide for bird watching (Fig. 4.3B). The garden also contains an archaeological dig site from which Bronze Age artefacts have been recovered.



Figure 4.3 Garden areas at Greenwood NS. An insect hotel (A) sits within the woodland area; (B) a view through willow to the bird hide; (C) several paths traverse the woodland; (D) wildflowers cover one of the slopes down to the vegetable garden; (E) the vegetable beds; (F) the heritage orchard.

The children have access to the woodland and garden areas only under supervision. However, the gardens are well-used by teachers and classes, for both formal and informal learning. The garden is used for sketching and other art projects, for mindfulness and for walks. The school has recently developed a Garden Curriculum, providing guidance and resources for delivering the Primary Curriculum across a range of subjects using the garden.

Goldenbough SNS

This is a relatively large (>450 pupils) mixed school in a large town approximately 15km southwest of Dublin City. The school has DEIS band 1 status, and is the only one of the six schools studied to have DEIS status. According to the Department of Education and Skills (DES),

Enrolment has been steadily increasing in the past decade and is projected to increase further. Up to 25% of the enrolment includes pupils whose first language is not English and approximately 10% of pupils are members of the Traveller community. A little over 20% of pupils have been diagnosed as having a general learning disorder, specific learning disorder or low incidence learning needs. The school reports that there are high levels of anti-social behaviour in the community. (DES 2011)

The garden area is located to the front of the Senior School. It covers an area of approx. 650m², bounded by fencing and trees on its exterior boundary, and by low hedging on the other three sides, with several gaps for access. There are multiple different areas within the garden, including a willow dome, gazebo, raised planters and a number of benches and seating areas (Fig. 4.4).

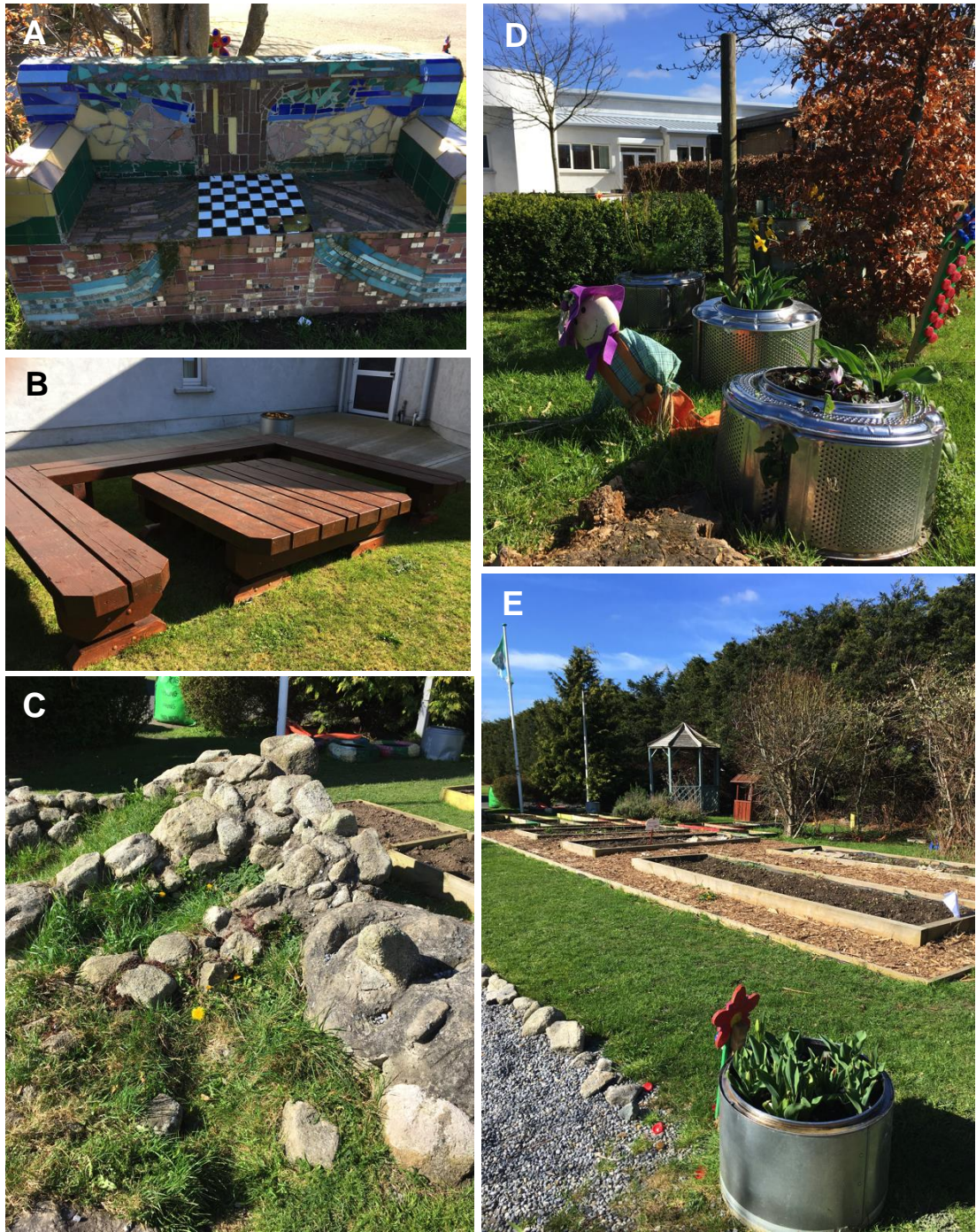


Figure 4.4 The garden at Goldenbough NS. (A) one of several decorated seats, (B) outdoor classroom space, (C) Sleeping Giant sculpture, (D) container gardens and scarecrow, (E) overview of the vegetable beds, with willow dome and gazebo in the background.

Children are not allowed into the garden without adult supervision, however most of the planting in the garden is done by children. Each year in June the school holds a Garden Party, with parents, teachers, children and guests invited. Food from the garden is

prepared and served, and a number of entertainments are provided, including a Scarecrow competition.

Orchard ETNS

This is an Educate Together National School in a small town approximately 20km north of Dublin city centre. Don, the teacher interviewed at this school, is involved in learning support and has worked at this school since it moved to its present (new-build) site about eight years ago. At that time, along with the now-retired principal of the school, Don set up the original school garden and he has retained responsibility for the garden programme ever since.

There are several distinct garden areas within the school surroundings. At the front of the school (575m²) there are vegetable beds (Fig. 4.5C), a natural play area, an outdoor classroom (Fig. 4.5D) and a small woodland area. Towards the rear of the school there is another green space containing a polytunnel (Fig. 4.5B), a fruit garden (Fig. 4.5A) and an enclosed herb and flower garden with seating (600m²). A central area, known as the “Ship Garden” (160m²) contains benches, sculpture, herbs, flowers and alpine plants, and is criss-crossed by a number of pathways (Fig. 4.5E).



Figure 4.5 Garden areas at Orchard ETNS. The heritage apple orchard (A), polytunnel (B), herb wheel and vegetable beds (C), outdoor classroom (D), and Ship Garden (E).

Children have free access to most areas of the garden, with certain provisions; they must stay within sight of an adult when out on break, and if conditions are particularly wet or muddy then certain areas of the garden are off-limits.

Wildhaven SNS

Wildhaven is a Catholic primary school in a large town approximately 15km southwest of Dublin City, which opened in 1979. There are currently 460 pupils, and up to 30 teachers and SNAs. It is a mixed vertical school, situated in a working class area. Over the past ten years, the profile of the school has changed considerably, with more children from supported housing than there were in the past. Up to a third of the children attending the school are from an immigrant background, though the vast majority were born in Ireland (Interview with Tadhg). Personnel interviewed at this school include Tadhg, who has been principal here since 1989; Maura, a learning support teacher who holds a Post of Responsibility with responsibility for the school garden; and Sally, a classroom teacher (3rd class) who helps Maura with the garden.

The school garden is about 185m² and is bounded on three sides by classrooms. It is currently undergoing renovation, as it had slipped into disuse over the past several years due to a previous post-holder's illness. As part of the renovation process, an expert from the Heritage in Schools programme worked in consultation with Maura and Sally to redesign the garden (Fig. 4.6A). The same expert spent a number of days working with the children in the school to clear the space of weeds, sow vegetable seeds and plant up herbs and fruit bushes.



Figure 4.6 Wildhaven's school garden. (A) The garden plan, put together by Patrick Hunt from the Heritage in Schools programme; (B) the pond area, and (C) the view from the central beds towards the garden entrance.

The garden contains herb planters, several growing areas separated by paving (Fig. 4.6C), and a pond area (Fig. 4.6B). To date, children have planted a selection of flower

bulbs, herbs, fruits and vegetables with the help of their teachers and Patrick Hunt. The school is awaiting a delivery of logs from the local authority to use as seating for the outdoor classroom space to the front of the garden.

