Circular Food Education: Developing a food education programme based on sustainability, experiential learning and pleasure in Irish primary schools

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Abstract

This research explored how an expanded and sustained education about food within the primary school curriculum in the Republic of Ireland could be achieved. A constructivist ontology underpinned the project, with multiple theoretical frameworks related to constructivist learning and building agency, informing the study. A multi-method action research methodology was used, providing practical solutions through action, reflection, practice and theory. A narrative review of the literature and existing policy preceded three sections of fieldwork. A scoping consultation with key stakeholders was followed by the development and piloting of a food education programme entitled the Global Citizenship Food and Biodiversity Theme in eight primary schools over two years, in conjunction with Green-Schools. The third section of fieldwork verified and expanded the results within a research findings feedback workshop which included academics working in education, principals, teachers, trainee teachers, and two staff members from the National Council for Curriculum and Assessment.

The scoping consultation with key stakeholders highlighted a desire for a changed approach to food education in Irish primary schools. The key findings indicated that schools are in a unique position to influence and promote food education, but that an expanded approach to the current curriculum's principal focus on health and nutrition was required. The term 'circular food education' was coined to describe the approach to food education which was consequently developed. Circular food education encompasses experiential learning, sustainability and pleasure. It is grounded in theory and is an educational solution to tackling an array of social issues: building knowledge about climate change, biodiversity loss, and food waste, teaching practical food skills, as well as instilling the potential for children to become active citizens.

The development and piloting of the Global Citizenship Food and Biodiversity Theme illustrated how educational approaches that stem from constructivism could be put into practice. This theme included hands-on classes as well as building agency to think critically through the use of collaborative and social learning methods. Amartya Sen's capability approach was used as a theoretical framework to evaluate data generated from the pilot. The research findings feedback workshop indicated that increased circular food education would require support from the whole-school, a change in approach by government as well as teacher training to address confidence and agency, and the provision of suitable facilities. One of the outputs from the research is the Global Citizenship Food and Biodiversity Theme programme which is being implemented incrementally in schools on a nation-wide basis, with 120 locations to date. A limitation of the Global Citizenship Food and Biodiversity Theme is the two-year cycle of the Green-Schools flag system.

The thesis recommends a systemic policy change to food education in Irish primary schools. An embedded full-time approach within the primary curriculum would provide structure and scaffolding but requires a collaborative approach from all stakeholders. Until then, an increase in teacher training and developing teacher agency would be a suitable first step to increased food education in Irish primary school classrooms. Circular food education offers a model, which helps provide students with the ability to lead a life in which both they, and the natural world, could flourish.

Declaration

I certify that this thesis, which I now submit for examination for the award of PhD (Doctor of Philosophy) 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.

This thesis was prepared according to the regulations for PhD of the Technological University Dublin has not been submitted in whole or in part for an award in any other institute or university. The work reported on in this thesis conforms to the principles and requirements of TU Dublin's guidelines for ethics in research.

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Signature _____ Date _____

Acknowledgments

List of Abbreviations and Acronyms

AR – Action Research

CA- Capability Approach

CFE – Circular Food Education

DES - Department of Education and Skills

GIY – Grow it Yourself

GCFBT – Global Citizenship Food and Biodiversity Theme

HSE - Health Service Executive

MRQ – Major Research Question

NCCA- National Council for Curriculum and Assessment

ROI - Republic of Ireland

RSQ – Research Sub-questions

SAKGF - Stephanie Alexander Kitchen Garden Foundation

SAKGP - Stephanie Alexander Kitchen Garden Programme

SCKS – Scoping Consultation with Key Stakeholders

SPHE - Social Personal and Health Education

SESE - Social, Environmental and Scientific Education

UK - United Kingdom

UN SDG - United Nations Sustainable Development Goals

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Glossary of Terms

An Taisce

The National Trust for Ireland. It is a non-governmental organisation which advocates in the areas of the environment and built heritage. _An Taisce's_ Environmental Educational Unit operate the Green-Schools programme.

The Capability Approach

The capability approach is a theoretical framework which was used for analysis of the data gathered during the development and piloting of the Global Citizenship Food and Biodiversity Theme. It is a normative approach to human welfare that concentrates on the actual capabilities people have to achieve what is of value to them, well-being is of primary moral importance. Well-being should be understood in terms of people's capabilities and functionings. The approach was first developed by Amartya Sen (1933 -) in the late 1970s and advanced by Martha Nussbaum (1947 -) (Stanford Encyclopedia of Philosophy, 2020). Sen (1993; 1999) conceived it as an alternative to welfare economics and the more standardised ways for assessing people's well-being within a country, such as Gross Domestic Product and Average Household Income. These approaches he criticised as utilitarian in outlook, assessing and implementing the good for the most amount of people, rather than seeing people as ends in themselves

Flourishing

The term flourishing is drawn from Amartya Sen's capability approach; the primary focus of flourishing is on a person's capabilities rather than resources. Although overlapping at times with the concept of welfare, flourishing is different from welfare as it is based on a person's freedom to choose what is of importance to them, and to have the opportunity to live a life that they have reason to value. Sen conception of human flourishing is rooted in Aristotelian ethics (Walker, 2009).

Circular food education

Circular food education is an expansive approach to teaching about how food impacts our lives, the lives of others and the planet. It also means building capabilities and skills to use this knowledge to practice lifelong positive and pleasurable behaviours. I developed the term through the research, it incorporates food education that involves sustainability, experiential learning and pleasure.

Experiential learning

Experiential learning is learning where students actively engage with their surroundings and gain applied knowledge

through a process of experience and renewal. It is "learning in which the learner is directly in touch with realities being studied. It is contrasted with the learner who only reads about, hears about, talks about, or writes about these realities but never comes into contact with them as part of the learning process" (Keeton and Tate cited in Kolb, 2015, p. xviii).

Green-Schools

Green-Schools is Ireland's leading environmental management and award programme, working with primary and secondary schools across the country. It is part of Eco-Schools, which the largest global sustainable schools' programme (Eco-Schools, 2022). Eco-Schools was established in 1992 by the Foundation for Environmental Education. Every participating country has a national operator organisation who cooperates with the Foundation for Environmental Education and who is responsible for the implementation, monitoring, and certification of the Eco-Schools programme within that country (Eco-Schools, 2017). Within Ireland that programme is called Green-Schools and it is operated by *An Taisce's* Environmental Educational Unit.

Global Citizenship Food and Biodiversity Theme

Global Citizenship Food and Biodiversity Theme (GCFBT) is the name given to the two-year food education programme which I developed over the course of this research project. The programme is undertaken by schools who receive a Green-Schools flag, as an award, on completion. The GCFBT encompasses the elements laid out in the description of circular food education. The participating schools undertake a number of tasks, projects and workshops which are outlined in appendix A. I developed these through a series of participatory action research workshops with students and engagement sessions with teachers and Green-Schools staff members. Green-Schools renamed the Food and Biodiversity Theme which was piloted to The Global Citizenship Food and Biodiversity Theme because of funding for global citizenship education.

Pedagogy

Understandings of pedagogy differ between educational disciplines (Kemmis and Smith, 2008). For this research project the term was understood as both the method and practice of teaching, both how and why an educator influences the learning (Sandri, 2022). Pedagogy is "informed by theories, beliefs and dialogue, but only realised

in the daily interaction of learners and teachers in real settings" (Leach and Moon, 2015, p. 6). In Paulo Freire's concept of pedagogy (2017), teachers are not the single source of knowledge but are engaged in helping students move from passive recipients to active creators of ideas. It is dynamic process that is constantly reworked. Trigwell, Prosser, and Waterhouse (1999) state that pedagogy is an educator's construction, philosophy and beliefs about their practice. It is the educator's worldview or 'lens', in the context of learning and teaching, "which shapes the way they see their practice, the role of education, and the processes and purposes of learning" (Sandri, 2022, p. 118).

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Chapter 1. Introduction

1.1 Introduction

This chapter provides context for the research before outlining the major research question, and the research sub-questions (Bottery and Wright, 2019). The research design and the theoretical underpinning are presented, before introducing the term circular food education (CFE), which was coined to articulate the approach to food education that is proposed. The chapter then presents my background within the food industry and my positionality within the research before giving an account of the delimitations. Since this chapter presents an expression of personal experiences and beliefs, the use of the first person is justified (Richards and Miller, 2005), which is discussed in more detail in section 1.7. The chapter ends with an outline of the contents of the seven subsequent chapters.

Schools are in a unique position to influence and promote food education for young people (Smith, Wells and Hawkes, 2022) and can play an important role in reinforcing lifelong positive food choices (Laska *et al*., 2012; Nicklaus *et al.,* 2004; Murimi *et al*., 2018). They are also one of the few public services which are near-universal, which means that using schools as a vehicle allows for the targeting of the population as a whole (Dolan and O'Reilly, 2016). The majority of existing food education in Irish primary schools is located within the subject of Social, Personal and Health Education (SPHE) (National Council for Curriculum and Assessment, 2017). It promotes a health perspective; students learn about the nutritional value of food in terms of their own growth and development needs. However, evidence suggests that providing nutritional information alone is not sufficient to create long term health benefits (Velardo and Drummond, 2019; Maher *et al*., 2019; Karpouzis *et al*., 2021; Jones, *et al*., 2012; Werle, Trendel and Ardito, 2013; Batat *et al.*, 2019; Bedard *et al.*, 2020; Cornil and Chandon,

2016; Huang and Wu, 2016; Marty *et al.*, 2018; Trudel-Guy *et al.*, 2019). After concluding this research, I argue for an expanded approach to food education coined CFE, and encapsulating sustainability, experiential learning and pleasure. The term CFE is explained in section 1.3.

Government policy in relation to food in Irish schools crosses various departments. For example, the Department of Health provides healthy eating guidelines, the Department of Employment Affairs and Social Protection funds school meals, the Department of Education and Skills (DES), under the guidance of the National Council for Curriculum and Assessment (NCCA), prescribes the curriculum, the Department of Children and Youth Affairs advocate for the children within the schools and the Department of Agriculture Food and the Marine fund fruit and vegetable tasting, and other food education initiatives.

There is a growing body of literature on food education from an international perspective (Smith, Wells and Hawkes, 2022; Ballam, 2018; Hersch *et al.*, 2014; Andersen, Baarts and Holm, 2017; Sandell, *et al.*, 2016; Olsen, 2019; DeCosta, 2017; Muzaffar, Metcalfe and Fiese, 2018; Lichtenstein and Ludwig, 2010; Nelson, Corbin and Nickols-Richardson, 2013) yet there is a lack of literature on food education within Irish schools (Darmody, 2023; Darmody, 2021; Darmody, 2022; McGowan, 2021a; McGowan, 2021b). This research provides an original contribution to this literature by presenting a novel and innovative way to educate about food, one that is based on sustainability, pleasure and experiential learning. While experiential learning can be challenging for teachers (McCoy, Smyth and Banks, 2012), the reported benefits of using experiential learning in classroom settings are convincing and shows a need to determine ways in which such activities might be developed and implemented (Dewey, 1997; Allirot *et al.*, 2016; Knapp *et al.,* 2018; Nelson, Corbin and Nickols-Richardson, 2013). The research found that support is needed from the whole-school, from teacher training

colleges, the Department of Education and Skills (DES) and the National Council of Curriculum and Assessment (NCCA) to allow food to become an effective educational tool within Irish primary school classrooms.

A major research question (MRQ) was developed along with four research sub-questions (RSQs) which helped to orientate the research. This format was developed from Bottery and Wright, (2019). It was chosen over a format which presents a hypothesis (Bryman, 2016). A hypothesis is a prediction rather than a question and "imposes restrictions on the type of answer one can gain; the hypothesis can only be either accepted or rejected" (Bottery and Wright, 2019, p. 14). An alternative format would structure a thesis using aims and objectives rather than an MRQ and RSQs. Bottery and Wright (2019) state a number of weaknesses in this approach. "Aims are usually a statement of fairly general intentions ... Much of the same problem comes with objectives; they can all too easily become a wish list of a range of potentially tangential issues which the researcher would like to explore" (2019, p. 17). A question however admits the possibility of a range of answers, allowing for a more nuanced encounter with life (Bottery and Wright, 2019). This format aligns with the relativist ontological approach taken throughout the project (Hoffman and Kumar, 2020) accepting that there may be multiple views of reality. This is also in keeping with the main ontological values of action research (AR). Ontologically, action research is concerned with states of reality that are dynamic and changeable by human agency (Coghlan and Brydon-Miller, 2014).

The major research question (MRQ) is:

Could the development of a food pedagogy, based on sustainability, experiential learning and pleasure, improve the capabilities of Irish primary school children?

This MRQ led to the following research sub-questions (RSQs):

- **RSQ 1**. What does the literature and stakeholder opinion reveal about current food education in Ireland and elsewhere?
- **RSQ 2.** What is the rationale for changing the approach to food education in Irish primary schools?
- **RSQ 3**. What could a model of food education based on sustainability, experiential learning and pleasure look like?
- **RSQ 4.** What would be the benefits of developing and implementing such a model within the Irish primary school system?

The MRQ evolved from an understanding that food has wider implications than sustaining health, it impacts climate change (Springmann *et al*., 2018; Jones *et al.*, 2012; Smith, Wells and Hawkes, 2022; Willet *et al.,* 2019), and culture (Huang and Wu, 2016). The research involved developing an education programme grounded in experiential learning and student-led project-based work, which aimed to build efficacy and develop students' capabilities (Sen, 1993). The Global Citizenship Food and Biodiversity Theme (GCFBT) is the name given to the food education programme (see appendix A). The recommendations in the final chapter of the thesis intend to provide a framework for primary teachers to have the capacity to implement circular food education (CFE) in the classroom.

1.2 The Research Design

Due to the diversity of stakeholders and the complexity of the issue, a multi-method action research methodology was used throughout the research. The research was designed to be iterative, in keeping with an action research (AR) rationale where a phenomenon is repeatedly analysed in ever greater depth (McNiff, 2017). The research design was informed by Reason and Bradbury's (2012) definition of three perspectives of action research. The formulation of action research that Reason and Bradbury (2012) developed is important because it connects

action with democratic participation and development (Constantinou and Ainscow, 2020). The three perspectives of action research are summarised as follows:

1. 'First person practice', where the researcher is concerned with a personal agenda. This type of inquiry is formed through self-reflection and individual action.
2. 'Second person practice', where the researcher comes face-to-face with others in dealing with matters of mutual concern. This type of inquiry starts with personal dialogue and includes the development of a community-led inquiry.
3. 'Third person practice', in which the researcher aims to involve others who may not meet face-to-face, for reasons such as wide geographical location, to create a wider community inquiry. This type of inquiry has a more political emphasis, as it draws together voices from the dominant discourse with those from the margins in addressing more general issues and public policies. (Adapted from Reason and Bradbury, 2012)

Second person practice was engaged throughout this research, and a triangulation of methods converged on the model applied to the study, further information of which is available in Chapter 4, sections 4.5 and 4.7. By using two or more independent measures, triangulation attempts "to map out or explain more fully the richness and complexity of human behaviour by studying it from more than one standpoint" (Cohen, Manion and Morrison, 2007, p. 141).

Three research steps were designed to answer the MRQ and the four research sub-questions (Figure 1.1). Step One was to 'Diagnose and Plan'. This entailed conducting a narrative review of literature, a process which also informed the theoretical underpinning for the project. Within Step One, a scoping consultation with key stakeholders (SCKS) (Darmody, 2023) was conducted because it allowed the researcher to diagnose what was of importance to the stakeholders, as well as providing up-to-date information on the topic. The participatory nature of the scoping consultation allowed for the exploration of novel approaches to embedding food education into the Irish primary school system.

Step 1		Step 2		Step 3
Diagnose and Plan		**Act and Observe**		**Evaluate**
Literature Review Scoping Consultation with Key Stakeholders	Theoretical underpinning Analysis of the current state of play in relation to food in Irish society	Development and piloting of Green-Schools Food and Biodiversity Theme		Research Findings Feedback Workshop
SRQ 1. What does the literature and stakeholder opinion reveal about food education in Ireland and elsewhere?	SRQ 2. What is the rationale for changing the approach to food education in Irish primary schools?	SRQ 3. What could a model of food education based on sustainability, experiential learning and pleasure look like?	SRQ 4. What would be the benefit of developing and implementing such a model within the Irish primary school system?	Recomendations for embedding circular food education into Irish primary school classrooms

Figure 1.1. The Three Steps in the Research Design

"Dialogue and the development of a community-led inquiry" (Reason and Bradbury, 2012, p. xx) informed both the SCKS and the RFFW. In both these cases of inquiry active participation of stakeholders enabled critical questioning from different perspectives (Constantinou and Ainscow, 2020). Participatory action research workshops, reflective notes and teacher evaluation sheets provided the basis for the development of the GCFBT programme (Darmody, 2022). Participatory action research is conducted in conjunction with people as opposed to on people (Cohen, Manion, and Morrison, 2007) and is associated with the work of Paulo Freire (1921-1997) (McNiff, 2017). Freire promotes a progressive role for the school, one that encompasses a pedagogy which is based on critical inquiry (Beckett, 2018).