The Use of a School Garden

As can be seen from the descriptions above, the size of the gardens studied varies considerably. However, the gardens share many physical features in common, differing only in their size or complexity. Four of the six gardens (Silverleaf, Greenwood, Goldenbough, Orchard) contain willow structures that are used as outdoor classrooms, for reading circles (e.g. Fig. 4.2c), and as conversation spaces. In many cases, these structures were co-created by schoolchildren and experts from schemes such as Heritage in Schools or Artist for a Day.

All of the schools use their gardens to grow food crops, and two of the schools contain polytunnels dedicated to this purpose. Vegetables are popular crops, with potatoes, onions, peas and beans grown universally. Most of the schools also grow a variety of salad crops as they grow quickly and are cared for easily. Soft fruits like blackberries and strawberries are popular, and all of the schools have one or more fruit trees, generally apples. The growing, preparation and eating of these food crops is used universally to demonstrate to the children the connection between growing plants and the food we eat, and the importance of eating healthily (further outlined in the section on gardens as places of connection).

Providing for wildlife and biodiversity is also an important element each of the school gardens. Features such as bird feeders and insect hotels (e.g. Fig. 4.3A) provide an opportunity for children to observe and encounter wildlife. Native trees and hedging, and wildflower areas add to the biodiversity of the spaces. Two of the schools have ponds (e.g. Fig. 4.6B), and use them as homes for frogs and frogspawn. At Greenwood,

there is also a hide for bird watching (Fig. 4.3B). Each of these elements contributes to a role for the garden in increasing environmental awareness and responsibility among children.

The way in which the gardens provide outdoor classroom space is variable. Goldenbough and Orchard have structured seating areas with tables, benches and whiteboards (Fig. 4.4B, Fig. 4.5D), while Berryfield has hopes of providing both in the near future. Such spaces in Silverleaf, Wildhaven and Greenwood, by contrast, are far less formal, with an absence of chalk- or whiteboards (e.g. Fig. 4.2C).

The extent to which the garden is integrated into the daily life of the school is a point of contrast among the schools. At Berryfield, the children visit the garden only occasionally, with their work in the garden limited to the two Harvest Days each year. Most of the other schools have restrictions on access to the garden areas, usually allowing access only during class time and in the company of a teacher. Only at Silverleaf and Orchard are children given free access to explore and play in the garden spaces during break times. At Silverleaf, children are also encouraged to tend to the plants during their breaks. This freedom may be linked to the small size of the school, or may be related to the attitude of the school principal, Jim.

The way a school uses a garden is closely intertwined with how it values a garden. This is a topic meriting further discussion, but in order to be able to do that one must first consider the factors that enable a school garden to thrive.

The Success of a School Garden

There are several factors that emerge as key to the longevity and flourishing of a school garden. These include key personnel who drive the project forward; support from teachers, colleagues and the wider school community; external support, whether in

the form of resources, advice or funding; and perhaps most importantly, a supportive and interested school principal. Also essential is the willingness to meet and surmount the inevitable challenges that arise when creating and using a school garden. Each of these factors will be discussed in more detail below.

Key Personnel

These are the people, generally teachers and/or parents, who drive the school garden project. Each of the interviewees identified one or two people at their school who had been central to the creation and the maintenance of the garden; who ensured that the garden thrived, and motivated others to get involved. At Greenwood, Barbara tells how a teacher and a parent were determined to “bring something green into the confines of the school”, and started a school garden on the grounds, long before it was a thing to do. Similarly at Orchard, Don spoke about the creation of their school garden. Here, there were several key personnel involved, including Don, the principal and the Deputy principal of the school. Indeed, the second factor identified as key to success was a school principal supportive of the project.

A Supportive Principal

While it is vital that there is someone within the school community who has the time, interest and commitment to drive forward and care for a school garden, it is also essential that support for that project comes from the top, from the school principal and the Board of Management. In each of the schools participating in this study, it was apparent that the principal, even if not actively involved in the garden, fully supported and encouraged their staff and children to take part. Although making funding available was one arena in which the school principal was central, granting time and flexibility to staff members to put their ideas into practice was the really crucial element of their involvement. Don makes the point that

Principal teachers tend to draw people towards them who have similar interests [...] having a principal who is supportive of your work and sees the importance of the garden, that's absolutely key.

The principal, through their interest and support, sets the tone for the whole school.

In all of the schools I visited, this was immediately apparent.

Importantly too, the principal motivates and encourages other staff members to get involved. It was the principal at Greenwood who initiated the drive to devise the garden curriculum. At both Greenwood and Wildhaven it was the principal who, in times of transition, ultimately made the decision to push forward with the garden rather than let it go, and who sought out and encouraged interested teachers to take it forward.

Maura and Sally acknowledge that the support needs to come from the top,

You need your principal and deputy principal to be on board with this project, otherwise you can't make it happen. So Tadhg is very supportive. He was the one that came, just brought the staff together and said, "Look, we need to do these things around the school, one being the garden."

When I asked Tadhg why he was determined to bring the garden back to life, his response was, "it enhances everything, and people enjoy it, the children enjoy it". He went on to point out the many curriculum links and opportunities for children's skills development that the garden provided. It was clear that he, as principal, was fully committed to the success of the garden because he could see how it was of benefit to the school community. This community, in its broadest sense, also plays a central role in the success or otherwise of a school garden, as outlined in the next section.

Support from School Community

Of course, the interviewees in this study are all central to the success of the garden programmes in their schools. Barbara, Don, Susan, Sally, Maura and Jim are obviously key drivers of the school garden programme in their schools, but each of them is quick

to recognise that without the support and involvement of their colleagues, success would be impossible to achieve. As Susan puts it,

All teachers have to be on board, all teachers have to want to be a part of it, there's no point in only a few teachers doing it, because you don't have the willpower to do it [...] you have to get the support from other people, because you don't have, you can't build a garden on your own.

Susan here recognises that in order for a garden to be a success, the whole school community needs to be supportive.

Indeed, many of the schools recognise that more than one person is required to run the garden, and three of the schools have put garden committees in place. These committees are generally made up of teachers representing a variety of class levels. For example, at Greenwood there are six teachers on the committee; two each from Infants, older classes, and learning support. At Wildhaven, although Maura is the post-holder with responsibility for the garden, the workload is shared with the three other teachers on the garden committee. The committee at Goldenbough is comprised of both adults – parents and teachers - and children, recognising the value of the entire school community to the garden.

Often, the Green Schools committee is actively involved in the garden, as with both Greenwood and Berryfield schools. Given the overlap with the Green Schools programme, this makes sense. Indeed, Barbara, Susan and Sally are all Green Schools co-ordinators (at Greenwood, Berryfield and Wildhaven respectively) as well as being central to their school garden programme.

Parents, too, have a role to play. The experience of Greenwood school illustrates this. The parent who helped to establish the garden remained closely connected with it and with the school until recently, and worked with the children on a regular basis. This parent

would come here on a Wednesday and she had her own kind of curriculum set out for herself. She would have planting the wheat with such a class, planting the potatoes with another class, harvesting them, making brown bread from the wheat grown in the garden, weaving willow fences around the herb garden and things like that. So she had her tasks that she would do, and the teachers very much appreciated that. (Barbara)

Another parent at the school is an archaeologist, so when the Bronze Age site was discovered in the garden, this parent was invited to come out and talk about it with the children. Also at Greenwood, a group of parents come in every Wednesday afternoon to help maintain the garden. Making use of parents' skills, whether as builders, gardeners, or landscape architects, is a common feature among the schools studied. Many of the schools invite parents to participate in a Meitheal once or twice a year, coming in to cut back overgrown shrubs, paint railings, or generally help in the garden. A requirement for Garda vetting may be an issue, identified at Wildhaven as being a limiting factor in parental involvement, though not in any of the other schools. Parents are also valued participants in Harvest Days and Feasts, often contributing to the food preparation, both at home and in the school.

Caretakers too have a significant part to play. Each of the interviewees at some point referred to their caretaker's help and support, with particular emphasis on his role in larger jobs, or construction projects, and during the summer months, when there are few other people around to care for the garden. However, Mella recognised the many other demands on a caretaker's time, saying "you can rely on the caretakers, they're great, they'll cut the grass and they'll do the bits but they're very, very busy themselves". Thus, having a caretaker with an interest in the garden is a real advantage. Daithi, the caretaker at Berryfield, is one such person. For him, the garden is associated with many happy memories of his childhood, and helping his father grow vegetables at home. Tony, for his part, says he would be "lost" without Daithi, indicating the centrality of the role that Daithi plays in caring for the garden.

It is apparent when speaking with each of the teachers interviewed that they are passionate and enthusiastic about the gardens in their schools, and deeply committed to the success and maintenance of these spaces. They recognise the importance of the spaces both for the children and for the wider school community, and are happy to devote time and energy to their garden programme. Mella sums it up as follows,

Well I suppose you have to be flexible, and if you believe and you think it's worth it, you do. Like at the weekend I'll go out and buy the seeds and whatever needs to be bought for next week [...] It's commitment, but oh it's fantastic. Once you get it up and going, and you see the things growing from it and everything, it's just amazing for the kids.