A reflexive thematic analysis was conducted on the data from the SCKS (Darmody, 2023), which is presented in Chapter 4, section 4.13.3. There is a theoretical flexibility to this form of

analysis which made it more suitable than approaches which hold embedded theoretical assumptions. The reflective approach to thematic analysis allowed for an active role in the knowledge production (Braun and Clarke, 2019), as it relies on the researcher's interpretive analysis of the dataset, as well as their theoretical assumptions and analytical skills (Braun and Clarke, 2019). Six themes were decided upon and are documented in Chapter 5, in section 5.2. These themes were then later used to take a deductive approach to the data from the research findings feedback workshop (RFFW). Keeping a reflective journal helped to enhance critical self-reflection and self-awareness throughout the three steps (May and Perry, 2017). The triangulation of literature, theory, and the data from the SCKS facilitated the planning and implementation of Step Two, 'Act and Observe'. For this step the food education programme entitled GCFBT, was developed and piloted.

As part of the research design a five-phase AR cycle was developed for the piloting of the GCFBT and was conducted in Step Two. This is illustrated in Figure 4.4. The cycles were influenced by Susman and Evered (1978), O'Leary (2004), and Kemmis and McTaggart (2005). This is outlined in Chapter 4 section 4.2 and a diagram is provided in Figure 4.4. Participatory action research workshops were included in the design. The capability approach (CA) was used as a framework for analysis of the GCFBT data. As a theoretical framework it entails two core claims: "first, that the freedom to achieve well-being is of primary moral importance, and second that this freedom is to be understood in terms of people's capabilities" (Hannon, Fass and O'Sullivan, 2017, p. 1225). The CA upholds values of emancipation and empowerment (Walker and Unterhalter, 2007), which compliments the basis for an action research (AR) rationale.

Feedback on the results from Step One and Step Two was gathered through a research findings feedback workshop (RFFW) in Step Three, 'Evaluate'. The RFFW was hosted in St Patrick's

College, which is Dublin City University's teacher training college. Participants in the workshop included academics working in education, principals, teachers, trainee teachers, as well as two staff members from the National Council for Curriculum and Assessment (NCCA) (Table 4.20 in Chapter 4). The data collected at the RFFW was evaluated and analysed using a deductive thematic analysis (Chapter 4, section 4.13.3).

As part of the research design, external facilitators were engaged at two stages during the research project. Firstly, during the SCKS and then during the RFFW. On both occasions they helped to ensure the smooth running of the day, further details of which are provided in Chapter 4, sections 4.13.2 and 4.15.2. This method allowed me to take observation notes while the facilitator took care of the practicalities, such as organising food, procuring tables, flip charts and hosting the ice breaker sessions in keeping with the researcher's instructions. Further details of those involved in the various stages of the research are shown in Table 1.2.

1.3 Linking the RSQs to the Research

Figure 1.1 shows how the RSQs linked to the three steps of the research. The scoping consultation with key stakeholders (SCKS) addressed RSQ 1 and RSQ 2 by helping to establish stakeholder opinion on the need for increased and sustained food education on the Irish primary school curriculum. There were representatives from four government departments, as well as forty-two representatives from other key organisations which are listed in Table 4.5. A need for increased food education was established, and the stakeholders then explored ways to achieve a more sustained approach to food education. The themes generated from the reflexive thematic analysis informed the basis for CFE which is detailed in Chapter 1, section 1.6.

The development and piloting of the Global Citizenship Food and Biodiversity Theme (GCFBT) formed the basis of the answer to RSQ 3. The analysis of the data generated during development of the programme, addressed RSQ 4 as it allowed for elements of CFE to be tested and put into practice.

1.4 Theoretical Underpinning

A constructivist ontology underpinned the research project, accepting that knowledge is built through action and hands-on learning. A multi-method action research methodology was used throughout, which helped to provide practical solutions through action, reflection, practice and theory (Bradbury, 2015). The key theorists who underpin the research are listed in Table 1.1 and their influence on the work is presented in further detail in Chapter 3. John Dewey (1895 - 1952) and his interest in using food as a tool for teaching, as well as his focus on experiential learning was a starting point. This was bolstered by Maria Montessori's (1870-1952) use of real implements in the classroom, her work influenced the formation and content of the GCFBT. Jean Piaget's (1896-1980) theories emphasised how children build knowledge and ascertain that certain actions and tasks are suited to children at various ages, while David Kolb's (1939 -) experiential learning cycle provided a model for how learning can happen and be built upon through active experimentation, reflection, concrete learning and abstract conceptualisation. Both theorists influenced the reasons behind developing different actions for children in varying class groups. Students do not just build their own knowledge; they also learn through interaction with peers or adult guidance. Lev Vygotsky's (1896-1934) social constructivism presents a way of viewing this relational side of learning and Albert Bandura's (1952-2021) social cognitive theory adopts an agentic perspective to development, adaptation, and change (Bandura, 2002). Freire believed that learners should act to emancipate themselves through education and encouraged the development of critical consciousness (Freire, 1984),

which greatly influenced the inclusion of critical questioning into CFE. He emphasised the concept of praxis when he presented his educational theory, he describes it as reflection and action upon the world in order to transform it (1984). Students use their newfound knowledge and political consciousness to employ agency and challenge oppression (Orlowski, 2019).

Gert Biesta (1957-) defines not just learning, but education. "Education is *not* that students learn, but that they learn *something*, that they learn it for particular *reasons* and that they learn it *from someone"* (Biesta, 2010, p. 4). Basil Bernstein (1924 – 2000) provided a lens to examine the pedagogic changes required to achieve transformation through learning. Anthony Giddens (1938-) posits that structures effect agency particularly within education. Pierre Bourdieu (1930-2002) was also used to underpin the ideas behind social reproduction.

Constructivist Education			
John Dewey 1895-1952		Maria Montessori 1870-1952	Gert Biesta 1957-
Building Knowledge			
Jean Piaget 1896-1980	Lev Vygotsky 1896-1934	Basil Bernstein 1912-2000	David Kolb 1939-
Building Efficacy			
Paulo Freire 1921-1997	Albert Bandura 1925-2021	Amartya Sen 1933- Martha Nussbaum 1947-	Anthony Giddens 1938-
Social Reproduction		Conviviality	
Pierre Bourdieu 1930-2002		Ivan Illich 1926-2002	

Table 1.1 Key theorists

The opportunities for the person to flourish are placed at the centre of the capability approach (CA) pioneered by Amartya Sen (1933-) and further developed by Martha Nussbaum (1947-). The more standardised ways for assessing people's wellbeing within a country such as Gross Domestic Product and Average Household Income are utilitarian in outlook, assessing and

implementing the good for the most amount of people, rather than seeing people as ends in themselves. While income does have obvious value, within the CA it is seen as "instrumental value – value as a means to the realisation of other ends" (Comim, Qizilbash and Alkire, 2008, p. 10). The CA acknowledges people as the primary objects of concern. Achieving wellbeing is seen as a good in and of itself, and there is recognition of the dignity of the human being and their right to flourish (Alkire and Deneulin, 2018). Freire argued that people who are the focus of research have a universal right to participate in the production of knowledge (1984). Learning from, and engaging with, the child's perspective was imperative throughout the project. Harnessing a youth voice, specifically in areas that pertain to their own wellbeing can add not only vibrancy to a research project but involving young people in decisions that are relevant to their lives can have a democratising effect and lead to projects or policies that are eventually more relevant and sustainable.

The three capabilities that were increased through participation in the GCFBT were critical thinking, imaginative understanding and world citizenship; all three draw on aspects of CFE. Conviviality was a theme that also emerged strongly in the data, particularly from the RFFW, it was also threaded throughout the SCKS and the data from the GCFBT. The data highlighted the lack of opportunities to practice conviviality in the schools; both due to a lack of time for the children to eat and enjoy food together, and a lack of ability to develop prosocial skills due to no instances of food sharing within food education. Links can be drawn between imaginative understanding of others and conviviality, as both have a foundation in empathy. Ivan Illich (1926-2002) gives us one understanding of conviviality, seeing it as tool needed to reclaim personal freedom, and to find a way to better care for one's needs in an increasingly mechanised world, where people's capacity to connect with themselves and others is blighted (Illich, 1973).

1.5 Timeline of the Research

A timeline is shown in Table 1.2 which presents key dates over the course of the five-year research period and demonstrates how COVID-19 impacted the flow of events. Additionally, an overview of the elements of the research are presented in Figure 1.2.

2 0 1 8	Jun	Sept	Oct	Nov	Dec
	Exploring literature Noting the prevalence of the Green-Schools initiative in Irish schools	Starting to draw up a list of stakeholders for the Scoping Consultation. Purposive sampling conducted in conjunction with Michael Kelly from the non-profit social enterprise Grow It Yourself (GIY) who work to promote food growing in schools. Meeting with the Director of An Taisce Education Department. Child protection training	Ethics application submitted outlining proposed action research within schools and details of the proposed Scoping Consultation	Research integrity training Meeting with Green-Schools staff. Mapping out general ideas for a food education programme Invitations sent to Scoping Consultation stakeholders	Pinpointing the Green-Schools pilot and control schools. Hosting a teacher consultation session

2 0 1 9	Jan 22nd	Jan - Mar	Mar- Jun Sep–Dec	Sep 25th	Nov
	Scoping consultation with key stakeholders hosted in Grangegorman TU Dublin	Ethics Approval Global Citizenship Food and Biodiversity Theme Survey developed and administered within 8 pilot schools using Survey Monkey software GCFBT School visits Mapping exercise using Survey Monkey software conducted with Scoping Consultation stakeholders Survey in 2 control schools	Global Citizenship Food and Biodiversity Theme Workshops conducted, and the programme developed through an iterative process Reflective journaling throughout Evaluation sheets collected from Green-Schools staff and teachers.	Meeting with the Minister for Education and Skills Joe McHugh in Leinster House	Visit to Stephanie Alexander Kitchen Garden Foundation, Australia

2 0 2 0	Jan - Mar	Mar	**June**	Sep–Dec
	Global Citizenship Food and Biodiversity Theme Workshops conducted, and the programme	COVID –19 school closures	Evaluation sheets collected from Green-Schools staff and teachers.	Chef recruitment through Euro-Toques and Chef Network.

2 0 2 1	Jan - March	April
	developed through an iterative process			On-line presentation of students' global food projects

2 0 2 1	Jan - March	April
	Meeting chefs online Online cooking classes facilitated by chefs and linked live within classrooms.	Maternity Leave

2 0 2 2	Jan	Jun 28th
	Return from maternity leave	Research workshop St Patricks College, DCU

Table 1.2 Timeline and Key Dates
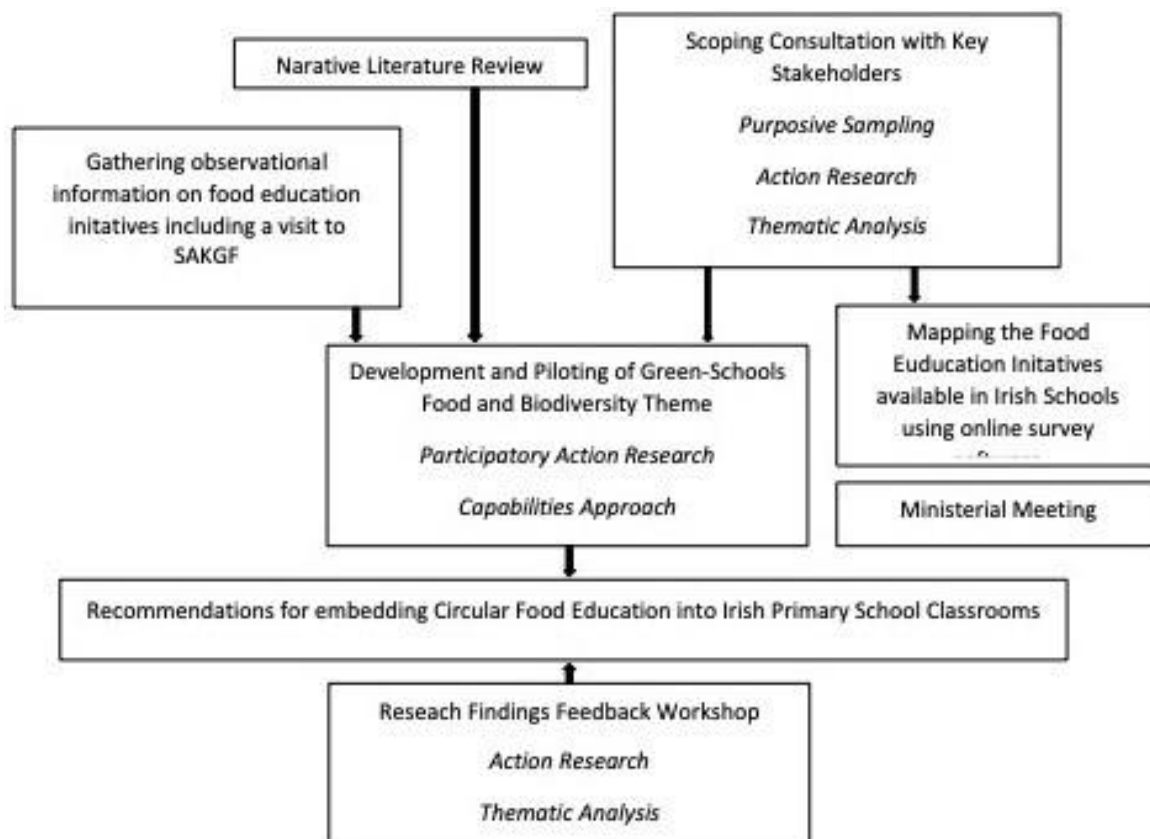
Figure 1.2 An Overview of the Various Elements of the Research Project

1.6 How the development of the GCFBT was situated within the Research Design

Eco-Schools is the largest global sustainable schools programme, with over 16 million students taking part in their environmental educational projects (Eco-Schools, 2022). In Ireland, this is known as Green-Schools and run by *An Taisce* Educational Unit. Prior to this research, Green-Schools had nine themes which develop competencies in relation to issues of sustainability. I approached the Director of *An Taisce* Education Department to ascertain if Green-Schools would be interested in adding a new theme focusing on food and the food system. I argued that none of the existing themes dealt with food, or its links to sustainability and climate change (Springmann *et al*., 2018) in sufficient detail. The Director of *An Taisce* Education Department and I decided that I would develop and pilot a tenth Green-Schools theme, one focusing on food and biodiversity. In keeping with the action research methodology, the programme was developed with the children and teachers in the eight pilot schools, who are directly implementing and experiencing education within the classroom. This process is presented in Chapter 4 section 4.13 and the findings and analysis are presented in Chapter 6.

A programme such as GCFBT, which increased environmental awareness, as well as increased biodiversity on school grounds, helped to address a number of the targets set out by the Irish Government's Sustainable Development Goals (SDGs) implementation plan. The SDGs produced by the United Nations (UN) after a global consultation process, are "a universal call to action to ... protect the planet and improve the lives and prospects of everyone, everywhere" (United Nations, 2020, url). Food production is intertwined with concerns about climate change. How people eat now and, in the future, has a large impact on our environment. Food production is a major contributor to Ireland's greenhouse gas emissions, and approximately 800,000 tons of food is wasted in the country each year (Environmental Protection Agency, 2022a). Water and air quality are impacted by large scale food production and farming

(Environmental Protection Agency, 2022b); these figures help to provide the context in which the GCFBT was developed.

Since the completion of this research the GCFBT is being rolled out nationwide. It will incrementally be implemented in the 93% of Irish schools registered with Green-Schools. The GCFBT was awarded funding through RETHINK Ireland social innovation fund. The programme also won the Irish Food Writers Guild Community Food Award, which is given to an individual, business or other entity involved in food that, in the opinion of the Guild, is outstanding in the way that it embraces an ethos of social responsibility. The research has shaped debate by engaging with key stakeholders and has added to the discourse about food education in an Irish context through peer-reviewed journal articles (Darmody, 2021; Darmody, 2022), as well as various contributions in the national media. An Irish Food Writing Award for a contribution to writing about sustainability, was in direct relation to writing about the research for national newspapers. After a report outlining the findings from the SCKS was forwarded to the Minister of Education and Skills he met with me to discuss the topic; the meeting is documented in Chapter 5 section 5.4.