We can see from this statement that Mella feels rewarded for the work that she puts in by the impact that it has on the children. For her, it is worth the time, energy and commitment that she puts into it. She also touches on another important factor central to the garden's success, the ability to harness external support. This will be discussed in more detail in the next section.

External Support

Each of the schools in the study demonstrated a willingness and ability to exploit resources and expertise from a variety of sources external to the school community. For example, in all of the schools studied many of the resources in the gardens were there as a result either of being won in a competition, or provided as part of a programme or scheme. The Silverleaf polytunnel was won in an Incredible Edibles (Bord Bia) competition. Berryfield were overall winners of the Dublin City Council City Neighbourhoods competition (schools category) last year, securing a €1,000 prize which they plan to put towards establishing an outdoor classroom at the school. Goldenbough have been particularly successful in this regard. Their garden was initially established using a €5,000 prize from AIB, they won their outdoor classroom furniture in a competition and they recently won a further €3,000 from Dublin Bus which has

also gone towards the garden, for paving, hedging and gravel in the garden, and towards the cost of the sculptor who worked with the schoolchildren to create the Selfish Giant sculpture (Fig. 4.4C).

Schools also make good use of the expert advice and assistance available through initiatives and organisations such as the Heritage in Schools scheme, the Artist for a Day scheme, O.W.L.S. (Outdoor, Wildlife, Learning and Survival) and SEED (School Earth Education).

Most of the schools make use of the Heritage in Schools Scheme from the Heritage Council, which provides a panel of 175 heritage specialists to visit primary schools around the country to deliver subsidised workshops for children. As mentioned earlier, Wildhaven made use of a HiS expert when restoring their school garden.

Goldenbough makes particular use of the experts from O.W.L.S. With this programme, an environmental educator comes to the school every 4-6 weeks to work with all of the children in 5th class, raising awareness of environmental issues. Extensive use is made of the school garden, with the children making bird feeders, nests, exploring wildlife and biodiversity.

This bringing in of external expertise serves a dual purpose. Firstly, it provides an experiential learning opportunity for children, which may include skills they would not otherwise encounter, such as willow-weaving or bread making. Secondly, for teachers who lack the confidence or skills to lead outdoor and environmental learning, it offers a way to explore these areas with their classes. So it becomes a way to continue to work in the garden in the absence of in-house expertise. A lack of skills or expertise cannot therefore be used as an excuse for not providing outdoor learning opportunities; help is always available.

Meeting Challenges

As important as ensuring that the key requirements are in place, for a school to be successful in managing its school garden it is also vital to identify and deal with the inevitable challenges that arise. I asked the teachers interviewed about the challenges that they had faced, and how they had met those challenges. Several of the challenges identified were similar to those identified in the literature. Some of the teachers struggled to think of challenges. However, what I found of most interest was that so many of the teachers explicitly stated that the benefits of the garden completely outweighed the challenges faced.

Maintenance

Time for garden maintenance may be an issue, but it is not one that unduly troubles the teachers I interviewed. More problematic was the issue of manpower.

Mella recognises time and pressure of work as an issue. Before she was Deputy principal she would have had more time free to spend on the garden or to bring children out to the garden. Now, less so, but here the support and understanding of her colleagues makes the difference,

[The principal] is very, very supportive, and G____'s the home school person there. She's a great relationship with the parents and that so if I just say to G____ we need a group of parents for whatever, and to round them up and that. I think the fact that the parents are involved in it makes it a huge thing as well.

Here Mella acknowledges the importance too of being able to call on parents to help when needed, reinforcing the earlier theme of parental involvement as key to garden success.

Curriculum Overload

Unusually, Barbara is the only teacher who brought this up as a specific challenge, although she assumed it would be a stereotypical answer. "I think teachers are feeling

there's so much things coming after them, and you're saying, 'and the garden, and the garden', I know I would have felt that myself". For her the issue is to find ways to integrate the garden even more with the curriculum teachers are already teaching in the classroom.

Some of the other teachers have already managed this. For Jim, "it's just a different way of delivering the curriculum", and he illustrates this by discussing how the construction of the polytunnel fed into the maths curriculum,

How much wood do we have? This is the space we have; this is what we'd like to do; we need to be able to come up with a design for it that you could get at all the beds, and none of them are too big that you could reach in to use; that you're maximising space [...] and they needed to come out and work out how to do it, so it's serious maths in all of that as well.

Mathematics is also a feature of food preparation; when the children are making rhubarb tarts they need to think about the measurements involved in the recipe.

Other curriculum areas are also covered through garden-based learning, as Sally points out

It really is feeding into the Geography curriculum because they were looking at the map of the school as well, before we even started the garden, and how the light shines on the garden and what plants are best in what areas of the garden. The children actually even drew, if they could design their own gardens (that was kind of art as well) what would they imagine. So there's loads of different aspects of the curriculum that are now coming into the classroom.

This is an important observation: the learning that takes place in the garden transfers back to the classroom, and vice versa.

Risk Management.

Interestingly, while in the literature the perceived riskiness of working outdoors with children, and the problems of managing this, are seen as some of the biggest challenges to outdoor learning, all of the teachers interviewed had extremely positive attitudes

towards risk management in the garden, and it did not appear to limit their use of the garden in any way. All of them were conscious of risk, and took various measures to reduce it,

I suppose things like, children aren't going down there unsupervised, there's always at least one adult with them. They would have, for example when we do litter pickups they would have litter pickup thingamajigs, and if they haven't got a latex allergy they wear their gloves. They would use [garden tools] but, limited, I would have to say in a limited kind of way. (Barbera)

So, while safety measures such as adult supervision, controlled access to garden tools, wearing of gloves and boots, were enforced, none of this in any way appeared to teachers from using the garden. It may be that once you try going outside, perceptions of risk alter dramatically.

Jim from Silverleaf school demonstrates a great understanding of and positivity towards risk management outdoors,

At the end of the day If kids don't test themselves and push themselves, and try themselves...there's only so much can go wrong. We've had children who've taken a step, broken a leg falling down a step. So, anything can happen. So I'd much prefer to see them out and being active. Touch wood now we've had very little by way of accidents or anything like that. Even on the playground in general, you've more problem with people falling on tarmacadam and stuff to be honest rather than on grass.

This comment exemplifies the attitude of all of the teachers interviewed; they recognise that children need to be allowed to take risks in order to learn how to manage risk.

When asked about possible issues with insurance, none of the teachers reported any additional charges or requirements from insurance companies related to the school garden. For example, Jim tells me

Well you see the thing is people run very quickly to insurance companies and say we can't do it, insurance wouldn't allow, but [...] I rang them, gave them a description of what we were putting in here, the materials it would be made of, the approximate heights [...] and they were saying 'sounds lovely'. [...] Yeah, they were really good to deal with. So people often run to that as an excuse not to do things or try things. You know we're very worried about litigation and all that, but I mean there's no judge going to make a rule against the school for promoting activities, opportunities for children to be active and learning.

This attitude is echoed by the other teachers. None of the schools had found it necessary to take out additional insurance, nor had they suffered any serious garden-related injuries.

Weather

While several of the teachers realise that the weather may be a challenge to bringing children out, particularly with respect to some of their colleagues who may not be as engaged with the garden as they themselves are,

The weather is a challenge - a day like today [warm and sunny], sure everyone's out there today...But to make it work really, you probably have to do some work when the weather is bad as well and you have to go out even when it's not sunny. You have to be consistent about it.
(Don)

they are also keen to point out that in good weather everyone enjoys the opportunity to be outside, “come May and June everyone's out there, they do go out” (Susan).

Covered spaces and polytunnels are particularly useful in this regard, as Jim acknowledges,

Really it has to be a downpour before we won't let the children out. If it's any way presentable or reasonable at all you're out and about, yeah. (Jim)

Money/Resources

As discussed above, each of the schools in the study has found novel ways to marshal the resources required for a school garden. Donations also play a central role. At Wildhaven, a request in the school newsletter for garden tools saw an abundance of

equipment donated. All of the apple trees at Orchard ETNS were donated by a parent who is a professional grower. Similarly, at Berryfield a parent who worked with Dublin City Council donated a sack of bulbs to the school. In general, local authorities are very supportive of school gardens, and teachers spoke of donations of bark mulch and logs (Wildhaven), a water butt (Silverleaf), as well as money for seeds and plants (Goldenbough).

Transition and Change

Interestingly, one of the common threads through all of the schools was the challenge of change and transition. Several of the schools had lost or were losing key personnel, either through illness (Wildhaven) or retirement (Orchard, Greenwood). Several schools had also recently undergone building work (Goldenbough, Orchard), and/or were about to expand (Orchard, Silverleaf). In each case, however, the challenge had been surmounted, a testament to solidarity among a school community keen to see the garden continue to flourish, a recognition of the valuable role played by the garden, and of the support and commitment of teachers and parents. When the garden at Wildhaven became overgrown and home to vermin, a decision was made to put resources, time and energy into restoring it rather than just clearing the space. As discussed earlier, the drive to continue often comes directly from the school principal. Another factor evident was forward thinking and preparation ahead of expected change. For example, Don will be retiring from Orchard at the end of this school year, but for the past two years he has been training and working with two newly permanent teachers who will then take over the garden. The same school will be undergoing significant building works over the next 18 months, but teachers and parents have already come together to dig up and replant many of the fruit trees that need to be moved from their current positions in order for building to begin.

Vandalism

Although the prospect of vandalism may be a barrier to planting trees or putting in a school garden, none of the schools studied had ever had a problem related to vandalism in their garden (although vandalism may have occurred elsewhere in the school). Jim makes the point that the likelihood of vandalism may even be reduced by projects such as a garden,

It teaches the kids too, when they've put some kind of time and effort into it and someone else damages it, well are they going to be as likely to go damaging something having experienced the negativity of that? Probably not.

We started with the big willow down at the front, the children planted themselves; we did murals and that, the kids all painted them themselves, and no-one's going to wreck what they do themselves [or] their kids work and whatever. We've had literally nothing, not one ounce of damage in 10 years, so it's been really kind of transformative for the school, gave everyone a sense of ownership of it and involvement in it. It's been a very positive thing for us.

New/Young teachers

Perhaps surprisingly, more than one of the teachers I spoke to expressed concern at the lack of interest in garden or outdoor learning among newly qualified or younger teachers,

I would say as well we have a huge body of new teachers that have come in in the last couple of years, that's been a huge change in the school, in the last 5 years. So I suppose, getting them into it as well, to make sure that it's sustained. I'd say that's a challenge as well.
(Barbara)

And most teachers - young teachers (laughs) - they don't really, they want to keep warm, they want to keep dry, and they won't go out unless it's a really nice day. That is definitely an issue. (Don)

The reality is, I find now, and I'm not knocking anybody's College of Education in any way, but I find lots of young teachers, by far the majority of them, have no interest at all. No interest, no knowledge, no aptitude...don't want to get their hands dirty, are very frightened about kids picking up diseases or hurting themselves, and that's often a reason why they won't do it. Or they fear losing control, that, you know, a big bunch of kids and you're trying to sow something, you're trying to plant something, what are the rest of them all doing when you're doing all that? (Don)

Both of these teachers felt that newer, younger staff are not as interested in the garden as in the past. Perhaps this is due to the pressures on newly qualified teachers meaning that the garden is seen as a 'luxury', or perhaps it is more widely reflective of a falling away from environmental issues, a disconnect from the natural world, in this younger generation of teachers. This will be explored further in Chapter 5.

The Value of a School Garden

The final section of this chapter deals with the underlying value and benefit provided by school gardens as identified by the teachers interviewed, either explicitly or implicitly. Identifying the affordances that school gardens offer for the development and betterment of the school community offers a window to their valued position in the schools studied here. Perhaps the most telling aspects of the interviews were those things that the teachers, unprompted, told me about their gardens and how they were part of the life of the school. Over the course of the interviews, several themes emerged independently in conversation. Some of these themes have not merited much attention in the literature, so I think it is important to describe them here. While some of these topics may have been triggered by questions in the interview schedule (e.g. questions about garden impact on academic, personal and social development), often they emerged without prompting. I will begin with the theme that came across most emphatically, from all of the teachers interviewed – the theme of connection.

Gardens as Places of Connection

Perhaps it is obvious to think of a garden as a place where children can increase their connection with the natural world, and indeed, that is a theme that flowed throughout the teachers' conversation. Each of the teachers spoke about the school garden as a place for children to connect with nature, to raise their awareness and understanding of the natural world and thus, to begin to care for the environment. Don made the point that this connection with the natural world is important also because it is fundamentally part of the primary curriculum,

If you look at the curriculum, there's so much of the curriculum is to do with children's appreciation of the environment [...] kids having an awareness of its importance and a feeling of it being something, an appreciation and creation of a feeling of awe and wonder and all of those kind of things that it's very hard to do, in any other way, other than actually physically being outside.

Here he also observes that the best way to deliver that curriculum meaningfully is through being outside.

Barbara spoke about the excitement children feel when they are growing their own seeds, "they are so 'did you see them, did you see them?' they are SO excited".

For all of the teachers I spoke to, one of the most important connections was between growing food plants and eating healthily; "it's actually quite important, even if it's only a salad, the kids can see that there's a connection there" (Don).

Jim told a story about a Soyer stove (a field stove/cooking pot used during the Irish Famine) that he found at home and brought into the school. Not only was it an opportunity to learn some history, it also provided an opportunity for some hands-on learning about food preparation, as the children

lit the fire in the bottom and took all of the veg, the leftover courgettes and everything, made a big giant pot of soup, fed the whole school out of it. But it's a big event, the kids are in, they're chopping, they're chatting to their parents about it, they say 'oh, this soup is lovely' because they made it themselves. So they're going to eat it, whereas if you put it in front of them they wouldn't. It really does promote healthy eating and all that, when they can see how easy all of this is.

This illustrates how important a school garden can be in helping children to make the connection between plants growing, and the food that they eat. They see the purpose of growing, and become aware of the importance of caring for and cultivating plants.

At both Silverleaf and Orchard schools, annual Feasts are an important part of school life. The tomatoes and peppers grown in the Orchard polytunnel are used to make sauce for a pasta meal in which every child shares. Also at Orchard, every child in the school brings home a bouquet garni for Christmas dinner, made from herbs grown in the school garden. At Silverleaf, salads and potatoes are harvested from the polytunnel and used to make a lunch to feed the whole school (Fig. 4.7). Children also make cakes and tarts from the fruit harvested from the garden. Jim pointed out that it is an important rite of passage for the children,

We've no problem with letting the kids using small sharp knives and things like that because no-one's deliberately going to go and cut themselves. The children appreciate the responsibility and trust that we show in them, we've never had any kind of issues or problems with that and we just go ahead. They feel very grown up and big.

We see here also children being given agency and responsibility, demonstrating another valuable role for the garden, in promoting the development of skills around personal responsibility and risk.



Figure 4.7 Growing, preparing and eating food from the garden at Silverleaf. Children harvest salad leaves (A) and potatoes (B) from the polytunnel, to make a lunch of salad and potato wedges for their classmates. Apples and berries from the fruit garden are used to make apples tarts (D) and cakes (E).

Interestingly, the theme of connection also highlights a common 21st century issue, disconnection from the natural world, often presented as a tension between new technologies and children’s environmental awareness. Two of the teachers, Mella and Susan, observe this distancing from nature in today’s children, and both link it with an increased interest in technology. Mella says,

Kids [...] leave school and they don't look up or down or around, phones. Do you know what I mean? ...I mean, kids are so detached, not just urban kids, aren't they?

Contrasting this with her own upbringing,

Because I know when I went to school, our awareness of nature and everything was, we knew every tree [...] We'd primroses, we'd birds' nests, everything.

So, to her, this detachment from the environment is something recent, and widespread. Children today, unlike children in the past, are detached from their surroundings. These sentiments are echoed by Susan,

Years ago, that's all you did, you were out playing outdoors. They're not getting that any more, they're always inside playing with their iPad or whatever. I just don't think anyone knows about gardening any more either, what to do.

She too contrasted children today with her remembrance of childhood. In her opinion, children now spend all their time indoors, and have lost the connection to the outdoors and to growing. In her view, the school garden can help to redress this balance.

Barbara, at Greenwood school, had a somewhat different view,

They love all their technology, but from what they see...nature to them is still such a source of wonder [...] never assume that the techiest child is not going to be interested in a bit of earth and a seed, they really, they are, it's amazing to see.

She makes the point that a child can find wonder in both technology and nature, the two things are not mutually exclusive.

Gardens give children not only the opportunity to connect with nature, but also with each other. Many of the teachers emphasised the role of the garden in the social development of the children. They spoke about how children behave well when they are outside, how working in the garden naturally promotes social interaction and teamwork.

And you can see them working together. Some of them might be working on planting out the potatoes in one area, some of them might be working on weeding in another, and they're a little team then, and generally they don't pick the teams, they're just kind of you work here and you work here - they're mixing a lot with their peers that they maybe mightn't on a day-to-day. (Sally)

Sally here indicated how the children naturally come together in the garden to work in teams. This also illustrates the agency that is given to children in the garden, with

opportunities for child-led decision-making around teams and tasks. As Maura said, “there's a lot more decision-making by children than normal, because 'I don't want to do that, I'm going over here' is kind of natural, they select themselves, a lot of it.”

Gardens also facilitate the connections between the school and the home. As discussed earlier, parents often play a central role in developing and maintaining the school garden. Garden-based learning also provides other opportunities for connection with a child's home life. Children bring home seedlings that they have started growing at school, or they bring home the fruit and vegetables that they have harvested in the garden, as at Berryfield. Jim estimated that a quarter of the children in his class at Silverleaf last year set up their own vegetable patch at home.