1.7 An Introduction to Circular Food Education

Circular food education (CFE) (Figure 1.3) is designed to build knowledge about climate change, biodiversity loss, and food waste, increase food skills, and instil the ability to become an active citizen who can critically reflect on how food impacts the world. Rather than instigating personal behaviour change (DeCosta *et al*., 2017), it is intended to foster an ability to view food within a broader system through experiential learning and critical thinking. The manner in which students engage with the world today impacts their future, and every person, of every age will engage with the food system numerous times a day. CFE provides students

with the capacity to reflect on the modern food system and how it affects the world around them. John Dewey's conception of education as continuous growth and reconstruction was considered throughout. There was a commitment to experiential learning and collaborative development between teacher and student. CFE espouses a relational form of education which moves away from the stratification that an over emphasis on exams can cause (Brown *et al*., 2018; Burns *et al.*, 2018). It places food education within the local, national and international conversation which focuses on the impact of food on sustainability and the environment.
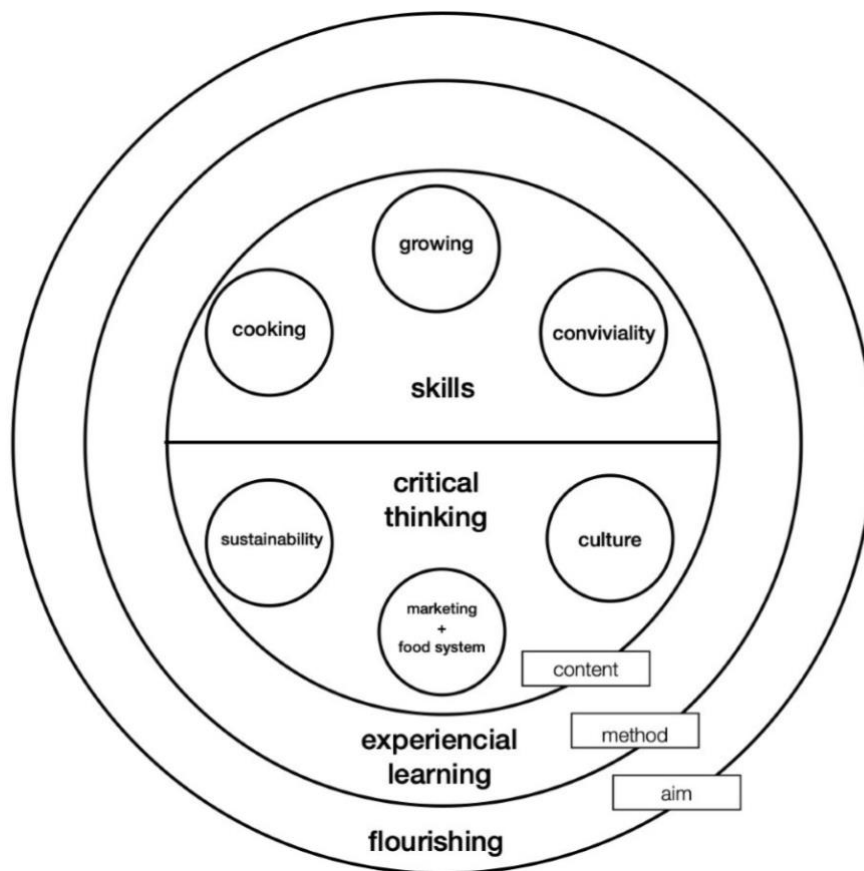
Figure 1.3 Circular Food Education

The term circular was used as a reference to the circular economy because CFE draws heavily on sustainability practices. Anxiety over climate issues is prevalent among young people (Wullenkord, 2021; Harms, 2021). The universality of food allows educators to present sustainability education (Sterling, 2003) in a relatable manner, one that can be seen to have

positive results. CFE is nonlinear, as each aspect feeds into the next and helps to build a rounded approach to food, using enjoyment and pleasure rather than a didactic narrative. Literature suggests that incorporating pleasure into food education can have a greater effect on behaviour and long-term healthy food choices, than simply providing nutrition information alone (Werle, Trendel and Ardito, 2013; Batat *et al.*, 2019; Bedard *et al.*, 2020; Cornil and Chandon, 2016; Government of Canada, 2019; Huang and Wu, 2016; Marty *et al.*, 2018; Trudel-Guy *et al.*, 2019). This literature also shows a growing international interest in pleasure as a motivating force for well-being and a positive stimulus for creating an enjoyable approach to nutritious food choices.

1.8 My Background

My background is presented because the person of the researcher, their likes and dislikes, their background and pastimes, their vested interests and expectations are acknowledged as being central to the research process (Bryman, 2016). The choice of action research reflects this assumption (McNiff, 2017). The first person is used within the introductory chapter because an expression of personal experiences and beliefs are presented (Richards and Miller, 2005). Overtly situating myself within the research allows for a contemplative realm of thought that is active not passive (hooks, 2000). A researcher's personal beliefs, biases, and values can also create limitations within research (Creswell and Poth, 2018) and being reflective aids in acknowledging these limitations. Keeping a reflective journal throughout the research process helped me to scrutinise and challenge potential biases and values (Dosemagen and Schwalback, 2019); there are further details of my journaling in Chapter 4, section 4.7.

In 2005, while convivium leader for Slow Food Dublin, I embarked on a schools' education project with Fiona Corbett (then co-owner of Sheridan's Cheesemongers) and Ruth Hegarty

(then Secretary General of Euro Toques Ireland), entitled Children's Healthy Eating Workshops - CHEW. We visited ten schools nationwide, cajoled cheesemakers, bakers and food growers to join us in teaching children their respective skills and doing various food education workshops. Unfortunately, other priorities took precedent, and we ran out of steam. After our visits, the teachers in the ten schools relayed encouraging stories of healthier lunch boxes, increased attentiveness and more conviviality amongst their students. Despite the positive feedback, we realised our method was not sustainable even with the backing of both Slow Food and Euro Toques, and funding from The Taste Council of Ireland. It made me consider the need for a more far reaching and systemic approach to food education within schools. This research, which was funded by a TU Dublin College of Arts and Tourism scholarship, allowed for an exploration of a novel approach to food education.

I bring experience to the research based on extensive reading and lived involvement which is food industry-based and of personal interest. It was my keen interest in food that led me to set up two food businesses, as well as becoming a weekly food writer for *The Irish Examiner*. Within my food businesses my ethos was evident, there was a reliance on local food producers and making everything from scratch on site. I followed a 'good, clean, fair' Slow Food ethos and became involved in teaching baking and cooking in local schools. I believe that food is a powerful tool for creating change in society and have been involved in activism and advocacy. I founded a social enterprise called Our Table to highlight the failings in the Irish system of Direct Provision, a series of state funded reception centres where people seeking asylum reside until their application is processed (Citizens Information, 2021). This interest in advocacy made action research a natural choice, as the desire to create change is at the projects core.

Even though I have worked all my adult life in the world of food, both in Ireland and abroad, I completed a bachelor's degree and then a master's degree within the field of Art and Design Education. At times this put me at a liminal standpoint, between disciplines when researching for this thesis. I found myself gravitating towards methods and ways of thinking that are related to art practice. Dewey states that "the artist does his thinking in the very qualitative media he works in, and the terms lie so close to the object that he is producing that they merge directly into it" (2009 [1934], p. 15). By using action research, I was deeply embedded within the research. Kolb (2015) outlines a comparison of arts education and what he terms management education. "The text driven approach to management education contrasts with the experiential learning process of demonstration-practice-production-critique that is used in most art learning classes" (Kolb, 2015, p. 294). By embedding myself directly into schools, data was collected that were nuanced, grounded in experience and at times unpredictable.

I take a constructivist approach to education believing that knowledge is built through experience. This is influenced by Freire's concepts of pedagogy, in which teachers are not the single source of knowledge but are engaged in helping students move from passive recipients to active creators of ideas. I advocate a participatory, dialogic approach within the classroom which aims to foster a curiosity to learn and to create a safe environment where ideas can be shared. I believe this can be done by building confidence through guided discursive conversation, nurturing students and allowing them to familiarise themselves with their peers, and by instigating group projects and round table discussions. In the case of primary students, age-appropriate versions are necessary.

1.9 Positionality within the Research

Positionality refers to the stance or positioning of the researcher in relation to the social and political context of the study, it is the disclosure of how racial, gender, class, or other experiences, and privileges affects each phase of the research process (Coghlan and Brydon-Miller, 2014). My positionality as a middle class, college educated researcher immersed in the world of food required constant attention. I could be described as what Earl (2018) calls a "foodie" and would like to acknowledge this at the outset. A foodie has a "particular bias regarding the importance of food and the role food plays in our lives" (Earl, 2018, p. xviii). While I hold a view in line with the capability approach, that achieving wellbeing is seen as a good in and of itself (Sen, 1993), I do have a bias that certain foods lead to greater wellbeing. I tend to gravitate towards food that has been minimally processed and is therefore closer to nature, and that is created with consideration for the environment and for those who produce it. I am also keenly aware that this food can come at a higher price point and not everyone can afford it, so the development of the programme focused on the building of capabilities and skills through experiential learning and pleasure rather than presenting value judgments on food choices.

"Action research is value-laden and morally committed. This is different from the dominant traditionalist assumption that research should be value neutral (McNiff, 2017, p. 42). My choice in using an action research methodology was informed by my values in relation to sustainability and climate action, which align with the UN SDGs (United Nations, 2020). I see education as a positive tool to help implement these goals. The field of human development within the United Nations is greatly influenced by the work of Amartya Sen (Walker and Unterhalter, 2007) which made the capability approach an appropriate choice as a framework for analysis.

The constructivist paradigm ontologically emphasises how an individual actively constructs their own notions of reality and there is an understanding that people create meaning in diverse ways (Crotty, 1998). This aligns with my values of respect and egalitarian participation which are informed by my life experiences presented in section 1.7. Creating social change for the common good is at the heart of action research (Ness and von Heimburg, 2020). The social determinates of health have a direct impact on a person's wellbeing and likelihood of developing diet related chronic illnesses (Raphael, 2006; World Health Organisation, 2023; Deane, 2021). Food insecurity and people's access to nutritious food needs to be addressed on a nationwide scale. Food education is not a panacea, it cannot alter the social determinates that students face. Schools and education are one element within a more complicated food system. While change is at the heart of the project, a universal education which builds skills and capabilities for all is being advocated, not one that focuses on those children seen as 'problematic' (Caraher, 2016; Flowers and Swan, 2012). The discourse of 'foodieness' can often be motivated by the desire to do good to others (Guthman, 2008; Flowers and Swan, 2012), and there was a constant reflection on this and the problems that could arise when I have a prelection for certain types of foods and methods of production.

There was a continuous attempt throughout the project to ensure an equal exchange by keeping children's autonomy and opinions in mind, as seen in Chapter 6. Grant Kester writes of an arts-based practice, although the same may be said for any form of research with children:

> Uneven power relations were further amplified when artists [in this case researcher] engaged with young people, often positioning them as flawed individuals to be fixed, with young people perceived to be 'malleable' and thus also vulnerable to manipulation on the part of well-meaning artists and well-intentioned art projects, which often mitigate against equal exchange in proposed collaborations (Kester, 1999/2000).

Developing a research design that included participatory action research workshops with children as well as continuous reflection on my position as the researcher, through reflective journaling helped to mitigate the inequality.

1.10 The Scope of the Research and Delimitations

Initially the research was intended to focus on the Irish school system, to attempt to build an evidence base for providing food education to all Irish school students. Very quickly this was narrowed down to investigating and instigating change within Irish primary schools (when Irish and Ireland are referred to it denotes the Republic of Ireland). The scope of the research was limited to primary, rather than post primary because it was voiced in research that teaching children about food at a young age had a greater effect (National Nutrition Council of Finland, 2017; Lavelle *et al*., 2016; Oireachtas Joint Committee on Education and Skills, 2018; Hersch *et al.*, 2014; Muzaffar, Metcalfe and Fiese, 2018; Lichtenstein and Ludwig, 2010; Nelson, Corbin and Nickols-Richardson, 2013). This was bolstered by data from the scoping consultation with key stakeholders (SCKS). I sent my findings from the SCKS to members of the Minister for Education and Skills staff. On reading the findings, a meeting was granted with the minister, policy change in relation to food education was discussed and the response was positive. In retrospect, the meeting took place in simpler, pre-pandemic times. The COVID-19 pandemic led to all Irish schools being shut down overnight and remaining closed for between 90 to 110 days (Donnelly, 2022). The Department of Education and Skills (DES) was in firefighting mode, scrambling to keep even existing subjects covered in extremely challenging and unprecedented circumstances (Department of Education and Skills, 2021a). Within a year of the COVID-19 school closures lifting, Russia invaded Ukraine. Women, and particularly children came to Ireland for shelter, with 46% of those arriving being women aged 20 and over, and 33% children and adolescents under nineteen years of age (Central Statistics Office, 2023).

This led to a sudden increase in population in schools. The then Minister and policy makers were not as readily available to discuss increased food education. These external factors, as well as literature which advocates staff training (Genannt Bonsmann *et al.,* 2014; Healthy Ireland, 2018; Health Promotion Agency for Northern Ireland, 2012) influenced the creation of a final workshop to explore if increased teacher training, and developing teacher agency, rather than a change in government policy would be a good first step to introducing more food education in classrooms.

The Global Citizenship Food and Biodiversity Theme (GCFBT) is limited in its scope as each school only participates for two years, then moves on to another Green-Schools theme, such as Recycling or Transport. Embedding food education further into classrooms would be a more desirable outcome. The thesis culminates with a list of recommendations for instigating CFE or elements of CFE in Irish primary school classrooms.

There were delimitations put in place before developing the GCFBT and these were discussed with Green-Schools staff and teachers from the participating schools. An obesity discourse was never used. There was a clear decision not to focus on health benefits of food. It was felt that the health aspect of food was already addressed in the subject of Social Personal and Health Education (SPHE) and that a different approach could be of more benefit. This was echoed in the analysis of the SCKS data as seen in Chapter 5. There was a clear desire to use language that encouraged exploration and enjoyment rather than taking a didactic tone. The students were not marked or graded for their work on the GCFBT, but instead were encouraged to share their projects with other age groups within the school by displaying them in public spaces within the schools, and where possible visiting other classes with their work.

The abrupt nature of the COVID-19 school closures meant that some of the planned participatory action research sessions, as part of the GCFBT pilot, were cancelled. The original research design included two control schools which would allow comparisons to be drawn after the two-year initiative, but school closures necessitated a redesign as outlined in Table 1.1. The control schools were participating in different Green-Schools theme and were chosen in conjunction with Green-Schools staff. The chefs' engagement for the GCFBT and the introduction of chefs to schools was conducted online due to closures.

Notwithstanding the pandemic closures, primary education in Ireland has been under review since 2020. The NCCA began the process of reviewing the curriculum and drawing up a Draft Primary Curriculum Framework (National Council for Curriculum and Assessment, 2020b). I posted a submission via the NCCA website based on this research project.

1.11 Ethics Approval

Ethics approval for this research project was granted by TU Dublin ethics committee, details are presented in Chapter 4, section 4.11. There is an inherent inequality when working with children (Alderson and Morrow, 2011) and this was taken into consideration when drafting a survey which was administered, and full account was taken of all child protection procedures in accordance with Children First Act 2015 (Department of Children and Youth Affairs, 2019) throughout each workshop.

1.12 An Outline of the Three Sections of Fieldwork

Many actors came together at various stages of the research, stakeholders participating in the SCKS, the teachers, students and Green-Schools staff during the development and piloting of the GCFBT, and the participants in the RFFW. These are outlined in Table 1.3.

Scoping consultation with key stakeholders (SCKS)	Global Citizenship Food and Biodiversity Theme (GCFBT)	Research Findings Feedback Workshop (RFFW)
Purposive sampling was conducted in conjunction with Michael Kelly from GIY to reduce the possibility of researcher bias (see Section 4.13.1 for further details)	Meeting with Director of An Taisce Education Department.	Contact made with Dr. Susan Pike in St. Patrick's DCU explaining the premise of the workshop and asking if she could provide space and inform her students about the workshop.
I sent invitations to the stakeholders	Child Protection Training Research Integrity Training Ethics approval	Invitations sent to teacher training colleges, primary schools local to St Patrick's DCU, and to the NCCA.
A meeting was arranged with Eve-Anne Cullinane to explain my research and the aims of the scoping consultation.	Green-Schools staff member Meabh Boylan assigned by the Director of Green-Schools Education Department to work with the researcher.	Request made to Partners Training for Transformation to provide facilitation support on the day of the workshop as outlined in section 4.15.2.
There was three follow up meetings between me and Eve-Anne Cullinane. I explained what the SCKS would entail and discussed how it should unfold.	Green-Schools staff drew up a list of their aims.	Two meetings hosted with Jacqui Gage from Partners Training for Transformation to outline my work and to explain how the day will unfold.
I invited primary school children local to TU Dublin Grangegorman to submit essays and project work expressing their optimum approach to food education. These were displayed on the walls during the scoping consultation.	I brought documentation of international food education projects to Green-Schools and discussed possibilities for the programme (further details of such projects are available in chapter 2, section 2.11). Appendix A shows the teachers information booklet which outlines the programme. Further information and resource packs for teachers is available through the Green-Schools website and in Appendix A.2	Research Findings Feedback Workshop hosted with 11 anonymised participants. Jacqui Gage and I explained the layout of the afternoon. Jacqui facilitated the warm-up and introductions as pre-arranged with me and provided flipcharts.
A scratch-cooking school canteen was approached and asked to provide food on the day, and to present their experience with the statutory school meals funding process to the stakeholders.	8 schools decided upon for the pilot. The schools were chosen in conjunction with Green-Schools staff because they were located in the greater Dublin area and had completed the previous nine Green-Schools themes. Researcher contacted two control schools. The schools had completed eight previous Green-Schools themes and were progressing to one focusing on biodiversity. They were located in the greater Dublin area.	Audio recordings were transcribed, and the data analysed using thematic analysis.
A secondary school student involved in Friends of the Earth was asked to present to the	Consultation meeting with teachers from the 8 pilot schools to create an outline for the upcoming workshops.	

stakeholders. She discussed her view of food education within the Irish school system.		
Eve-Anne Cullinane along with three staff members helped with the facilitation and logistics of the day (further information is available in Chapter 4, section 4.13.2)– they set up tables, printed spectrum questions, organised stationary, announced when presentations would take place, told people when they could avail of the food on offer, collected the evaluation forms and presented the details on flipcharts.	A survey was created by the researcher. It was designed to assess the children's food knowledge within the 8 pilot and two control schools. It was sent to staff in the Economic and Social Research Institute to judge child appropriate language and content.	
The Scoping Consultation with 46 stakeholders was held on TU Dublin Grangegorman campus.	The first visits to schools were conducted and the survey was administered. Teachers or another school staff member were in attendance at all points. A Green-School staff member was also on site to assist with the administering of the surveys on school computers within schools.	
I created a survey in SurveyMonkey software that allowed the stakeholders to add information about food education initiatives in Ireland. It was sent to all stakeholders after the event to map what was available.	I conducted visits and meetings with two schools who had examples of successful school gardens and outdoor teaching spaces, to look at examples of good practice.	
Data from the consultation was analysed.	Workshops were facilitated in each of the schools and participatory action research methods were included in each workshop, and I took reflective notes. The workshops were attended by a Green-Schools staff member as well as class teacher and at times special needs assistants. The Green-Schools staff member supported the facilitation of the workshops when needed. Content for the workshops was devised by the researcher.	
Results from the mapping survey were fed back to the stakeholders and presented at NUI Galway, Health Promotion Conference.	End of year evaluation from teachers.	
I created a summary document which was sent to government ministers.	Meabh Boylan went on maternity leave and Clare Patten took over in her role.	
Meeting with the Minister for Education and Skills.	A visit to Stephanie Alexander School Garden Foundation in	

	Melbourne Australia was undertaken for two weeks.	
Evaluation of the research data influenced the formation of the term circular food education and also influenced the development of the Global Citizenship Food and Biodiversity Theme as outlined in section 4.14.3.	COVID-19 School closures	
	Planned participatory action research sessions and follow up survey cancelled due to COVID-19	
	Chefs' recruitment was moved online. I organised this through Euro-Toques and Chef Network websites. Chefs were enrolled to work with a participating school in their area teaching skills-based cooking classes and providing support to teachers.	
	Contents for school cooking kits researched by me and purchased by Green-Schools. They are provided to each school participating in the GCFBT (see Appendix G).	
	I met with chefs online to explain the programme, the style of cooking and the delimitations set out in Chapter 1 section 1.9. They were briefed on how the programme provides the building blocks of cooking, skills such as how to chop, how to peel, how to grate. Chefs were informed of the recipes (Appendix G) that were gathered in conjunction with the children, and the links between the school garden and the kitchen were outlined.	
	Online cooking demonstration classes were held by the registered chefs.	
	End of year evaluation sheets gathered	
	I analysed the data	

Table 1.3 Outline of each Section of Field Work for the Research

1.13 Conclusion

This chapter laid out the major research question (MRQ) and research sub-questions (RSQs) and demonstrated how these were addressed through two sections of fieldwork; a scoping consultation with key stakeholders (SCKS) followed by the development and piloting of a two-year educational programme, entitled Global Citizenship Food and Biodiversity Theme (GCFBT). While developing the two-year food education initiative with Green-Schools, the term circular food education (CFE) was coined to describe the expansive approach taken to food education. It is a pedagogy based on experiential learning and pleasure, as well as situating food deeply within the environmental and climate action conversation. A research workshop was subsequently hosted to get feedback on the overall findings (RFFW). Participants included those working and studying in teacher training colleges, principals, and primary teachers, as well as staff members from the NCCA. The multi-method action research approach taken throughout is described in the methodology section 4.2 in Chapter 4; this process allowed for malleability, a desire to create change led to the adoption of an action research rationale.

There are seven upcoming chapters where each element is presented and discussed in greater detail. The next chapter, Chapter 2 presents the context and rationale for the research while Chapter 3 delves into literature which addresses the major and research sub-questions. It presents findings in relation to the Irish school system, curriculum studies, pedagogy and experiential learning. It also outlines the theories which influenced the steps taken to complete this project. Chapter 4 presents the research design and theoretical framework for analysis and explains why certain methodological decisions were made. The ethics approval is detailed in Chapter 4, section 4.11. Chapters 5 and 6 outline the findings and analysis from the fieldwork. Chapter 5 lays out the findings and analysis from the SCKS while the analysis of the development and piloting of the GCFBT is presented in Chapter 6. The research findings were

explored in a research findings feedback workshop (RFFW) and the data generated at the workshop is documented in Chapter 7. Chapter 8 presents the overall recommendations for implementation and summarises the thesis. The upcoming chapter demonstrates a large body of research in relation to the context in which the research takes place and the rationale for some of the decisions made, such as the choice to focus on primary schools, the push for food education to be embedded within curriculum, and the importance of taking a broader approach to food education.

Chapter 2. Research Context and Rationale

2.1 Introduction

The chapter presents an overall view of the environment in which the research took place. It provides a rational basis for increasing food education, and for situating this increased education within the primary curriculum. The major research question started to emerge from a long interest in food education, and continued involvement in hosting food education classes in primary schools, both local to my businesses and through CHEW – Children's Healthy Eating Workshops. The opportunity to work with Green-Schools, who have access to 93% of schools in the country, helped to solidify the interest in sustainability and its links to food production. As an educator I had seen first-hand the benefits of a participatory, dialogic approach within the classroom; this was bolstered by reading academic literature on an experiential approach to learning. Following the publication of the United Nations Sustainability Goals (2020), a sustainability discourse became increasingly prevalent within the Irish education system (Department of Education and Skills, 2021b) and there was an opportunity to include food in this conversation. There has been a growing interest in pleasure in relation to food and wellbeing (Werle, Trendel and Ardito, 2013; Batat *et al.*, 2019; Bedard *et al.*, 2020; Cornil and Chandon, 2016; Government of Canada, 2019; Huang and Wu, 2016; Marty *et al.*, 2018; Trudel-Guy *et al.*, 2019). International examples of food education initiatives which employ element of circular food education (CFE) are introduced in this chapter. The chapter also focuses on the Irish primary school system, where the existing model of importance in relation to food education is explored. A health discourse currently takes precedence, and this is critiqued. Food poverty is prevalent in Irish society and schools play a compensatory role through the free school meals programme and other initiatives; these are outlined (Darmody, 2021). The United Kingdom (UK) has put in place a School Food Plan

which amalgamates the conversation around school meals and food education. While the UK has a different education system to Ireland, it is useful to see how food is being addressed within their schools.

2.2 Research on Food Education

The literature showed a body of work relating to food education internationally (Smith, Wells and Hawkes, 2022; Ballam, 2018; Andersen, Baarts and Holm, 2017; Sandell, *et al.,* 2016; Olsen, 2019; DeCosta, 2017; Lavelle, 2020). Despite this, there remains a dearth of literature focusing specifically on food education within Irish schools (Darmody, 2021; Darmody, 2022; McGowan, 2021a; McGowan, 2021b). While a lack of literature about food education exists in the Irish context, there are numerous examples of extracurricular initiatives in this area; Food Dudes, Incredible Edibles, Healthy Food Made Easy, GIY's Grow at School. There are many factors in the Irish education system that inhibit increased food education within classrooms. These include the lack of kitchen or eating spaces in schools, lack of teacher training, lack of teacher confidence, no policy support, or policies that focus on health and do not include the wider implications of food in society or in people's lives.

There is a constant need to gain evidence to inform educational food policy and aid funding potentials, yet it is challenging to measure the impact of food education (Nelson, Corbin and Nickols-Richardson, 2013). Many factors affect what a person, either adult or child, eats. To overcome this, most interventions focus on a single risk factor which relates to the narrowing of food into a purely biological health framework (Cobiac, Veermen and Vos, 2013). "Research within public health and nutrition has tended to conceptualise children as passive 'recipients' of nutrition - as objects to be acted upon rather than as subjects or agents of change" (O'Connell and Brannen, 2016, p. 82). The continued scientific approach to food which advocates eating

those foods that result in the optimum use of an individual's body, to produce that body in good health, implies a reasoned and rational relationship with food (Coveney, 2000; Earl, 2018). Pleasure or palatability is rarely a driver in children's food or taste research, instead studies tend to focus on increasing acceptance, preferences for, or intake of particular target foods (Evans *et al*., 2012; Olsen, 2019; Guerrero, Olsen and Wistoft, 2018), with a considerable amount specifically targeting increased consumption of fruit and vegetables (Ratcliffe *et al.,* 2011; Dudley, Cotton and Peralta, 2015; DeCosta *et al*., 2017; Horne *et al*., 2004; Evans *et al*., 2012; Loso *et al*., 2018; Jones *et al.*, 2012).

A large proportion of the research in this area is funded in terms of tackling obesity with studies concentrating on reduced body mass index (BMI) (Moore, de Silva-Sanigorski and Moore, 2013; Gard, 2010; World Health Organisation, 2016; Hawkes *et al*., 2015). The Oireachtas Joint Committee on Education and Skills uses the term obesity in direct relation to "the promotion of healthy eating in schools" (2018). The committee "believes that the Department of Education and Skills (DES) can, as an integral part of the curriculum, make a significant contribution to tackling obesity" (2018, p. 6). There are criticisms of using obesity as the dominant discourse (Cuny and Werle, 2011; Share and Share, 2017), as it is widely understood to be a complex health issue resulting from a combination of causes, both behavioural and genetic (Centers for Disease Control and Prevention, 2021; Gard, 2010). Share and Share (2017) describe a governmental discourse which "quantifies, individualises and responsibilises the phenomenon of obesity, while supporting processes of state and individual (self-) surveillance" (2017, p. 56), suggesting that "public health and social marketing campaigns continue to recirculate overly simplistic and often self-defeating conceptualisations of obesity" (Lupton, 2014 cited in Share and Share, 2017, p. 48).

2.3 Food Policy and its Impact on Food Education

Policies linking food, education, and health raise questions about how responsibility between the individual, family and state is shared. These questions arise regarding food knowledge, availability, accessibility, and choice (Hart, 2016). Lang (2020) calls for a massive expansion of the State to deal with problems in the current food system, while the United Kingdom's (UK) National Food Strategy (Dimbleby, 2020) also calls for an interventionist approach by elected officials. Neoliberal doctrine asserts that state power should not shape a society, rather that the power of the market should be paramount. This has led to global corporations having the ability to undermine states' policies (Lang, 2020; Nestle, 2013; Cullerton, 2017) as governments' ability to counter the food industry's influence is hindered by considerable budget differentials. Eight companies control 90% of the UK's food supply for example (Lang, 2020). Cullerton (2017) found that the food industry has a greater capacity to influence nutrition policy than all other professional groups, including state and public health agencies. In the UK a youth advocacy organisation, Bite Back 2030 aims to redesign the food system in a way that puts children's health first. The organisation is led by a youth board who critically examine the British food system and call for changes such as improved healthy food options in schools, the need to address misleading information on food and drink packaging, as well as campaigning for a free school meals programme that continues during the school holidays. Stating their mission as "we believe every young person deserves access to healthy, nutritious food, no matter where they live — but right now, that's not our reality" (Bite Back 2030, 2020, url). "We are all up against a flood of unhealthy food, pouring out from high streets, supermarket shelves and school canteens" (Idem, 2020, url), the advocates believe the answer to solving the problem is closing the floodgate of aggressive marketing by food corporations, and they have managed to instigate some changes through media campaigns and by lobbing government.

The School Food Plan (SFP) was commissioned in 2012 by the British Secretary of State for Education, to be implemented in the succeeding two years (Dimbleby and Vincent, 2013). The "plan is about good food and happiness. It is about the pleasures of growing, cooking and eating proper food. It is also about improving the academic performance of our children and the health of our nation" (Dimbleby and Vincent, 2013, url). School governing bodies in the UK must ensure that school meals meet the mandatory school food standards which were introduced under the SFP (European Commission, 2016), but providing a wholesome lunch for children "is only half the battle", according to the authors, there is also a need to "equip today's children with the skills they need to feed themselves – and, in time, their own children" (Dimbleby and Vincent, 2013, url). The SFP's recommendation for practical cooking classes to be made mandatory was upheld. Cooking and food education became compulsory in the national curriculum in most of the UK, for pupils up to age fourteen (Schabas, 2014), with the aim of "instilling a love of cooking" (National Governors' Association, 2016, p. 1) in pupils from a young age. Earl (2018) discusses the fact that the SFP makes assumptions "that once people acquire cooking skills, they will automatically cook more and eat more healthily, irrespective of other factors that may influence people's desire or ability to cook: time, conflicting schedules, overlapping job shifts, lack of transport or access to ingredients, enjoyment" (2018, p. 47). Flowers and Swan (2015) argue that food pedagogies are built on the assumption that bad food choices are due to a lack of knowledge. When educating about food, a deficiency framework which "posits individual knowledge and skills as sole reasons for inappropriate food choices, dietary behaviours, and culinary practices" (Kimura, 2011, p. 465) can depoliticise why people choose to eat certain foods (Vidgen, 2016). Amartya Sen's (1933-) capability approach (CA) provides another way to frame food education; rather than assuming

the availability of resources, in this case, education, will automatically lead to well-being achievement, there is a focus on the capability of pupils to make use of the resources on offer (Hart, 2016; Hart and Page, 2020).

Earl (2018) uses the term 'foodieness' to describe the SFP. The term 'foodies' or 'foodieness' was used by Johnston and Baumann (2010), when referencing those passionate about everything concerning food. 'Foodieness' can help to promote social mobility, and access to food spaces and the behaviours practiced within them (Earl, 2018). People classify themselves, thus distinguishing themselves and their habitus in many ways, and such a distinction may be observed through eating practices and tastes (Bourdieu, 2010 [1979]). Bourdieu's concept of capital provides us with a way of viewing societal positionality (Reay, 2003). He describes four forms of capital, economic, symbolic, social and cultural (Bourdieu, 2003). Cultural capital encompasses to social and linguistic skills that can be developed through education, and the development of tastes or preferences. Naccarato and Lebesco (2013) extended Bourdieu's theory by coining the phrase culinary capital which helps us understand "how and why certain foods and food-related practices connote, and by extension confer status and power on those who know about and enjoy them" (2013, p. 3). Arguably Earl is correct, Dimbleby and Vincent, being restaurant owners and social commentators on food in the media, are entrenched in 'foodieness' and also enjoy a high level of culinary capital. This leaks through into the rhetoric of the SFP, but not everyone is critical, with Schabas (2014) concluding that the SFP drives positive change across the entire school food system. The Jamie Oliver Foundation (2017) commissioned a comprehensive review to ascertain what pupils were actually learning since cooking was made mandatory in most schools across the UK (Ballam, 2018; Smith, Wells and Hawkes, 2022). It found no change in lesson length, funding or teaching resources; this prevented the opportunity to learn about food, and constrained teachers. The report

recommended that key performance indicators be set to measure cooking skills, as well as each school having a ring-fenced budget for food education (Jamie Oliver Foundation, 2017; Ballam, 2018).