It is an opportunity for intergenerational connection as well. Mella spoke about a child in learning support whose grandmother loves gardening, so her grandmother has been invited to come in and help with the school garden. The learning goes both ways – several of the teachers pointed out that often parents become interested in growing, or in developing their cookery skills, because their children are bringing home ideas and artefacts from school. According to Don, “we taught kids and the kids went home and their parents became interested and developed an interest in the garden from that point of view”. Jim shared the example of the brownies that the children at Silverleaf made with beetroots from the garden,

The parents [...] then they're buying them and they're making them at home and they're getting vegetables into the kids.[...]Once [the children have] caught them up, they've got their hands all stained, it's an experience; you've touched them; you're very dubious about eating this thing and then it tastes nice, and all of a sudden you've a piece going home with you to give to mam and dad, and the parents are cooking them at home, making them at home.

The children at Silverleaf are open to new foods, new experiences, and this is expanding beyond the school to their homes and families.

Gardens thus provide a way for children and adults to connect with learning. According to the teachers interviewed, school gardens are places associated with positive learning experiences. This will be discussed in a later section, but first, consideration is given to the theme of gardens more generally as places of positivity and enjoyment.

Gardens as Places of Joy

Almost universally among the teachers interviewed the idea they first expressed was how much everyone in the school community, staff and children alike, enjoyed and appreciated their school garden. Words like enthusiasm, excitement, love and fun were all used frequently by interviewees. Barbara spoke about one child who “was just, oh! So excited...she just comes alive when she's down here”, while Don related how the teachers use the space for recreation, “I'd often see teachers pottering around after school, window boxes and stuff, and teachers sit even in the spaces themselves”. Jim spoke about how “everyone is happy, the kids are excited, well-behaved, actively engaged” when working in the garden or preparing food they have grown. He explained why he appreciates the polytunnel in particular,

The greenhouse has been particularly fabulous. You're there on a rotten January day, you're in and you've an hour of maths under your belt, and you've been ploughing through adverbs and adjectives and whatever; isn't it great just to get everyone ‘up, c'mon out, pull a few weeds, water a few plants, have a look, how are we getting on?’ [...] It's a break for the kids, they're on their feet, they're active, they're moving, and they love it, they absolutely love it.

Thus the garden provides a break from the norm, a space to enjoy, where working is a pleasure. What is also apparent is that being actively involved in garden-related activities is not an essential requirement – gardens are spaces that can be enjoyed by everyone, as places to sit, read, or extend normal classroom activities. Teachers who are not particularly interested in pursuing garden-based learning can still bring their classes out to enjoy the space on a sunny day.

Gardens as Places of Celebration

Each of the schools, with the exception of Wildhaven, makes use of their garden to celebrate with the entire school community, through a school Feast, Harvest Day, Garden Day or Open Day event. This often extends beyond garden activities to include music, drama, and art-related activities.

Food and feasting are generally high on the agenda. These are very much social occasions, and several of the teachers spoke of past pupils returning to share in the festivities.

Goldenbough holds a Garden Open Day each year in June, to which all members of the extended school community are invited. Mella described this as an “absolutely brilliant day”, where parents come together to make sandwiches, cakes and a large pot of soup with vegetables from the garden (Fig.4.8B). A range of activities take place in the garden, including blind tastings, music, project demonstrations, and most importantly a Scarecrow competition (Fig. 4.8C). According to Mella, “the teachers get really competitive, it’s so funny”. Anyone who comes to the Open Day is invited to vote for their favourite scarecrow, and the winning class gets a barbeque in the garden as a prize.



Figure 4.8 The Garden Party at Goldenbough. Parents prepare and serve food from the garden (A, B). Scarecrows are positioned ready for competition judging (C).

At Greenwood, the annual Garden Day is a “rite of passage” for the 6th class children (Barbara). In a full day of events, the school orchestra plays, there are flowers for sale, and refreshments are freely available. The children in 6th class give tours of the garden to parents and other visitors and “it’s very important to them and they love it” (Barbara).

Gardens as Places of Healing

One of the most valuable aspects of the garden, as evidenced by the teachers' responses, is in helping children with special educational needs (SEN). Each of the schools in the study contained children with SEN, either in mainstream classes or in special classes within the children. All of the teachers raised the issue, often on several different occasions throughout the interviews. For example,

There's a little bird hide in there, with a couple of benches. I've taken the little autistic child now when even she had huge behavioural issues last year, and she was sometimes sent over to cool off, and we'd come down and sit in here and just relax. (Barbara)

Here Barbara illustrates how the garden affords a calming space for children with behavioural issues. For Mella, the healing aspect of the garden is one that she most values,

I'd put the therapeutic above even the learning, say from seed to plate, how does it come from the ground to the table or the table to the ground. Besides all that learning, and cross-curriculum and everything, I think I would put the therapeutic. (Mella)

An anecdote from Barbara's experience provides a comprehensive example of the value of the school garden for children with SEN,

I had a girl who was autistic. I had her in the classroom as a 3rd class teacher, and then I had her here [learning support] for 5th and 6th class, and she was a bird expert. So, we would just sit here. First thing she would do, if she was a little bit stressed coming, if she had a stressful day and, naturally with autism, had anxiety issues, she would just make a beeline for the window when she would come and she would just sit there going, that's a - [...] and a bird would flutter by and I'd go, 'go on, name it' and she would just name it...and it brought an appreciation to me too, before I got into the garden. I would have always had a vague appreciation of nature and the garden, but just sitting here with her, and just seeing how much - phew - calmness she got, was amazing. And I've another child this year who's autistic, very different child [...] she adores the garden, you know, she absolutely loves it. Again, I don't know what it is, the green, the calmness, the birdsong [...] you can just see how she, it just affects her mood, just how much pleasure she gets from it, from her senses. I have to say, that's had an effect on me to see, to see that, [...] these two girls are kind of the embodiment of it in a way, that it is a healing, a source of healing for them.

All of the teachers had similar stories to tell, of how children in their school with SEN found respite and healing within the garden, whether working or just being in the space. They may be particularly aware of these affordances because most of them are working in learning support, but there is also widespread recognition in the literature of the role of the garden in providing for children with SEN. As well as the therapeutic aspect of the garden for these children, it also provides an inclusive space for them, as discussed in the next section.

Gardens as Places of Inclusion, Places of Equality

One of the strongest themes to emerge from the interviews was that of gardens as inclusive spaces, where children who may otherwise feel marginalised can participate fully. Whether they suffer from autism, behavioural issues or struggle academically, the garden is somewhere that children who might otherwise feel excluded can connect socially, participate fully and feel a sense of achievement,

I have a special needs child in my class who wouldn't really mix with children, wouldn't be good at sports. You can see, in the garden, this child is amazing, he went around saving all the worms, picking them all up and then the class all brought the worms to him to mind. So there was great interaction there that he wouldn't have had that as much interaction within the school before. So, socially I think it's really, really amazing. (Maura)

Maura observed and appreciated the inclusivity afforded by this simple activity. The other children saw an opportunity to include a classmate that they may normally struggle to connect with.

At Goldenbough, the garden is also an inclusive space for those at risk of marginalization. Mella values this greatly,

We've done lots of initiatives in the school, we've done breakfast club, we've after-school club. But one of the big big things I'd say is the garden. And the kids come back and remember; and the most marginalised ones are the ones that seem to engage the most.

On Friday mornings, she works in the garden with a group of boys that have behaviour and discipline issues. As she describes it,

Out there there's never a problem, never ever a problem. There's never any discipline - you never have to say 'lads, don't be messing' or anything, it's just - they just really feel really important. And I said, 'now lads, ye know you're the head gardeners' and, just the satisfaction that they get. They won't be the best at reading, and they won't be the best at anything in their class, so I'd always pick the most marginalised ones to kind of bring out there.

Mella's story exemplifies the opportunity for achievement or success that the garden can bring to children on the margins. The boys she works with may struggle academically, or find it difficult to work in the classroom, but in the garden they have status, and the opportunity to feel satisfaction. Barbara also highlighted this aspect in a broader discussion of the value of the garden for all of the children in the school,

I think the fact that they're all equal down there doing their jobs and they just have to get on with it with whoever they're working with, I think that's very positive for them, that they're relaxed and happy down there and just getting on with it. [...] You know the way the classroom can be a huge site of comparison for children? The minute they put their foot over that door, 'I've to come out for maths, I'm not as good as...', there's none of that down there, so I think they are possibly a little bit freer to be themselves in some way.

Both of these teachers recognised that the garden affords children the freedom to be themselves, not measuring themselves against each other, but working together as equals.

It is not only the children who benefit, but also the parents. Goldenbough, in association with South Dublin County Council, runs a cookery group for parents and children at risk of marginalisation. The group also has a space in the garden for growing food crops. Mella pointed out the value of this for both parents and teachers,

And a lot of these might be parents who didn't have good experience of school themselves, and may not want to come up, say, for, even may not want to come up for parent-teacher meeting cos their memories of school aren't very very positive, but when you bring them up there - and some of these parents have fantastic knowledge, and are great - you know?