2.5 How Schools Play a Compensatory Role in Tackling Food Poverty

The provision of nutritious school meals, free of charge or at a reasonable price, can be considered an important way of increasing health equality (Juniusdottir *et al*., 2018). In Ireland school meals provide vital aid for families who are in a low socioeconomic bracket. There is extensive literature on the subject of food poverty in Irish society (Friel and Conlon, 2004; Downes and Gilligan, 2007; Carney and Maître, 2012; Burns, 2015; Healy, 2019; McGowan, 2021b) with some focusing on schools' role in its prevention (Downes, 2020). The Educational Disadvantage Centre based in Dublin City University instigated the National Strategy Group for Hunger Prevention in Schools to address the subject. There is a sustained call for government intervention, and the group advocates for hot school meals (Downes, 2020). A hot school meals programme was piloted in 2020 and extended to include 55,000 pupils in 2021 (Department of Social Protection, 2021). Callaghan (2010) indicated that 20.9% of the school children reported going to school or to bed hungry because there was not enough food at home. In 2013, an Irish Primary Principals' Network survey found that over 20% of primary principals observed an increase in children coming to school hungry (Educational Disadvantage Center, 2020). Free school meals provide support to such children. National Strategy Group for Hunger Prevention in Schools calls for two distinct spaces to be created within Irish schools; one for cooking and the other for eating.

The Delivering Equality of Opportunity in Schools (DEIS) framework was established in 2005 and led to the expansion of school meals' funding to schools within this category and others

who could prove a need. There is not one size for all when it comes to food provision; some schools receive breakfast support, others lunch support and some afterschool snacks, or a combination of all three. Government funds of €57 million were allocated for school meals in 2020, later increased to €67 million to allow an extension over the summer months due to the COVID-19 pandemic. An application for funding is made by a school to the Irish Department of Employment Affairs and Social Protection or their local authority in advance of each school year. The funding for standard school lunches is for food items only and does not include staff provision or equipment. This means schools purchase pre-packed food, divesting the responsibility for feeding children to privately run food companies and the stipulation inhibits food being freshly prepared within schools. The allocated stipend is €0.70 per student for breakfast and €1.20 per student for lunch.

2.6 The Rationale for a Changed Approach to Food Education

The current model of importance for food knowledge in Irish primary schools revolves around a health discourse, which assumes that nutritional knowledge will drive healthier food choices (Marty *et al.*, 2018; Rekhy and McConchie, 2014).

> Up to now, it was assumed that providing nutritional information, pointing out which types of foods are 'good' or 'bad' for health, would drive healthier food choices in children. Today, we know that such strategies based on a cognitive approach toward eating have a limited impact on healthy choices and can even be counter-productive, leading children to avoid healthy foods. In the context of increasing rates of childhood obesity, new perspectives are needed to build efficient interventions (Marty *et al.*, 2018, p. 265).

Schools can play an important role in developing lifelong positive food choices (Nicklaus, *et al.,* 2004; Murimi, *et al.*, 2018; Segrott *et al.*, 2017; Jones *et al.*, 2012; Hawkes *et al.*, 2015; Laska *et a*l., 2012). They are unique in their ability to promote food education for young people (Smith, Wells and Hawkes, 2022; Brennan *et al.*, 2021; Nelson, Corbin and Nickols-Richardson, 2013) and they are almost universal. The majority of existing food education in Irish primary schools is located within the subject of SPHE (National Council for Curriculum

and Assessment, 2017; National Council for Curriculum and Assessment, 1999a) with some elements in Social, Environmental and Scientific Education (SESE) (National Council for Curriculum and Assessment, 1999b). The Irish school curriculum is designed to enable "children to meet, with self-confidence and assurance, the demands of life, both now and in the future" (Department of Education, 1999, p. 6), yet it does not include a broad approach to food education as outlined in the description of CFE. Nutritional based education alone is inadequate for creating long term health benefits (elardo and Drummond, 2019; Maher *et al.*, 2019; Karpouzis *et al.*, 2021; Jones, *et al.*, 2012; Werle, Trendel and Ardito, 2013; Batat *et al.*, 2019; Bedard *et al.*, 2020; Huang and Wu, 2016; Marty *et al.*, 2018; Trudel-Guy *et al.*, 2019). Evidence suggests that telling someone what is healthy or unhealthy (Atkins and Michie, 2015; Murimi *et al.*, 2018; Marty *et al.,* 2018; Jones *et al.*, 2012) is insufficient to change behaviour (Jensen and Schnack, 1997; Boeve-de Pauw and Van Petegem, 2011). Food preferences formed early in life tend to continue into adulthood (Begoña *et al.*, 2020; Nicklaus *et al.,* 2004; Jones *et al.,* 2012; Murimi *et al.*, 2018). Children develop environmental attitude and behaviour at a young age, so promoting a pro-environment attitude through education early in life is important for tacking climate change (Otto *et al.*, 2019). New ways of educating about food need to be examined and circular food education (CFE) is presented as a solution. The overall aim of this research is to build an awareness of the importance of a broad approach to food education and develop a roadmap for implementation.

While there was a focus on primary school education, most Irish primary students continue to secondary level education, which for the majority culminates with the Leaving Certificate examination. There are reforms underway following a report by the NCCA (2019) which will see less emphasis on this one final exam and the introduction of more project work. A subject entitled Climate Action and Sustainable Development will also be added. These are welcome

changes because relying solely on an exam, as the pinnacle of the education system, leads to rote learning, stratification and individualism (Brown *et al*., 2018; Burns *et al.*, 2018). The Leaving Certificate "operates in such a way as to ensure that there is no possibility that education might contribute to greater societal equality. It is a national institution at the service of solidifying inequality" (Wegimont, 2022).

2.7 The Benefit of Developing and Implementing Circular Food Education within the Irish Primary School System.

Research and stakeholder opinion showed that starting food education at a young age is desirable (National Nutrition Council of Finland, 2017; Lavelle *et al*., 2016; Oireachtas Joint Committee on Education and Skills, 2018; Hersch *et al.*, 2014; Muzaffar, Metcalfe and Fiese, 2018; Lichtenstein and Ludwig, 2010; Nelson, Corbin and Nickols-Richardson, 2013). Therefore, primary schools are in a good position to promote food education (World Health Organisation, 2018; Food and Agriculture Organisation of the United Nations, 2019). While the Department of Education and Skills (DES) and the National Council for Curriculum and Assessment (NCCA) develop the Irish primary curriculum, schools are generally privately run by religious communities or boards of governors. The schools themselves, however, are state funded. The patron bodies of schools not only have control over, and responsibility for, the ethos of a school and deciding what form of religious or ethical education is conducted, they also appoint the Board of Management. This tends to mean that while each school teaches the national curriculum, they teach it through their own philosophical lens. For example, Steiner National Schools deliver the Irish curriculum in accordance with the core principles of an internationally recognised Steiner pedagogy (Steiner Waldorf, 2022). Steiner schooling was established in Ireland in 1987, and at present there are five Steiner National Schools in the country. Education in Steiner schools focuses on the developmental needs of the child, with

the importance of human relationships at its heart, placing a significant emphasis on food practices. The Catholic Church is patron body to 90% of primary schools in Ireland, with the multi-denominational Educate Together being the most familiar of the non-religious patrons with almost three percent of primary schools, while An Foras Patrúnachta, the Irish-language patron, controls two per cent (McGuire, 2019). A small number of 'model schools', are owned by the State (Citizens Information, 2022, url). These were original set up in 1831 as training facilities for teachers and were seen as exemplars to other schools in their area. Another aim of the model schools was to provide unified education to both Protestant and Catholic children (Walsh, 2018).

The NCCA was created in 2001 to be a representative body that advises the Minister for Education and Skills on key issues in education (McGraw and Tiernan, 2022). It was established on a statutory basis and leads development, and supports changes in curriculum and assessment, at both primary and post primary level. The twenty-five-member body consists of a diversity of stakeholders raging from those working within schools and academia, to patron bodies and unions. The NCCA is supported by a permanent staff who conduct research and host public consultations. The "reason for having such a detailed structure and consultative process is to engage as many voices as possible and to foster consensus, especially when confronted with controversial and difficult decisions" (McGraw and Tiernan, 2022, p. 405).

2.8 Changes in Approach with the Irish Primary Curriculum

The educational curriculum guides what is taught on a day-to-day basis and to some extent also guides how it is taught. What precisely constitutes a school subject is therefore regulated by those who ultimately control the curriculum (Kirk and Macdonald, 2001). In Ireland today, this is the NCCA and ultimately the DES. When the Irish Free State was established, in 1922, the

fledgling government gave the Catholic Church control of both the premises and content of Irish education. "A new curriculum was introduced in 1922 which replaced the broad range and child-centred focus of the curriculum in place since 1901" (Dukelow and Considine, 2009, p. 305), this more conservative curriculum was left in place, with very little revision for the next four decades. A paradigm shift began to occur in the 1960s when attitudes towards nationalism, language revival and religious education largely began to relax. Ireland started to come into line with other European countries and the education system began to shift its focus (Dukelow and Considine, 2009). It "changed the conceptualisation of education as having solely moral and social purposes to include a more human capital and economic dimension" (Walsh, 2016, p. 13). An Organisation for Economic Co-operation and Development funded, Investment in Education Report in 1965 led to a new curriculum being introduced in 1971 which was guided by the notion of childhood as a distinct phase in life. Its focus partly turned to promoting vocational education (Hyland, 2014). The next major revision of this primary curriculum was launched in 1999. According to the then Department of Education this revised curriculum was "designed to nurture the child in all dimensions of his or her life" (1999, p. 6). The aim was to reflect the educational, cultural, social and economic aspirations and concerns of Irish society and to consider the changing nature of that society.

With an influx of people coming to live and work in the country, Irish classrooms are now more diverse places than they were in 1999. That curriculum is currently under review and outside parties are being invited by the NCCA to submit to a Draft Primary Curriculum Framework (National Council for Curriculum and Assessment, 2020b). Reports commissioned by the NCCA leading up to the primary curriculum revision in 2020 give an insight into which educational theories were being explored (Ring *et al.*, 2018). Three trends in modern day curriculum development point to a return to constructivist and child-centred approaches, an

emphasis on the teacher as a central agent in curriculum development, and the formulation of curricula in terms of competences and capacities (Walsh, 2018). Teaching is documented as a process of "empowering the learner and allowing the learner to discover and reflect on realistic experiences, often with the use of hands-on and real-life materials, leading to authentic learning and deeper understanding" (McCoy, Smyth and Banks, 2012, p. 23). The reform of primary education which began in 2020 hopes to bring this stage of education in line with both the Early Childhood Curriculum Framework, Aistear and the Junior Cycle (see Table. 2.1), which have undergone recent development (Devine *et al*., 2020). The child centred approach and the desire to focus on what a student will become, rather than what they should learn is evident throughout the Irish education system, yet the curriculum does not provide the skills necessary to feed oneself. While wellbeing is an increasing focus (National Council for Curriculum and Assessment, 2017; National Council for Curriculum and Assessment, 2012), when food or diet are addressed, it is mainly within a binary conversation of what is 'good' or 'bad' for the body (National Council for Curriculum and Assessment, 1999a). The omission of classes that involve hands-on experiences with food may be for structural and logistical reasons, as many schools do not have the facilities to provide such classes, and large class sizes can inhibit a hands-on approach (McCoy, Smyth and Banks, 2012). The Oireachtas Joint Committee on Education and Skills (2018) which recommended that children "are taught cookery skills, nutrition etc. from a young age as part of the core curriculum" (2018, p. 16), would suggest that funding should be prioritised.

Primary priorities	Early childhood themes	Junior cycle key skills	Senior cycle key skills
Develop thinking, learning and life skills	Exploring and thinking	Managing information and thinking	Critical and creative thinking
		Being creative	Information processing
Communicate well	Communicating	Communicating	Communicating
Be well	Well-being	Staying well	Being personally effective
Engage in learning	Identity and belonging	Managing myself	
Have a strong sense of identity and belonging		Working with others	Working with others

Table 2.1 Primary Priorities, Early Childhood Themes, Junior Cycle Key Skills and Senior Cycle Key Skills (National Council for Curriculum and Assessment, 2012, p. 46)

2.9 Food Education within Irish Primary Education

Presently there is no hands-on element within food education at primary level, yet in the latter part of the 19th century cookery was mandatory for all girls in primary schools, sixty minutes once a week was recommended (McCloat and Caraher, 2016). Difficulties arose however, especially in the smaller schools, in relation to equipment and facilities, as well as the poor supply of trained teachers (Ryan, 1993). These manual classes were dropped from the curriculum in 1904. The Catholic Church's perception of the best education for boys was to focus on academic subjects. A hands-on approach which became available through vocational or technical education was viewed as inferior (Dukelow and Considine, 2009; Brennan, 1986; Owen-Jackson and Rutland, 2017), it was seen as manual training for low paid employment. Diversely to this the Church felt that girls should be excluded from examinations and educated differently. The view on educating girls was "guided by the idea that women had different roles and aspirations to men in society" (Dukelow and Considine, 2009, p. 302), the role of managing the home. This tradition has a legacy today with the majority of participants in Home Economics being female. The subject is optional in Irish secondary schools and in 2016, nearly

three out of every ten girls took higher level Home Economics for the Leaving Certificate compared to "about three in every hundred boys" (Central Statistics Office, 2016, url).

Social, Personal and Health Education (SPHE) was introduced to Irish primary education in 1999, and it encompasses education about health and wellbeing (National Council for Curriculum and Assessment, 1999). The subject consists of three strands 'Myself', 'Myself and others', 'Myself and the wider world'. The recommended time allocation for SPHE is one class period per week or equivalent. The section entitled 'Myself' has a subsection entitled 'Taking care of my body' where references to diet are positioned, these are shown in Table 2.2.

Food and Nutrition	
Differentiate between a healthy and an unhealthy diet and appreciate the role of balance and moderation	
	Identify the nutrients that are necessary in a balanced diet
	Exploring how diet promotes growth, performance and development
Recognise the wide choice of food available and categorise food into the four main food groups and their place on the food pyramid	
	Bread, potatoes, cereals, fruit and vegetables, milk, cheese, yogurt, meat, fish and alternatives
Examine the dietary needs of his/her own age group and other groups in society	
Explore some factors that influence the consumption of different food products	
	Presentation and packaging, shelf life, advertising, imported or home produced, price, consumer demand
Discuss and examine the importance of proper food hygiene	
For infant classes	
Become aware of the importance of food for growth and development	
	Food provides energy for work and play, food helps to protect against illness, food helps us to grow
Explore food preferences and their role in a balanced diet	
	Treats, snacks, fruit, vegetables, foods that are unhealthy for some people and not for others
Discuss and explore some qualities and categories of food	
	Fruit, vegetables, foods that can be eaten at breakfast, foods that are grown, food that comes from animals
Realise the importance of good hygiene when preparing food to eat	

Table 2.2 Adapted from a section of the SPHE curriculum which links to food. Available at
https://www.curriculumonline.ie/Primary/Curriculum-Areas/Social,-Personal-and-Health-Education/

2.10 Over Reliance on a Health Discourse

In the Western World, schools first became sites for learning about the health and nutritious aspects of food when the burgeoning bioscience of nutrition was gaining popularity in the early 20th century. With increased knowledge about vitamins and their health effects, the value of fresh fruit, vegetables, wholemeal cereals and even sunshine was confirmed in scientific terms and this science of food was carried into the classroom. The promotion of nutritional discourse was considered an investment in the health and efficiency of future generations (Coveney, 2000). Nutrition education played a very important role in its infancy because it was born at a time when hygiene was low and infant mortality rates were high (Coveney, 2000). Today in Western countries children face different challenges.

Diet is a major determinant of one's health and there is a growing body of research showing a causal relationship between what a person eats and the way that person feels (Davis *et al*., 2022; Bebard *et al.* 2020; Dinan and Cryan, 2016; Ansari, Adetunji and Oskrochi, 2014; Willet *et al.*, 2019; Van de Weyer, 2006). Evidence points not only to links between food intake and day-to-day mood fluctuations, but also to more severe mental illness and behavioural problems (McGuinness *et al*., 2022; Loughman *et al*., 2021; Van de Weyer, 2006). Yet health should not be the sole basis for food education as it does not consider the pleasures, memories or cultures that surround how and why people eat, or how the food system impacts the environment. There are positive links between eating pleasure and health outcomes, with Bedard *et al.* stating that "eating pleasure may be an ally in the promotion of healthy eating" (2020, p. 1) which can prove more effective than cognitive approaches. Sustainability education is another alternative to health education messages, and it too shows positive outcomes in relation to food choices (Jones *et al.,* 2012).

Through the health discourse on the curriculum, schools are taking on a health or nutrition advisory role even though there is "a growing body of evidence that demonstrates that population-wide or systems approaches requiring public policy change are the most cost-effective solutions to address nutrition-related diseases" (Cullerton, 2017, p. v). An over-reliance on nutritional food messaging to educate is taking place in parallel with a confusing and often conflicting array of health claims about foods in the media and online (Esmaeilpour *et a*l., 2018). Research shows that children already demonstrate a fundamental awareness of nutrition, yet when it comes to eating, they often chose what they knew to be the less healthy options (Velardo and Drummond, 2019; Browne *et al.*, 2019). Browne *et al.* (2019), found that while both adults and students saw the relationships to food within the school as problematic, there was an inherent difference in the outlook of teachers and principals, and that of students, for remedying this. Teachers leaned towards increased health education as a solution, while the students noted, with clarity, that the environment of the school and its surrounding area affected their food choices. Caraher (2016) surmises that nutrition information may be better positioned as a consequential by-product on the way to meeting other more highly prioritised needs such as "social connectedness, financial management, ecological sustainability or food security" (2016, p. 4).

2.11 Examples of Different Approaches to Food Education

There are numerous ways that food education happens internationally through initiatives such as gardening (Ohly *et al.*, 2016; Block *et al.*, 2019), cooking (Block *et al.*, 2019; Lavelle, 2020), taste education (Sandell *et al.*, 2016; Olsen, 2019) and to a lesser extent, sustainability education (Monroe *et al.*, 2019) or critical thinking (Bite Back 2030, 2022). Stakeholder opinion on what food education in Irish schools might look like was gathered through the organisation of a scoping consultation. The data from this consultation showed that there was

a keen interest in increasing food education, but also that there was no clear roadmap for how to achieve this. This lack of consensus of what food education entails is also seen on an international basis (Smith, Wells and Hawkes, 2022). This research happens in the context of these dichotomies, a growing interest in change, but lack of insight into how to progress, or what food education should entail.

The Global Citizenship Food and Biodiversity Theme (GCFBT) was developed and piloted as a means to explore what a model of food education, based on sustainability, experiential learning and pleasure could look like. Findings from the pilot are documented in Chapter 6. During the development of the GCFBT there was a constant awareness of the literature in the field as well as gleaning knowledge about other food education initiatives. A two-week visit was undertaken to Stephanie Alexander Kitchen Garden Foundation (SAKGF) in Melbourne Australia, to examine how that programme is implemented in schools. Numerous visits were made to the SAKGF offices as well as three visits to participating schools. Reflective notes were taken in a journal which allowed a view of both the positive impact of the programme on schools and students, as well as the difficulties that arise from running a programme outside of the curriculum. Positives included volunteer involvement which added to the programmes reach by including parents and grandparents in the gardening and cooking elements. In 2019, when the visit occurred, a recent change in Australian government meant that federal funding to the programme had been cut which led to a reliance on corporate funders. The foundation had to adapt to funders' requests. In one instance this meant setting up an early year's programme in a similar vein to the one developed for primary schools. The constant need for outside funding could be seen as an inhibitor to the programme. Ohly *et al.* (2016) in their systematic review noted that the Stephanie Alexander Kitchen Garden Programme (SAKGP) was just one of two interventions that generated qualitative and quantitative evidence. In saying

this the review found research in the area to be lacking in quality as it was based on self-reported outcome measures. They called for more robust quantitative measures, appropriate study design, and a logic model to better show how school gardens impacted on wellbeing and health (Ohly *et al.*, 2016).

Japan provides an integrated example of food education; school lunches are part of education not a break from it. Children come to understand at an early age that what you put into your body matters, in how you think and feel throughout the day. Parents are asked to contribute towards the cost of the ingredients, but local governments pay the staff to cook. Schools either have a kitchen within them or rely on centralised kitchens which are based in communities and deliver freshly prepared food to a number of schools in underpopulated areas. The children serve the food to each other and tidy up after the shared meal. Food education happens in conjunction with the meal and focus on the provenance of the food (Ministry of Education [Japan], 2011). Murayama *et al.* (2017) confirmed an association between household income and the number of foods and nutrients consumed by Japanese school children and stated that school lunches play a role in reducing disparities in children's diets.

UK charity *Flavour School* bases its teaching on the Sapere method, it offers out-sourced sensory food education to primary children with the aim of building happier relationships with food. Sapere is the name given to the pedagogical method developed by Jacques Puisais, in France, in the 1970s. The word Sapere comes from Latin, and means 'to know, to feel, to taste, to become wise'. Using their five senses, pupils in the classroom are encouraged to explore, play and experience food stuff in a tactile manner and use their direct experiences to express themselves (Sandell *et al.,* 2016). The method is being adopted in many countries including Finland, Denmark, Sweden, France, the Netherlands and Switzerland (Sapere, 2016). One of *Flavour School's* most vocal advocates, author Bee Wilson, describes preference as a function

of exposure, and affection as being triggered by familiarity (Wilson, 2018). The trouble, she notes "is that the single greatest educator of our palates in recent years has not been parents or even schools but the makers of ultra-processed kids' foods; they have given many of today's children an extremely limited range of preferences centred on foods that are sweet, soft and chocolatey or else crispy, fatty and salty" (Wilson, 2018, url). *Flavour School's* lessons are based on eating rather than cooking and introduce basic raw ingredients into the classroom to get children to interact with the food with all of their senses.

Finnish children's participation in school meals, as well as food education classes, is considered an integral part of growing into a responsible environmental citizen, with the policy document stating that "health should be understood in its widest sense as physical, psychological and social health and wellbeing. In addition to developing healthy eating habits, it is important to build skills in such areas as self-regulation, a positive self-image and positive ideas of the child's own and other people's bodies" (National Nutrition Council of Finland, 2017, p. 22). A pleasurable approach to food education is sanctioned by the government (National Nutrition Council of Finland, 2017), with enjoyment at its core;

> rather than developing automatically, many eating-related skills require a favourable eating environment and an opportunity for practicing. An extensive vocabulary associated with food experiences, for instance, can only be learned by discussing such experiences (2017, p. 15).

Taste education could be developed in Ireland as an element of CFE, and as a move away from rewards-based fruit and vegetable tasting (Food Dudes, 2022), to engage classes to create shared positive experiences which acknowledge the social and pleasurable aspects of taste. When Olsen (2019) presents an overview of current approaches to children's taste learning, prioritising and acknowledging the importance of pleasure is discussed.

Taste education or, l'*education du goût,* is also prevalent in France (Politzer, 2016). To be taught to enjoy food at an early age is not unusual; school children sit down to a four-course lunch each day. The school menus follow guidelines set by the French Ministry of National Education. They follow a set structure but are varied in that no meal is served twice in a month. There is no simplifying of flavours, children eat bitter, strong and challenging foods (Barclay, 2015). This culture is further reinforced through *l'éducation du goût* much of which is also based on the Sapere method. According to French government literature, the objectives of taste education are to allow students to discover the enjoyment of food by taste, as well as by nose and sight, while also reducing apprehension towards certain foods. Students are encouraged to develop an analytical and critical mind. There is an acknowledgement that social eating situations, which encourage interactions during school meals, are crucial for the development of children's eating behaviours (Marty *et al.,* 2018). French school lunches are seen as "part of the nation-building process" (Maxwell, 2019, p. 1424) because they are designed to teach students how to eat, which is especially important in France where the art of gastronomy is a key source of identity and pride. *L'education du goût* and school meals both help to reinforce the centrality of traditional French cultural norms.

McGowan (2021b) used food's potential to nurture as a strategy to approach food education. An Integrated Food Edu-Care curriculum model was developed by the researcher and piloted within a DEIS school in Dublin's north inner-city, which is one of the most disadvantaged areas in the state. Food Edu-Care was defined as a creative, nurturing, integrated curriculum module for everyday learning in schools. The findings indicated that the curriculum model had the capacity to build classroom relationships and facilitated social and emotional learning by building self-efficacy and social skills.

2.12 Placing Food Education Within or Outside of the Curriculum

There is a growing acceptance of the curriculum as a social construction that is continuously negotiated and re-negotiated at a policy and practice level by a range of partners (Elliott, 1998; Goodson, 1997). Comprehensive food education should be implemented throughout curriculum policy according to the World Health Organisation (2018). The educational curriculum guides what is taught on a day-to-day basis and to some extent also guides how it is taught. What precisely constitutes a school subject is therefore regulated by those who ultimately control the curriculum (Kirk and Macdonald, 2001). In Ireland today, this is the National Council for Curriculum and Assessment (NCCA) and ultimately the Department of Education and Skills (DES). Interest lies in how particular forms of knowledge come to be within the curriculum and accepted as "legitimate school subject knowledge, that gives the school subject particular form and shape" (Rossi and Kirk, 2020, p. 282). Political concerns can influence curriculum and the subjects within it, giving us what Goodson (1997) called "a salutary reminder of how the changes in political climate elicit responses within the academy" (1997, p. 52). This is echoed by Owen-Jackson and Rutland (2017) who refer to food education more specifically, "the teaching of food in the school curriculum has varied throughout its history in order to meet political aims rather than educational ones" (2017, p. 1). As noted, the form and shape of food education in Ireland, previous to the inclusion of SPHE, was historically in the form of cooking lessons for girls (McCloat and Caraher, 2020; McCloat, and Caraher 2016). These often had philanthropic and utilitarian aims, being first introduced due to social and political concerns over the health of the lower classes (Owen-Jackson and Rutland, 2017). They were also associated with the domestic sphere, being predominantly in the female domain (McCloat and Caraher, 2016; Owen-Jackson and Rutland, 2017).

Without the inclusion of specific food education on the 'overt' curriculum, learning about food in Irish primary schools may be taking place within the 'hidden curriculum'. The hidden curriculum is "the tacit teaching ... of norms, values, and dispositions that goes on simply by their living in and coping with the institutional expectations and routines of schools" (Apple, 2004, p. 13). A whole-school approach to food and eating policies which include the school staff can filter down to the students, as "students not only learn from what we say but also – and often more so – from how we say it and from what we do" (Biesta, 2010, p. 7). Not all schools have eating policies in place, with research showing that only 59% of secondary schools have implemented healthy eating policies (Educational Training Boards Ireland, 2019) advocated by Healthy Ireland (2018). Therefore, without extensive curriculum inclusion, and without school eating policies, messaging about food is often outside the scope of teachers or the schools themselves but is left to the prevalent, unregulated influences of social media, the internet, advertising, and marketing (Bite Back 2030, 2022; Safefood, 2020).

In Ireland there is an increase in outsourcing teaching elements to broaden students' curriculum experience, with numerous extracurricular food education initiatives being taught in Irish classrooms, such as Green-Schools (2021), Grow It Yourself (GIY) (2022; 2021), Irish Heart Foundation (2022), Heritage in Schools (2022). A more comprehensive list is provided in Chapter 4 in Table 4.5. While many initiatives are significantly impactful for a particular amount of time, or in a particular class, their outsourced nature can lead to a scatter-gun approach and relies on the energy of enthusiastic individuals. It is also leaving the choice of what is taught, or how it is taught to charitable bodies or not-for-profit organisations. The majority of the programmes are not sanctioned by the NCCA or the Department of Education and Skills with the exception of the following:

1. *Food Dudes Healthy Eating Programme*

2. *Incredible Edibles*

3. *Healthy Food Made Easy*

The first two, Food Dudes Healthy Eating Programme and Incredible Edibles, are aimed solely at primary schools. They are run by *Bord Bia* (the Irish Food Board) and financed in part by the Department of Agriculture Food and the Marine. The third is aimed at both primary and post-primary schools and was developed by the Health Service Executive (HSE), originally as a community food education initiative run through Local Area Partnerships. Local Area Partnerships engage with local communities on employment, education and community affairs. Healthy Food Made Easy, is now being delivered to teachers as a training module and is supported in part by the DES. Details of these initiatives, along with three further nationwide educational programmes are noted in Table 4.5. These other programmes are run nationwide by Safefood, the Irish Heart Foundation and GIY. Outsourced programmes such as these can broaden knowledge transmitted in the classroom, and provide expertise, but pressure to shape programmes to adhere closely to the curriculum can weaken their influence (Rossi and Kirk, 2020). Bisset *et al*. (2009) have conceptualised externally delivered programmes as sociotechnical networks in an attempt to understand how schools might make best use of them, and to examine the extent to which they can be sustained long term, although that can be difficult to measure (Caraher, Wu and Seeley, 2010). The most successful programmes have the equivalent of a whole-school approach (Caraher, Wu and Seeley, 2010; Schools for Health in Europe, 2021; Healthy Ireland, 2018; Buijs *et al*., 2013; Jones *et al*., 2012), and align their goals with those of the school (Bisset *et al*., 2009; Bisset *et al.*, 2013; Hawe *et al.*, 2009); first defining a problem, then knowing how their intervention has a concrete role in addressing that problem (Segrott *et al*., 2017).

2.13 Conclusion

This chapter presented the context in which the research took place and provided a rationale for exploring the notion of increased food education. It also helped to solidify the reasoning for situating this increased education within the primary curriculum. The Irish context in which food education is situated is complex. The literature offers a glimpse into how the Irish primary school system is run and how curriculum is developed, as well as outlining the reasons why. There is an ongoing tension between the current curricular practices of nutrition education and the wider conception of food within society. The primary curriculum is currently under review, at present a health discourse prevails in relation to food. This is due in part to the difficulty in calculating food, or food education's impact on a child's life. The majority of research in the area is funded through obesity prevention or biometric measurements. These, as well as historical reasons why a wider approach to food is omitted from Irish schools, are documented. There is opportunity through the NCCA Draft Primary Curriculum Framework review, and through increased teacher training to include the many other aspects of how food effects people's lives. International examples can be drawn upon and these will be further outlined in the literature in the upcoming chapter. There is a gap in academic literature in relation to food education in Irish schools despite the number of programmes available. It could be argued that these extracurricular initiatives are masking the lack of food education on the curriculum. Schools' important role in compensating for food poverty, for providing shared food spaces to increase prosocial behaviours, and to educate about food is not being optimised. The challenge is to develop a programme that shuns assumptions about food practices, as outlined by Earl (2018), and to create one that encompasses the facets of circular food education.

Chapter 3. Literature Review

3.1 Introduction

This chapter reviews the literature in relation to experiential learning, sustainability education and pleasure in food, and presents a narrative on each. A narrative literature review was conducted because it allowed for a comprehensive, in-depth analysis of a topic as well as a critical analysis of the information and the presentation of concepts and theories relevant to the research question (Baumeister and Leary, 1997). This form of review seeks to "identify what has been accomplished previously, allowing for consolidation, for building on previous work, for summation, for avoiding duplication and for identifying omissions or gaps" (Grant and Booth, 2009, p. 97). It supported the identification of gaps or trends in the literature by summarising the area of interest (Bourhis, 2017). This was the most suitable form of review because it allowed for a thematic approach, reviewing each of the elements of circular food education (CFE). Other forms of review were contemplated, such as meta-analysis, mapping review, scoping or systematic review. The qualitative nature of the project steered it away from a meta-analysis or a mapping review. Because the breath of the topic necessitated a broad exploration, one that encompassed the wide range of related subjects of interest, a narrative review, and then a narrative presentation, were favoured over a scoping or systematic approach. Elements of a systematic review were however combined with the narrative process to help outline inclusion and exclusion criteria.

A structured two-stage approach was taken to the narrative review. The first stage reviewed seminal texts and academic articles found by using SCOPUS cited 'highest' search bar. A snowballing approach was then undertaken, whereby the reference list or the citations in the texts were used to identify additional research. For the second stage various academic search

engines, available through the TU Dublin library, were used, such as Academic Search Complete, ERIC, Sage Publications, Science Direct, Taylor & Francis and JSTOR. The reason for selecting these databases was that they are widely used in education research and contain a large number of papers in relation to curriculum, pedagogy, children's food education, and children's food skills acquisition, children's critical awareness of the food system, sustainability education and pleasure in the context of food.

Peer reviewed journal articles with strong relevance to the search terms were included, as were scoping and systematic reviews on the subject. The literature included in the review addressed the three components of the major research question, experiential learning, sustainability in relation to food education, and pleasure in relation to food and wellbeing. Findings were synthesised to create a picture of the national and international debates around curriculum, food education, sustainability, and pleasure, this helped to draw together the elements of CFE. The previous chapter used secondary and tertiary sources to describe the context in which the research and literature sit. This chapter presents a narrative review of the academic literature and also includes texts relating to the theorists which were used to develop the theoretical framework.

The first section of the review presents literature relating to experiential learning, and theories on how children learn and develop efficacy. The second section presents the current debate on sustainability education. The final section narrates the discussion about pleasure being a motivating force for wellbeing.