We see here the role of the garden in making connections, building bridges among the people in the school community, and outreach into the wider community. At Goldenbough, groups from the probation services and from the 'Men's Sheds' voluntary organisation have helped out in the garden. Children from a nearby special school also come and use the garden. One of the desires at Orchard, according to Don, is to open the garden up to locals as a community garden.

Primarily, however, it is the garden as an inclusive space for the children that is most appreciated by the teachers. It is an aspect that has impacted on them at a personal level, as expressed by Sally,

In Irish primary schools now there's a lot of focus on literacy and numeracy and there's children that genuinely struggle and hate school because they feel 'I can't do anything'. So this has really opened my eyes to see there's children who mightn't be amazing in the classroom but they excel at hands-on activities, working with their hands; and the enjoyment that they have gotten out of it is unreal, and very educational, to see them working as a team and you know, just learning about light, aspect, lots of different things.

Sally eyes have been opened to the opportunities for learning of a different kind that are afforded by the school garden. This leads to the final theme of this chapter, gardens as places of learning.

Gardens as Places of Learning

While there is much emphasis in the literature on the academic impact of school gardens and garden-based learning, for the teachers in this study the academic value of their school gardens was almost taken for granted, and not something that featured significantly in their conversation.

For Don, the emphasis is on practical learning and the opportunity to engage in hands-on activities, particularly when learning about the natural environment.

I think the kind of deep, meaningful learning about the environment and appreciating the environment is best done by practical action, and having to make a bit of effort. Having to be out in the cold, to say 'I grew those, I went out on a wet, cold day and I got wet to weed those plants and now I have a plate of pasta'.

He also spoke about how children “probably academically learn more at a computer [...] in terms of facts, accruing knowledge”, but outdoors they experience a “deeper, more meaningful learning’, and it is “much more beneficial to have [that learning] done in a practical way in a real environment, than in a class”. We can see from this that Don, as a teacher, greatly values experiential learning, rather than academic success.

The teachers gave several examples of how the garden naturally lends itself to curriculum, from history to art to geography and science. At Silverleaf, when the

willow structures need pruning, the children weave the cut strands back into the structure, “it’s a kind of wattle and daub thing”, as Jim pointed out, which integrates with their History curriculum. The infants have been covering the Garden Centre as part of their Aistear curriculum, so have converted part of the polytunnel into their own ‘Garden Centre’ where they grow and sell plants and flowers. They are also reading a book about pumpkins, so they are growing pumpkins in the polytunnel too. Seeing their own pumpkin, roasting the seeds, eating them as a snack, “it makes things more real and memorable when you’re engaging all of the senses” (Jim).

Several other teachers made the link with reading and literacy. At Goldenbough, the children read Oscar Wilde’s story of the Selfish Giant while sitting around the sleeping giant sculpture in the school garden. The 5th classes use “The Boy in the Striped Pyjamas” as their novel, and each Autumn they plant crocus bulbs donated by the Holocaust Education Trust.

Susan at Berryfield pointed out that the children “learn from being hands-on and active, and then they can bring it back into the class and write about it”.

At Greenwood, there is a determination not only to reap the therapeutic and social benefits of the garden, but also to ensure that there is an academic dimension to garden use. Recently, a group of teachers, in consultation with the entire teaching staff, came together to develop a yearly planner to ensure that the garden is embedded in the whole curriculum at every class level. A survey of the teachers in the school indicated that, along with informal learning opportunities, there was a desire to use the garden more regularly to deliver curriculum teaching and learning. Barbara recounted,

Three strands emerged. Yes, we liked somebody coming in, the kind of, the expert, coming in and doing those tasks, like planting the wheat, growing it, threshing it and all of that, making it into the flour, making the bread. We liked that part, we liked those projects led by an expert. We love going down and using the garden as we wish ourselves. But we also would like to do more curriculum-based work.

The biggest barrier to this integration of the garden into daily curriculum was their own lack of confidence and competence, as identified by Barbara, “right throughout the whole school the feeling was the same, ‘We don't, we haven't a clue where, we don't feel knowledgeable enough ourselves’”. Their solution was to put together a committee of teachers, with representatives at each class level, who then developed a garden curriculum that could be used throughout the school, from Infant to Senior classes. The curriculum is organised seasonally, so that throughout the school year there are guidelines and resources that can be used to promote garden-based activities in all areas of the curriculum. One aim is that, by the time the children get to 6th class they will have an extensive knowledge of the garden, which will support them when they are giving their garden tours on Open Day.

Don pointed out that adults and teachers can also learn from looking at the garden from a child's perspective. Whereas a cabbage full of caterpillars may cause a gardener to despair, the children

Just see, you know, a cabbage full of caterpillars, which is very important and which is an ecosystem in its own right. So, the fact that as a gardener, I'd say ‘Jeez those cabbages look disgusting’ - kids see it differently, and I'm sure the caterpillars see it differently too!

At Silverleaf, caterpillars also provide a learning opportunity. Jim spoke about the time

We had a lot of caterpillars there, so we had the butterfly net. I forget what plant they were eating, so we just popped them into that and they grew. We had a look at them, let them off again, I mean there was no planning to do that, you just respond to the opportunities that present themselves, when they crop up. [...] So even to know, ok we found them on zucchini leaves, what should we put in there? Let's throw on a few zucchini leaves! And off you went; and then they popped up and we got some kind of a white butterfly. They threw in caterpillars and out came butterflies!

This affordance of learning opportunities by the school garden seemed to be a common thread among the teachers in the study. To a large extent it depends also on the willingness of teachers to take up those opportunities. All of the teachers I spoke to appeared to be very aware of making the most of the garden in this regard; “It’s just providing the opportunities and giving the children the chance to use them” (Jim).

I will discuss the relationship between all of these themes in the following chapter, where I will also examine the relationship between the findings from this study and themes emphasised in the literature.

Chapter 5 Discussion and Conclusions

In this closing chapter, I will discuss under a number of headings the findings of this study and the conclusions that may be drawn from them. I will first briefly address the value of using a qualitative approach such as the one used here to examine the role and benefit of school gardens. I will go on to relate the findings of this study to what has been published in the academic literature to date. Several new or unexpected themes emerged during the course of this research, and these will be highlighted in a separate section. Finally, I will address the limitations of this study before outlining possible future directions for this research.

Using a Qualitative Study Approach

The aims of this study were to build a picture of how schools used their school gardens, to discover what made a school garden successful, and to uncover the reasons why school gardens were valued by the schools that had them.

The use of a qualitative approach in this study provided depth and richness of understanding to the questions explored. Site visits and interviews with key drivers of their school garden programmes enabled a detailed and colourful picture to emerge. The approach used in this study has highlighted issues that may have been difficult to capture or quantify using quantitative methodologies. An attempt to anticipate all possible responses, such as required in the design of a large-scale survey, would have missed some of the additional insights gained here into how schools use and value their gardens. The teachers' narratives, their stories and anecdotes, emphasised the powerful affective dimension to the school garden and how it is appreciated in a school. Teachers and children demonstrated a profound emotional connection to the natural world as experienced through the garden.

The value of this study, then, is that it provides a record of the direct experience of practitioners within an Irish context. What is noteworthy is the extent to which the themes that emerged from this study echo the themes from the research literature.

Study Findings and Research Literature

Broadly speaking, there are a number of key findings from this study. These can be listed as follows:

1. Schools use their school gardens in a variety of imaginative ways to encourage children's development across a broad range of areas.
2. There are a number of key factors driving the success of a school garden and enabling schools to meet and overcome associated challenges.
3. Teachers value their school gardens because they provide an arena for learning, space for pastoral care, a focus for school and community involvement and a source of pleasure for the entire school community.

It appears that the findings of this study are broadly reflective of the international context as represented in the research literature. I will now briefly highlight these connections with respect to each of the findings above.

Using the School Garden

International research, as recently documented, has identified a multiplicity of functions for a school garden, such as growing food, connecting students to nature and the outdoors, making a variety of disciplines relevant through hands-on learning, developing environmental stewardship, educating for nutrition and health, and bringing balance to students' lives (Williams & Dixon, 2013).

This is certainly true of the gardens in this study. A wide range of imaginative and creative uses of the gardens emerged in the teachers' conversation. The garden provided a space for reading circles, for imaginative play, for growing and harvesting crops, for studying both plant and animal life cycles. From the Aistear Garden Centre at Silverleaf, to the Selfish Giant at Goldenbough, from the bird hide at Greenwood to the pond at Wildhaven, gardens provided spaces for learning across multiple disciplines and all class levels. They also provided spaces for play, whether running through a willow tunnel or jumping in and out of tyres on the ground. There were composting facilities in each of the gardens, linking with theme of environmental stewardship and responsibility. Each of the gardens provided a harvest of fruit and vegetables that could be prepared and eaten by the children, often as part of a festival or feast. In each of the gardens children were actively involved with the growing and harvesting of the food crops. All of the teachers talked about the importance of the garden for the children in their school who struggled with daily classroom life.