3.2 Experiential Learning

3.2.1 Constructivist Education

Constructivism is a learning theory which ascertains that people actively construct or make their own knowledge by building on what they already know, and that reality is determined by the experiences of the learner (Elliott *et al.*, 2000; Dewey, 1997; Given, 2008). By guiding students to construct meaning, apply knowledge and gain skills, the aim is to equip them to navigate an ever-changing food landscape. Studying the divergent theories in relation to constructivism helped guide the reasoning for an expanded approach to food education, and brought the focus to experiential, or a hands-on learning. Many experiential learning activities, such as cooking classes, are often viewed as costly or impractical (Block *et al*., 2009; Caraher, 2012). However, the reported benefits of using experiential learning in classroom settings (Dewey, 1997; Allirot *et al*., 2016; Knapp *et al.,* 2018; Nelson, Corbin and Nickols-Richardson, 2013) strongly suggests the need to determine innovative ways to develop and implement such activities.

The following section will explore why this form of education is a beneficial approach to CFE. The theories presented will later inform the rationale for an action research methodology and the evaluative framework. Dewey's conception of education and its constructivist roots will be discussed, as well as Montessori's contribution to the field. Piaget's observations give a glimpse into how children build knowledge, and how this happens differently at various life stages. Kolb's experiential learning cycle shows how learning, while cyclical, can be built up by action and experience, but also by reflecting and thinking. Piaget saw a child's learning as singular to themselves, whereas children's interactions with others and their social situations have a bearing on how they learn. Modification of Piaget's theories led to the emergence of

social constructivism (Pollard, 2004). Vygotsky's social constructivism defines the interrelation of thought, language and culture (Pollard, 2004) and presents the zone of proximal development, which is the space between what a child can do unaided and what they can do with adult assistance. Adults, be they teachers, parents or others, provide the scaffolding to a student's understanding. This has implications within the classroom and when creating an educational programme. The conversation about 'what is education for' is also addressed, and the agentic teacher is positioned within the debate by looking at Biesta's writings (2010).

Having presented psychological theories on the processes of learning with Piaget and Vygotsky, theories from sociologists such as Bourdieu, Giddens, Bandura and Bernstein are then outlined. Bandura's work on self-efficacy is important to note in the context of education and provides support to Freirean theories on collective empowerment through education. Bourdieu's social reproduction and concepts of capital can also have influence in a school setting particularly in relation to food education. Sen and Nussbaum's capability approach (CA) compliment Bandura and Freire's building of efficacy. A triangulation of these theories is presented in the next chapter where a more in-depth analysis of the CA is also presented.

3.2.2 Dewey and Montessori's Impact on Experiential Learning

For American pragmatist Dewey, education was broadly conceived as a means of ensuring the continuity of social life through transmission, the transmission happened from those with the most life experience and understanding of the cultural practices, to those with the least (Dewey, 1997). Experiential learning theorists, from Dewey onwards, recognised that when learners were actively engaged in their surroundings, they gained applied knowledge through a process of experience and renewal (Yardley, Teunissen and Doran, 2012). They do this by participating in an activity, reflecting upon that activity and then using their critical analysis skills to derive

useful knowledge, meaning, and insight from the experience. Students then incorporate their new understanding into their daily lives, and although the teacher learns along with the students, it is up to the teacher to shape the activities and to guide the children on the experiential continuum, encouraging the child's natural eagerness for knowledge (Dewey, 1997). In Dewey's time, this was a fundamentally original view of the learning process. Behavioural theories based on empirical or rational epistemology underlined the educational methods of the day, with contemporaries such as Pavlov (1849–1936) focused on classical conditioning, and Thorndike (1874–1949) on behaviourism. Both were concerned with methods of learning where behaviour is learnt by a repetitive association between the response and the stimulus. Learning was by rote and every student within a class worked on the same task at the same time and was given the same amount of time to complete the work. "This view of learning has had a great impact on education, especially in the primary school years. It remained on many teaching courses until the early 1960s" (O'Donnell, 2013, p. 108).

Within Dewey's concept of education, there was great scope for teaching using different facets of food preparation; in fact, one of Dewey's curricular obsessions was cooking (Trubek and Belliveau, 2016). Within his Lab School, which was designed to exhibit, and conduct child centred educational research, children cooked and served lunch once a week. The philosophical rationale is obvious enough: preparing a meal is a goal-directed social activity, it is also an activity connected with life outside the school. Dewey incorporated many subjects into the practical business of making lunch: arithmetic (weighing and measuring ingredients, with instruments the children made themselves), chemistry and physics (observing the process of combustion), biology (diet and digestion), geography (exploring the natural environments of plants and animals) (Duster and Waters, 2006).

There is an interdependence between the pedagogy developed by Maria Montessori and constructivist theorists, Piaget, Vygotsky, Lewin (1890-1947) and Dewey. Montessori's pedagogy is grounded in her experiences of working in the psychiatric department of the paediatric clinic at the University of Rome, and she built on the readings of Locke (1634-1704), Itard (1774–1838), Seguin (1812–1880) and Rousseau (1712–1778) (Thayer-Bacon, 2012). Both Montessori and other advocates for constructivism view the child as central to constructing their own knowledge and the teacher as a facilitator in the process (Powell, 2000). Constructivist classrooms such as Dewey's tended to put more emphasis on group projects and discussion, while Montessori's pedagogy was based on sensory attributes and stressed the importance of individualised work, and the child's personal choice. There is an acknowledgment that the child knows what is right for them at each stage of their development (Murray *et al.*, 2023), the Montessori teacher is responsible for creating and maintaining a well-prepared environment which is meant to encourage student exploration. One of the most important features of the pedagogy is the focus on practical 'real life' activities which included:

> caring for the environment using specially made child-sized household materials. Tasks such as …preparing food, setting the table and serving lunch for the whole group, encouraging shared experiences and introduced young children to the social life within the classroom. (O'Donnell, 2013, p. 21).

The activities, using sensorial materials, were developed in such a way that the child can analyse their own work rather than seeking out the teacher if they are unsure whether or not they did it satisfactorily (Idem, 2013).

Even though there are crossovers between Montessori's work and that of The Lab School it is not clear if Dewey agreed with all of Montessori's methods. William Heard Kilpatrick, a colleague and student of Dewey's published *The Montessori System Examined* in 1914. It was an unfavourable review stating that Montessori's methods were based on psychological theory that was fifty years behind the times. The book succeeded in damaging her reputation in the

United States of America (USA) for many years and in the text, Heard Kilpatrick thanks Dewey for reading the manuscript (Thayer-Bacon, 2012). In the intervening years, Montessori's teaching methods have nonetheless stretched across the globe and continue to have an impact on the educational development of young people.

3.2.3 Building Knowledge and how Children Learn

Piaget, who for many years was president of the Swiss Montessori Society (Powell, 2000), conducted intelligence tests on children and found himself becoming much less interested in whether a participating child gave a right or wrong answer, than in the processes of reasoning used to give the answer. The strand of constructivism emanating from Piaget's research and writings focuses on the cognitive development processes and on the nature of intelligence and how it develops (Piaget, 2001[1947]). He began to document age-related regularities, establishing parameters on how children's intelligence is shaped by experience, describing how intelligence arises as a product of the interaction between the person and his or her environment (Kolb, 2015). The four cognitive development stages noted by Piaget (the sensorimotor stage 0–2 years old, the preoperational stage 2–7 years old, the concrete operational stage 7–11 years old and the formal operational stage 11 years old through to adulthood) allow for curriculum to be created in such a way that the subject matter relates to learners within their respective stages.

Three decades later, Kolb developed an experiential learning cycle to measure adult student's progress through various steps of cognitive development (Kolb and Kolb, 2017). He developed an experiential learning theory to explain how experience is transformed into learning and reliable knowledge. Kolb explains that he used the word 'experiential' for two reasons. The first was to tie it clearly to its intellectual origins in the work of Dewey, Lewin and Piaget. The

second was to emphasize the central role that experience plays in the learning process (Kolb, 2015). Kolb recognised that the student is the manufacturer of their own development and outlined the trajectory of knowledge acquisition in four phases:

1. concrete experience

2. observation and reflection

3. the formation of abstract concepts and generalizations

4. testing implications of new concepts in new situations

Kolb's experiential learning cycle highlights the importance of direct experience in education whereby the creation of knowledge is a process created through the transformation of the experience. Effective learning occurs when a learner executes all four stages of Kolb's model, no one stage of the cycle being effective as a learning procedure on its own. His theory has informed learning experiences at all ages and is a starting point to reflect on how knowledge is assimilated by the student.

For Vygotsky learning is an interactive and constructivist activity where both society and individuals play essential roles in the learning. This was a move away from the Piagetian perspective which focused on the individual's development; in Vygotsky's social constructivism skills develop with the support of someone more knowledgeable than themselves. Children move through the zone of proximal development (Doolittle, 1997) gaining further understanding when guided by an adult or a peer. A consideration of the zone of proximal development, as well as Bandura's observational learning theory (1961) gives us a grounding for how children learn from others and through social interaction.

Biesta, drawing a distinction between learning - which can be done anywhere - and education, articulates that education is not simply related to the fact that students learn, but that they learn

from someone, and for particular reasons (Biesta, 2010). While his theories are embedded in a constructivist tradition, he questions the diminishing role of the teacher within much of the constructivist discourse, such as the overt focus on student-led practice or in instances when teachers are expected to follow a curriculum without room for input. Biesta (2010) argued that there is a place instead for the reflective teacher who knows and adapts the purpose of the educational endeavour. The NCCA's (2020) use of the term 'agentic teachers' compliments Biesta's texts. Biesta distinguished three different domains of purpose which he thinks education should be orientated towards; qualification, socialisation and subjectification. Decisions about content and pedagogy are made when the domain of purpose is known (Biesta, 2010), they are a means of visualising the multidimensionality of education. Qualification, according to Biesta, refers to a "concern with the transmission and acquisition of knowledge, skills, dispositions and understandings that qualify young people to do certain things" (2010, p. 5). Socialisation refers to "the ways in which, through education, children, young people and adults become part of existing traditions, cultures, ways of doing and ways of being" (Idem, 2010, p. 5). Subjectification relates to "ways in which education impacts on our qualities as a person ... the ways in which through the acquisition of knowledge, understanding and the ability to reflect and think critically, students can become empowered" (Idem, 2010, p. 6). Subjectification is the aspect that Biesta feels is overlooked within the education system. Freire's writings, however, give a model for how to harness the domain of subjectification, we see this in how Freire encourages the development of critical consciousness, believing that learners should act to liberate themselves through education. Freire's work is situated within a group of critical education theorists which includes Jacques Derrida (1930-2004), Ivan Illich (1926-2002), bell hooks (1952-2021) and Michael Apple (1942-).

3.2.4 Building Efficacy

From empirical evidence, Bandura (2002) has shown that in diverse populations, of varying ages, socioeconomic and cultural backgrounds, efficacy beliefs contribute significantly to levels of motivation, socio-cognitive functioning, emotional wellbeing and performance. Bandura's social cognitive theory adopts an agentic perspective to human development, adaptation, and change (2002). There are three modes of agency outlined by Bandura; personal, proxy and collective agency. The personal agency of the participants was of the utmost importance.

> Among the mechanisms of human agency, none is more central or pervasive than beliefs of personal efficacy. This core belief is the foundation of human motivation, well-being, and accomplishments. Unless people can believe they can produce desired effects by their actions, they have little incentive to act or to persevere in the face of difficulties. Whatever other factors serve as guides and motivators, they are rooted in the core belief that one has the power to effect changes by one's actions (Bandura, 2006, p. 3).

Teachers and educational programmes can shape learning to aid the child develop efficacy. By developing a programme that allows the voice of the child to be heard it allows for the expansion of personal agency and can instil a belief in the importance of questioning. In classroom settings efficacy is built through teacher encouragement and reinforcement (Reinke, Lewis-Palmer and Martin, 2007). Encouragement of peer support can also be built into educational initiatives.

Efficacy builds agency and allows people to make choices in their life. Giddens maintains that agency is achieved when a person can take ownership of their actions and give reasons for those actions (1984), there is agency when actions are not only intentional but when a person has the capability to carry them out. Giddens work aims to reconcile the concepts of structure and agency, structure being the properties of the social system, such as rules and resources (Cassell, 1993). Structures have an influence on choices (Loyal, 2003). Giddens (2006) opens

his chapter on education by giving the example of a hard-working, poor, working-class boy wanting to go to a school with good academic achievements but the teacher recommending to the boy's mother that it was too risky a choice. The mother, while bitterly disappointed, felt she had no choice but to take the teacher's advice. The structures of the education system can contain remnants of past elite prejudices (Reay, 2003), whereas agency or power "is best conceptualised as the capability of an actor to achieve his or her will" (Cassell, 1993, p. 122).

Working within communities with low economic resources and low literacy levels, Freire built a pedagogy based on collective empowerment and democratic deliberation. His concepts of participation and building agency lean heavily on education as a redistributive force. In the Freirean tradition, participation focuses on enabling people to gain confidence and the abilities to alter unjust conditions within societies. He was a strong critic of any pedagogy based simply on repetition and rote learning, he termed this the "banking concept of education", a process that "turns students into containers to be filled" (Freire, 2017, p. 45). Freire developed a contrasting alternative, a "problem posing education" which has its roots in constructivism. Students become "critical co-investigators in dialogue with the teacher" (2017, p. 54). When Freire was describing the "banking concept of education", or teaching-to-the-test, he was not just describing the direct teaching systems which were in place but was being critical of the dominant ideologies being disseminated. There is a means for changing this system, which is by instilling in the population what Freire calls a "critical consciousness", an active exploration of the personal, experiential meaning of concepts through dialogue (Kolb, 2015, p. 16). Illich also questions the teacher student relationship, believing that within formalised education the teacher is merely acting as a master of ceremonies (2000). In his seminal text *Deschooling Society,* 1971, he advocates for a complete deconstruction of the schooling system and a

liberation from what he considers to be an ineffectual institution which only works to benefit itself.

There is a shared focus on education between Freire and capability scholars such as Sen and Nussbaum who have conceptually and empirically identified a number of core capabilities which might be developed through the educational process (Walker and Loots, 2018; Nussbaum, 2006). When evaluating human wellbeing using the capability approach as a framework, food knowledge and the capability to feed oneself well are of importance. Nutrition, life expectancy and health are seen as basic 'functionings' that people should have the capability of achieving (Alexander, 2016, p. 57). Education and by reasoning food education is one of the main facilitators of functioning, through which children are offered the opportunity to enlarge their space of activity and participation and to express their agency (Biggeri and Santi, 2012; Lipman, 2003).

3.2.5 Social Reproduction and Cultural Capital

Bourdieu's concept of capital provides us with a way of viewing a person's position within society and gives us a lens with which to view the constraints that they may face. His work deals with the resources, obligations and relationships that are involved in social reproduction (English and Bolton, 2015). Education according to Bourdieu has the monopoly of control over people's learning, it acts not only as a government agency, and public institution, but also as an agency of social and cultural reproduction (Bourdieu and Passeron, 1977). Education, even when anchored in a universal approach reproduces social class. Bourdieu's work exposes the contradiction of democratic and meritocratic goals and reforms within education and shows why none will likely erase achievement gaps and other discrepancies (English and Bolton, 2015). Bourdieu asserts four forms of capital, economic, symbolic, social and cultural

(Bourdieu, 2003). While cultural capital starts at home with parents, through emersion in their dominant culture, children can acquire capital through education, through observation of peers, and transactions with teachers (English and Bolton, 2015).

3.2.6 Pedagogy Defined

Bernstein was a British sociologist known for his work in the sociology of education. Bernstein's theories have "deepened the understanding of the nature of school knowledge and how it comes into existence, the concept of various disciplinary fields and how from these, specific school subjects are recontextualised as pedagogic discourse" (Rossi and Kirk, 2020, p. 282). This research project is not concerned solely with curriculum and content, but on the pedagogic changes needed to achieve transformative learning. Pedagogy is a slippery term, its definition changing across disciplines, the concept can be malleable because it draws from ideas about the teacher and teaching, but also the learner and ways of learning. It can influence a teacher's view of teaching and the rational for teaching itself (Sandri, 2022). Trigwell, Prosser, and Waterhouse (1999) note that pedagogy is an educator's construction, philosophy and beliefs about their practice. It is understood as a "dynamic process, informed by theories, beliefs and dialogue, but only realised in the daily interaction of learners and teachers in real settings" (Leach and Moon, 2015, p. 6). This particular definition is effective as it shows the dynamism of the process and the expectation that it will be constantly reworked by the learner and the teacher. The process of pedagogising knowledge, Bernstein claimed, starts with the relationship between what is spoken or written, and how this might have meaning ascribed to it (Rossi and Kirk, 2020). Bernstein's work is extensive and various but most influentially it focuses on the social impediments to learning and the role that communication plays in reinforcing class structure (Bernstein, 1975). He distinguished between the 'restricted code' of the working class and the 'elaborated code' of the middle class, arguing that the 'elaborated

code' was that of the education system, reflecting the class and power relations which establish academic subjects as having a social dimension that had previously been overlooked.