An additional function not identified by Williams and Dixon was that of a community hub; the garden as a space to bring the whole community together and to celebrate. This was one of the most valued activities identified by the teachers in this study. There are many others, which will be discussed in the next section.

Valuing the School Garden

As clarified in this research, Irish teachers value their school gardens for many reasons. The perceived benefits that the garden provides were shared in common across all of the teachers interviewed, and these echo the findings from a similar UK study (Passy, 2014). Passy groups these benefits into four overlapping themes, and I have done the same here.

An arena for learning

The teachers in the study identified numerous opportunities for learning provided by the garden. The teachers, particularly Don and Susan, believe that this learning is deeper and more meaningful because it is hands-on, sensory, active. Passy's (2014) teachers felt the same, believing that being outside made the learning 'more real', and recognising that direct experience has the ability to enhance the quality of children's writing when back in the classroom. Garden-based learning in both the UK and Irish contexts is seen to complement and enrich the curriculum.

A space for pastoral care

The themes identified in Ohly's (2016) review of the health and wellbeing impacts of school gardening are echoed in the teachers' narratives. For example, Ohly's assertion that school gardens have particular benefits for children who do not thrive in an academic environment or who may have complex needs is borne out by Mella's description of the effect of the garden on the boys she works with in Goldenbough (p.63). Barbara's experiences with the autistic girls that she brings to the garden also reinforce this assertion (p.62). The garden provides a space for calm, for respite from the intensity of the classroom. Passy (2014) recognises that gardens have a "valuable function in helping some children negotiate their way through primary school. They offer children a chance to feel a sense of pride, to make a valuable contribution to the school, much as Mella's Friday morning boys, who she describes as the 'head gardeners' for the school.

Dyment and Bell (2008) also highlight improved social interactions, including co-operativity, communication and civility, when children are learning and playing in green school grounds. Many of the teachers in this study commented on the absence of discipline issues in the garden, the good behaviour of the children, the natural co-operativity and teamwork that emerged.

Susan and Don's experiences and narratives support Hanafin's recent study (2014) on Multiple Intelligences, educational exclusion and disadvantage, which advocates a broadening of the narrow social construction of intelligence, and calls out for discovering and valuing alternative strategies with which to deliver the curriculum. Don, in particular, recognised what he termed 'deeper learning' among the children when they are working outside. Susan spoke about how her eyes have been opened by the garden, realising sometimes children who struggle academically can excel at working with their hands, enjoy the achievement, and need to be shown that there are viable career options available to them as adults. This is reminiscent of Nel Noddings' argument for the ethics of care in education, that children's education should differ according to natural interests and abilities (Noddings, 2005).

A hub for community

Dyment and Bell's (2008) finding that school gardens are spaces which promote social inclusion is particularly relevant at Goldenbough, where the garden and associated activities, such as cooking and eating, provide a space for parents and children from immigrant or marginalised communities to get involved with the school community. This links also with Reay's (2010) study of social class and disadvantage, and the emphasis placed there on the benefits of intergenerational approaches. Reay also discusses the ability of gardens and natural environments to provide spaces that are unclassified and egalitarian. This is a theme that emerged strongly in the present study, where each of the teachers commented on the garden as a place where everyone was equal, a level playing field where everyone could participate.

A place of enjoyment

This connection with community is illustrated by the numerous celebrations that take place in the gardens studied here. Whether it is a Garden Party, Feast or Harvest Day, the gardens provide spaces to celebrate together, and a source of enjoyment for the

whole school community. Similarly, Passy's study (2014) points out that school gardens provide many opportunities for enjoyment, whether organised or spontaneous. This pleasure may come from working in the garden, or simply from enjoying the results of that work. Don's colleagues, who bring their cups of tea out to the garden to sit for 5 minutes at break time, understand and appreciate this.

Succeeding with a School Garden

One of the aims of this research was to draw on the knowledge and experience of the schools and interviewees in the study to highlight areas of good practice for the benefit of others.

Factors important for success

Both Ohly and Passy identify factors that contribute to the success of a school garden. For Ohly (2016) these include integration into core curriculum, inclusion of cooking or food preparation, and support from stakeholders (staff, volunteers, wider community). Passy (2014) also recognises the importance of strong support from senior management, key personnel to take responsibility for the garden, ensuring that garden-related tasks are manageable for staff, and giving garden activities a high profile in the school.

Based on the evidence in this study I would argue that Passy's factors are fundamental for creation of a school garden. A supportive school principal and a staff member keen to drive the project forward are essential to the initiation of a school garden project. This was the starting point for each of the schools in this study. Other stakeholders, particularly other teachers, need to be supported to see that the garden can help them achieve their goals, they need to be encouraged rather than challenged. Greenwood's garden curriculum is a fine example of this kind of support.

As time goes on, Ohly's factors come into play. It is only through becoming integral to the life of a school that the garden can thrive and flourish. Each of the schools in this study succeeded in doing this. Feasts and harvest days were common; food preparation and core curriculum were linked by activities such as Silverleaf's Soyer Stove adventure; parents and the wider community were valued and encouraged to participate, either as garden volunteers or as guests at one of the many celebrations.

Another important factor identified in the present study was the support received from external organisations. This may be in the form of educational resources or expertise, such as the Sow and Grow programme, or Heritage in Schools. But it also comes from building strong relationships with local authorities and local enterprises, and from making full use of opportunities provided by competitions and funding awards.

Factors identified as challenges

Ohly's review (2016) also identifies several challenges, including difficulty in recruiting and/or maintaining volunteers, pressure of work, overcrowded timetable and financial challenges.

An interesting point here is that, while the teachers in this study experienced all the challenges identified in the literature, they remain undeterred. They have either found that the perceived barriers were non-existent (e.g. risk) or they have found ways to overcome them (e.g. resources and funding). Fundamentally, there is a belief among them that the benefits far outweigh any challenges. This is an interesting perspective to see, and one that it would perhaps be useful to disseminate widely. Thus others, who may have had reservations about starting a garden, might be encouraged to 'have a go' based on the experiences of these veterans.

Emergent Themes

Young and Newly-Qualified Teachers

A concern that arose among the teachers interviewed was the lack of interest in garden or outdoor learning shown by younger or more recently qualified teachers. There is precedent in the literature for this, though from a single source. Passy, in her paper on school gardens (2014), mentions a deputy head teacher of a school that strongly encourages garden use who worries that younger staff are reluctant to bring children outside. In this case it is because they are focused on literacy targets determined by UK education policy. Passy describes this as a belief by newly qualified teachers that “children can only learn indoors in their classrooms, and that going outside is neither desirable nor practical”.

The pressure to deliver literacy and numeracy outcomes exists also in the Irish education system. It seems that young teachers need reassurance that gardens and outdoor spaces can be used to deliver these outcomes, along with many other benefits. There is a strong case to be made for an increased emphasis on outdoor and garden-based learning in Initial Teacher Education to reinforce this understanding, and in many cases to reconnect these students with the natural environment. There are some courses already in place, for example the Local Studies module of the B.Ed. programme at DCU, and until recently the Space to Grow elective on that same programme. However, more could be done to promote the inclusion of such modules in every ITE course. Without themselves connecting to nature, without gaining growing experience or skills, young teachers will remain unconfident and reluctant to bring children outside.

Transition, Change and Resilience

Passy (2014) suggests that the culture of a school plays an important part in decisions related to the garden, because it provides a framework for the level of integration of the

garden into school life. While the head teacher plays a key role in determining the school culture, everyone in the school community contributes. One notable theme that emerged over the course of this study was that of change and resilience. Many of the schools visited had undergone or were undergoing considerable change, whether to the physical fabric of the school, with new buildings and classrooms, or to the social fabric of the school, with the loss of key personnel. In each case forward thinking and strategic planning ensured that the future of the school garden was safeguarded, either through removal to a fresh site, restoration of the original site, or through the training or reward of replacement personnel. This demonstrates firstly, that these changes are not insurmountable, and secondly, the importance of the garden in the life of these schools. It is clear from these schools that the garden was intricately woven into the culture of the school, the dynamic context for teaching and learning that is driven by the principal and supported and expressed by the whole school community. Thus, when a garden is used and valued, it has the potential to become integral to that school and resilient to change and challenge.

The Use of Resources

There is a range of garden-related supports available to schools in Ireland (see Appendix 4). These come from a variety of different sources; government agencies such as Bord Bia (Food Dudes, Organic Gardening in Schools), commercial enterprises such as Innocent (Sow and Grow), non-governmental organisations and educational charities like An Taisce (Green Schools). It became apparent through the course of this study that many of the resources available are not being used widely. For instance, Bord Bia's Organic Gardening for Schools programme provides comprehensive lesson plans, garden guides and calendars, video tutorials and a range of other supports, yet none of the schools I visited were using any of these. In general, what schools appeared to value most was support in the form of a visiting expert, such as provided by the

Heritage in School programme or by an educational charity such as O.W.L.S.

Otherwise schools tended to rely on their own in-house expertise, developed through training opportunities or personal interest. This finding has implications for future investment in supporting and resourcing school gardens; it is important to note what teachers and schools require most – provision of expertise and/or continuing professional development of teachers.

Changing Perceptions

At the beginning of this study I outlined my desire as a teacher educator who is passionate about the value of outdoor learning to more deeply understand the context of the school environment, to gain insight into the value and benefits of school gardens from the perspective of the teachers that used them. This research enabled me to visit a number of schools and discuss with teachers and school principals at length a number of issues related to school gardens, outdoor learning, the primary curriculum, teaching and learning. I have found that these schools use their outdoor spaces imaginatively for a variety of purposes and in a myriad of ways. The distinction between outdoor learning and garden-based learning is blurred. Schools use their outdoor spaces to encompass both; as places for growing things, especially food, and as spaces for connecting with the natural world, either through observing and exploring nature, through play, or simply being outside in a natural environment.

Interestingly, Passy (2014) notes several advantages that school gardens have over other types of outdoor learning. School gardens are easily accessible; they are usually on-site or close to a school, so children can see and use them on a daily basis. Gardens are low cost; they require no transport and little equipment. With a little planning, gardens can provide year-round opportunities for teaching and learning. Thus they provide convenient, practical and accessible opportunities for children and teachers to engage with learning outdoors.

Study Limitations and Future Directions

The schools in this study varied considerably in their size and character. The size and form of their school gardens, and the way in which they were used, also showed considerable variation. Despite these differences, however, commonalities emerged across all of the interviews, which have been described earlier. This leads me to be confident that the themes identified are broadly applicable beyond the case studies in this research. This is supported by the extent to which the themes that emerged from this study reflect those of the research literature.

I have addressed issues of potential bias in Chapter 3. Also mentioned in that chapter was the necessarily restricted scale and scope of this study. The timeline was short and the sample size was small and geographically restricted. There are a number of additional approaches that have the potential to extend and support the findings from this research.

Firstly, an extension of the study to include interviews with other key stakeholders would allow a number of additional voices to be heard. Interviews with parents, children, and teachers not actively involved in the garden would provide a range of different views and perspectives that are missing from this study.

In addition, an extended partnership with case study schools would facilitate a longitudinal study of the garden and how it is used. Observation of garden activities could help determine the real extent of children's engagement with the garden.

In Passy's research and evaluation of the RHS Campaign for School Gardens (2014) schools were visited twice, and were given disposable cameras and diaries in which to record their activities between visits. This affords an additional layer of rich description and a trigger for memories and views that would be helpful to the research. The

collection of school documentation related to the garden, such as lesson plans, policy documents, garden curricula would further illuminate the ways schools integrate the garden into school life. This triangulation of research methods would be useful to support and consolidate the findings of the current study.

In Conclusion

It is apparent from this study that creating a garden can have “a ripple effect throughout the school” (Passy, 2014), as others enjoy the beauty of the garden and/or the produce that is harvested from it; this is labour that both figuratively and literally bears fruit. Teaching and learning in the school garden makes a valued and valuable contribution to children’s social, academic and personal development. This study also draws attention to those children who struggle with classroom learning, and the capacity of the school garden to offer respite for these children from the intensity of the classroom. The garden affords children a space to experience feelings of pride, achievement and belonging that may otherwise be lacking in their school experience. It is evident also that learning outside in the garden can be truly inclusive, in a way that is not always achievable indoors.

Further research, such as that outlined above, is necessary to build a picture of the pedagogies, processes and outcomes associated with garden-based learning, topics beyond the scope of the current project. This research is vital, not only to promote the use of the garden among teachers who are not convinced of its benefits, but also to convince policymakers of the value and benefits of school gardens to support the social, emotional and academic development of children in Ireland in the 21st century.

As a teacher educator, I now feel that my role in initial teacher education is to encourage and motivate the young teachers of the future to embrace the potential of school gardens as spaces integral to teaching and learning. The case studies presented

here provide me with tools, models and ideas with which to accomplish this. The results of this study provide ample evidence of the benefit for the whole school community of creating and cherishing a school garden.

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Appendices

Appendix 1: Letter of Introduction to School Principals

Dear Principal,

I am a teacher educator at Marino Institute of Education, and am currently working towards completion of a Master of Education degree. My thesis will be centred on the benefits and challenges of school gardening/growing programmes for primary education. As part of this, I would like to include several case studies of schools that have established school gardens and are using them successfully. My goal is to identify the features that make these initiatives effective and sustainable.

For each case study I would like to interview the school principal and/or a teacher that is actively involved with the garden. Interviews would last about 30 minutes and would be audio-recorded. It would also be useful to visit the garden/growing space and take photographs. I would not expect to interview or photograph the schoolchildren, given the ethical considerations that would involve.

Please let me know if you and your school would be willing to participate, and I will get in touch to arrange a suitable time for me to visit and hold the interview(s). I would hope to complete all visits by the first week of April 2017.

Many thanks and best regards,

Sandra

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Appendix 2: Schedule of Interview Questions

Section 1: Warm Up

- *Greetings, thanks, reiterate consent.*
- Can you give me some background information about the school?
 - *Size of school (pupils/teachers)*
 - *DEIS/Non-DEIS*
 - *Girls/Boys/Mixed*
- And about the garden?
 - *Size of accessible outdoor space*
 - *Size/Description of garden*

Section 2: Main Body

- How did the garden begin? Who was involved?
- Who maintains the garden now?
- Who uses the garden?
 - *Staff/Children/Wider community?*
- Who supports the garden?
- What level of funding has the garden received? How do you meet garden costs?
- How is the garden used?
 - *Formally (deliver curriculum), informally (nature etc incl breaks)*
- What educational resources do you rely on?
- How do you decide what and where to plant in the school garden?
- What plants/crops do you find work best with the pattern of the school year?

- Where do you go for advice?
- What limits your use of the garden?
- What challenges have you encountered? How have you met these challenges?
- What do think are the main barriers to working and spending time with children in the garden?
 - *Time, resources, support, risk management, curriculum overload*
- How do you manage/overcome these barriers?
- How do you manage risk in the garden and with garden activities?
- What do you think transfers to the children's home lives from the school garden? How does the school garden connect with the children's home lives?
- What do you see are the benefits of having the garden?
 - *Social/personal? Health/wellbeing? Academic?*
- How does the garden impact on children's social development, in your opinion?
- How does the garden impact on children's personal development, in your opinion?
- How does the garden impact on children's academic development, in your opinion?

Section 3: Cool Down

- How do you see the garden progressing in the future?
- What advice do you have for others?
- Is there anything you would like to ask me?
- *Offer thanks. Request tour, if not already given.*

Appendix 3: Declaration of Informed Consent

Schools Gardens Project Informed Consent Form: Interviews

Investigator: Dr. Sandra Austin

Thank you for agreeing to participate in this project, which I am undertaking as part of my Master of Education research thesis at Dublin City University (DCU). This interview will take about 30 minutes and will include questions regarding your experiences of and opinions about school gardens, in particular the garden at your school. The purpose of this research is to explore the benefits and challenges of school gardening/growing programmes for primary education. My goal is to identify the features that make these initiatives effective and sustainable.

I would like your permission to record this interview, so that I may accurately document the information you convey. If at any time you will to discontinue the use of the recorder, or the interview itself, please feel free to let me know. Your participation in this interview is entirely voluntary, and you may withdraw your participation at any time without consequence.

All of your responses will remain confidential. I will take all steps necessary to ensure any digital images or recordings produced are used solely for the purpose for which they are intended. The data collected may be used for dissemination in an educational context (journals, Teaching and Learning seminars and presentation at conferences). All data will be destroyed by me after project completion. Please feel free to ask questions and/or discuss the study with me further before you proceed.

Please sign below to indicate that you consent to participate in this study. Thank you.

I have read and understood the information in this form. The researcher has answered my questions and concerns, and I have a copy of this consent form. Therefore, I consent to take part in this research project.

Participant's Signature :

Name in Block Capitals:

Researcher:

Date:

Appendix 4: List of External Organisations for Growing Programmes

An Taisce

Green Schools Programme <https://greenschoolsireland.org/>

Bord Bia

Organic Gardening for Schools <http://www.bordbia.ie/consumer/gardening/organicgardening>

Food Dudes www.fooddudes.ie

Seedlings programme for primary schools

<http://www.bordbia.ie/consumer/gardening/seedlingsprogramme>

Innocent

Sow and Grow <https://innocentsowandgrow.com>

The Heritage Council

Heritage in Schools Programme <http://www.heritageinschools.ie>

Agri-Aware

Dig In Programme for Primary Schools <http://agriaware.ie/dig-in>

O.W.L.S. The Children's Nature Charity

Primary Schools Outdoor Programmes <https://www.owls.ie/>