When examining the connection between communication codes, and pedagogic discourse and practice, two terms that Bernstein used were 'classification' and 'framing' (1973). Classification is concerned with the organisation of knowledge into curriculum; framing is related to the transmission of the knowledge through pedagogic practices. "Strong classification refers to a curriculum that is highly differentiated and separated into traditional subjects; weak classification refers to a curriculum that is integrated and in which the boundaries between subjects are fragile" (Sadovnik, 2001, p. 3). Additionally, framing also refers to the degree of control teacher and pupil possess over the selection, organisation, pacing and timing of the knowledge transmitted and received in the pedagogical relationship (Sadovnik, 2001; Goodson, 1997). Therefore, strong framing refers to a limited degree of options between teacher and students, whereas weak framing implies more freedom (Sadovnik, 2001).

3.2.7 Experiential Learning in the School Garden

School gardens have long been used as an educational tool (Kohlstedt, 2008) and their benefits are listed by many (Passy, Morris and Reed, 2010; Burt, Koch and Contento, 2017; DeCosta *et al.*, 2017; Dudley, Cotton and Peralta, 2015; Dyg and Wistoft, 2018; Soga, Gaston, and Yamaura, 2017). Research on integrating the garden with cooking programmes or using the garden as an edible resource are less prevalent (Block *et al*, 2019; Block *et al*., 2009; Wang, 2010). Garden spaces are increasingly being used for health promotion purposes (Passy, Morris and Reed, 2010).

John Dewey articulated gardening's pedagogical, political, and communal benefits. He saw the school garden as a place to bring children into closer contact with nature, as well as place of learning that mirrored the wider community (Ralston, 2014). Being in the garden was said to bring learning 'alive' in a way that pupils clearly enjoyed (Passy, Morris and Reed, 2010, p. 20). Confidence-building was seen in a number of ways; some children learnt to overcome their fear of touching worms or beetles, and to enjoy getting dirty, while others discovered the virtue of patience. Teachers saw the lessons in the garden as a way of building resilience to protect against life's potential misfortunes. One of the most attractive things about the use of the garden is the benefits of seeing the effects of biodiversity in a real-life context. Teachers also felt that the garden had a positive impact because it created a calm environment for both pupils and teachers (Passy, Morris and Reed, 2010). Gardening programmes also have the ability to develop a greater understanding of the food system, through cultivating a connection with food, the environment, and community (Brien, Story and Heim, 2009). Gardening programmes appear to be more effective than nutrition education when it comes to positively changing dietary outcomes (DeCosta *et al.*, 2017; Dudley, Cotton and Peralta, 2015), but the nature of research examined previously might suggest that there are limitations when assessing behaviour changes (Evans *et al.*, 2012).

Providing a garden space and learning outdoors aids wellbeing (Dyg and Wistoft 2018; Soga, Gaston, and Yamaura, 2017) through the nurturing of plants, being in the fresh air, working together as a team, and by allowing children to actively participate in their learning (Burt, Koch and Contento, 2017). There is increasing emphasis on students' wellbeing throughout the Irish school curriculum (National Council for Curriculum and Assessment, 2017; National Council for Curriculum and Assessment, 2020). Positive outcomes from pupils' involvement in a school garden are also said to include more time spent moving, greater scientific knowledge

and understanding, increased awareness of the seasons and understanding of food production, increased confidence, resilience and self-esteem, development of physical skills, including fine motor skills, development of a sense of responsibility, a positive attitude to healthy food choices, and improvements in emotional well-being (Passy, Morris and Reed, 2010; Burt, Koch and Contento, 2017). "Actively engaging children in growing, preparing, and choosing food they are eating, are approaches worth pursuing" (DeCosta *et al.*, 2017, p. 346).

Dewey while advocating for education using the school garden, also articulated its difficulties, attributed them to the machinery of schoolwork, such as class size, teachers' schedules, grading, and courses of study (1902). Many of the same barriers still exist today, with time for class use of the garden, and time for teacher training being listed as the greatest barriers (Burt *et al.*, 2018), as well as limited resources of funding and personnel (Ozer, 2017). Enthusiasm for gardening programmes varies among teachers, depending on support and horticultural confidence (Blair, 2010). Other factors that contribute to lack of success are "ineffective integration into the curriculum, vandalism, challenges in maintaining the garden during school vacations, illness or death of the teacher leading the program, and the garden program not being valued as a teaching tool in a time of increased accountability for student achievement" (Ozer, 2017, p. 849). Providing a broad base of support within a school and its wider community can help to mitigate these problems, as does making the school garden an integral part of the curriculum at each grade level (Ozer, 2017). Schools need stakeholder and community support to maintain a school garden (Hoover *et al.*, 2021; Burt, Koch and Contento, 2017; Loftus *et al.*, 2017). Thriving school gardens are three times more likely to have funding and community partners and four times more likely to have active garden committees, an available garden curriculum and teacher training (Hoover *et al.*, 2021). While there are models and curriculum links available to schools, free of charge, these are not backed up with evidence-based research

(Hoover *et al*., 2021). Burt, Koch and Contento (2017) developed a tool to evaluate how best to integrate a school garden into the school community. They did this by accessing the processes and strategies used by gardeners who established school gardens that were embedded in their schools. They noted patterns of success and developed the GREEN (Garden Resources, Education, and Environment Nexus) Tool (Burt, Koch and Contento, 2017). "There are clear benefits to funding at least a part-time teacher or garden coordinator to dedicate time to the garden program and its integration into the school curriculum" (Ozer, 2017, p. 849). Through the observation of the successful elements of the Stephanie Alexander Kitchen Garden Programme (SAKGP) this is an optimal solution to addressing many of the barriers outlined above.

3.2.8 Examples of Two Established Kitchen Garden Programmes

This section discusses a selection of international food educational programmes, some that exist outside of the school system and are externally delivered, and others that are embedded within national curricula and school policy. They were selected for their relevance to this research and how they might link to elements of circular food education. It should be noted that there are many more examples to choose from, but it is beyond the scope of this project to examine them all.

The Stephanie Alexander Kitchen Garden Foundation (SAKGF) which is a charity that delivers pleasurable food education to children (Block *et al*., 2009; Block *et al*., 2019) has been addressed previously in Chapter 2, section 2.11. The programme connects the edible school garden with the kitchen. Children learn to cook meals with the vegetables they grow, the recipes are often quite complex, and the children use real utensils such as sharp knives, graters and

peelers. Block *et al.* note that the focus in both the garden and kitchen is on enjoyment and pleasure:

> pleasurable food education teaches children to grow, harvest, prepare and share fresh, seasonal, delicious food in order to form positive food habits for life…The aim of a kitchen garden program is for children to gain life skills, self-confidence, and a healthy relationship with food through practical learning that is integrated with the curriculum. The program also provides meaningful opportunities to engage students, parents and communities (Block *et al.*, 2019, p. 7).

The programme, which is outsourced by schools in Australia, has been seen to increase children's willingness to try new foods, and improve their knowledge and confidence in growing, preparing, cooking and eating a diverse range of fresh foods (Block *et al.*, 2009; Block *et al.*, 2015; Yeatman *et al.*, 2013; Rossi and Kirk, 2020; Eckermann *et al.*, 2014; Gibbs *et al.*, 2013). Qualitative findings indicated that the programme also had a positive impact on the social and learning environment of the school and promoting an appreciation of cultural diversity (Yeatman *et al.*, 2013). Skills and enthusiasm for cooking were found to have been transferred to the home environment (Block *et al.*, 2015), and high community network impacts, such as enhancing the capacity for cultural diversity and creating links through parental participation and community gardens were also noted (Gibbs *et al.*, 2013). Cooking was seen by many of the children involved as a skill that would be useful and important when they were older and needed to cook for themselves or manage their own households. Learning how to use 'proper' knives was raised as important by all groups interviewed (Block *et al.*, 2019). The use of 'proper' home materials is an echo of Montessori advocating for practical life materials to be used in education. The children participating in the SAKGF's programme learn to use a 'real knife' and to put their hand into a 'bear's claw' as a safety precaution, before they begin to chop. This ensures that fingers are tucked in and under, so they do not get hurt when chopping. Once a child has shown that they can use the knife in a competent and safe manner, and that they are familiar with the knife rules, they are awarded a 'knife licence'. The

Stephanie Alexander Kitchen Garden Programme (SAKGP) use of licences to measure when a child has acquired proficiency, and this extends to garden skills as well as kitchen work.

With the SAKGP the participating children have repeated exposure to the vegetables that they grow and prepare themselves, as well as tasting a pantry of nutritious ingredients used in making the recipes. A report by DeJesus *et al.* (2019) concluded that children eat more food if they prepare it themselves; this is true for what they termed both healthy and unhealthy foods. When schools participate in SAKGP, desserts are not encouraged, the programme focuses on cooking recipes from the garden using vegetables and creating savoury dishes. DeJesus *et al.* states that "familiarity is also an important early driver of food preferences, as infants and young children tend to prefer foods they have been exposed to previously, and children's willingness to eat a food increase with repeated exposure" (2019, p. 305). The convivial nature of the shared meal at the end of the SAKGP sessions helps to reinforce this. While the focus is now on building a pleasurable relationship with food, the SAKGP was initiated to address children's ill health, the founding premise being that healthy food intake is underpinned by the skills and knowledge of growing, harvesting and cooking (Rossi and Kirk, 2020).

Much of the funding for the SAKGP is now accessed through private investment in the foundation. Previously it received monies from the Australian Federal Government under the auspices of promoting wellbeing. Eckermann *et al*. (2014) noted that the Australian government measures wellbeing by pinning it to the disease of obesity, which is a complex health phenomenon (Gard, 2010), so the programme can at best offer the possibility of tackling it indirectly (Yeatman *et al.*, 2013). Gibbs *et al*. (2013) found evidence to show that the SAKGP is successful in promoting health and provides a good return on investment in a health promotion context. Rossi and Kirk (2020) are critical of the SAKGF adapting and manipulating

their programme to align more closely with the Australian federal curriculum. This they argue, is straying from founder Stephanie Alexander's original vision and intent, the pleasurable garden-to-plate idea becoming 'lost'. The foundation is perhaps trapped between this vision and the realities of the school system. Teachers interviewed, according to Rossi and Kirk (2020), had mixed feelings about the programme, due to time constraint and crowded curriculum concerns. They tended to support the idea, however they felt compelled to be curriculum compliant. The foundation chief executive officer addressing this tension identified a necessity to integrate the material. Bernstein (1996) warns against this type of slippage when addressing the pedagogical device. In this case he would consider an innovative pedagogical idea has been mitigated by the Official Recontextualising Field for the purposes of curriculum compliance. The Official Recontextualising Field impacts the classification of knowledge and is being dominated by the state and its selected agents. The Pedagogical Recontextualising Field on the other hand, which the programme is moving away from, "includes pedagogues in schools, colleges responsible for teacher education, specialised journals and even private research institutions" (Rossi and Kirk, 2020, p. 283).

A second food education initiative in Australia was developed specifically to align with the curriculum from its outset. Creator Alice Zaslavsky was previously a middle school teacher and through funding from Australia's Hort Innovation (2018) developed a series of lesson plans, podcasts and online videos under the title *Phenomenom.* The aim was to provide ways for teachers to incorporate food into the existing curriculum (Phenomenom, 2018).

Founded by Alice Waters in 1996, the *Chez Panisse Foundation* develops and supports educational programmes that use food traditions to teach, nurture, and empower young people. It shares many similarities with the SAKGP. I visited the Martin Luther King Junior School in

California in 2012, where the Chez Panisse educational programme began; it was called the *Edible Schoolyard* and developed and grew into a national movement. The foundation "envisions a curriculum, integrated with the school lunch service, in which growing, cooking, and sharing the food at the table give students the knowledge and values to build a humane and sustainable future" (Wang, 2010, p. 1). "What we are calling for is a revolution in public education – the Delicious Revolution. When the hearts and minds of our children are captured by a school lunch curriculum, enriched with experience in the garden, sustainability will become the lens through which they see the world" (Waters and Duane, 2008, p. 40). Alice Waters, studied at the International Montessori Institute in London, and has claimed Montessori's direct influence on her conception of food education (Laird, 2013). As with other school garden programmes the barriers to implementation are most often time as well as teacher training and confidence. *The Alice Waters Institute for Edible Education* was founded in 2020 in partnership with the University of California, Davis. The core visions are to foster curricular development to support food-based learning and environmental stewardship across disciplines, as well as offering professional development opportunities for educators in garden and kitchen classrooms.

3.2.9 The Acquisition of Cooking Skills

Cooking skills, as well as advocacy and critical engagement, were seen by the youth of Bite Back 2030, as a positive way to increase pleasure and engagement in food and food preparation. "Cooking encourages positive relationships between young people and food, and they see it as something worth doing" (Bite Back, 2030, 2020, p. 13). The kitchen is viewed as a resource that can be used to enhance, support and facilitate teaching and offers an opportunity to put experiential learning into practice. Teaching cooking and food skills can have a positive effect on cooking related behaviours, practices and dietary quality (Lavelle *et al.*, 2016; Hersch *et al.*,

2014; Muzaffar, Metcalfe and Fiese, 2018; Lichtenstein and Ludwig, 2010; Nelson, Corbin and Nickols-Richardson, 2013). Not everyone agrees however (Mills *et al.*, 2016), with McGowan *et al.* (2016) suggesting that it is perhaps the lack of consensus on the definition of cooking or food skills that leads to the limited evidence for their role in influencing dietary quality. The long-term effects of cooking interventions in schools are difficult to define (Caraher and Seeley, 2010; Caraher, Wu and Seeley, 2010; Nelson, Corbin and Nickols-Richardson, 2013). One thing that seems to be agreed upon is that a whole-school approach is needed (Caraher, Wu and Seeley, 2010; Schools for Health in Europe, 2021), and that embedding within the curriculum is preferred (Caraher, 2012; Lichtenstein and Ludwig, 2010). High-quality, practical and compulsory cooking education in schools is recommended (Lavelle *et al.,* 2016; Lichtenstein and Ludwig, 2010; Oireachtas Joint Committee on Education and Skills, 2018; Caraher and Lang, 1999).

While it is possible to live a healthy and pleasurable life without cooking skills (Tull, 2014), possessing these skills means that consumers "can choose whether to prepare food, both 'healthy' and less healthy; without the skills, there is little choice but to accept ready-prepared meals with all the complications of labelling information and interpretation that ensues" (Caraher and Lang, 1999, p. 95). Caraher and Lang continue by highlighting that "cooking classes or some practical aspect of 'hands-on' skills should feature in a young person's curriculum at some stage at school as part of a wider education about life skills and citizenship" (1999, p. 89), teaching culinary skills within the curriculum could be "among the best investments society could make" (Lichtenstein and Ludwig, 2010, p. 1858). However, teaching people technical cooking skills in isolation will not provide them "with the required knowledge, understanding and skills to navigate the myriad of food environments. Such piecemeal interventions are often not sustainable and not effective over a period of time" (McCloat and

Caraher, 2020, p. 6). Learning these skills at a young age is seen as the most beneficial (Lavelle *et al*., 2016), therefore cooking skills should begin in primary school and be strongly supported in secondary schools, and in the home environment (2016). Fewer than 40% of British children could cook five savoury dishes by the time they left school (Earl, 2018), with the inference being that a home cooked meal was preferable to food sourced outside of the home (World Health Organisation, 2017). Mills *et al.* (2016) found that not only was evidence in this area inconclusive, that determinants of home cooking were more complex than simply possessing cooking skills, and that potential positive associations between cooking, diet and health required further confirmation. There are myriad factors that affect dietary choice or lack of choice.

An age-appropriate measure for assessing children's perceived food related knowledge and cooking skills has been developed and validated (Dean *et al*., 2021). The measures can be used to evaluate the efficacy of children's cooking intervention studies, or school programmes, they also provide scope to develop age-appropriate measures corresponding to the developmental stages and capabilities of the child (Dean *et al.,* 2021) (Figure 3.1.). This may help mitigate the tendency to examine perceived ability rather than specific skills (Caraher *et al*., 2010). Children desire complexity and hands-on experiences with perceived competence being shown as a motivator for repeating the behaviour (Dean *et al.,* 2021).

Level of difficulty	Cooking Skills	
	Younger (ages 6-7 years)	Older (ages 8-12 years)
Easiest		
↓	Tearing Leaves	Tearing Leaves
	Washing Vegetables	Washing Vegetables
	Stirring/Mixing ingredients	Stirring/Mixing ingredients
	Mashing	Mashing
	Measuring liquids[a]	Measuring liquids[a]
	Weighing ingredients[a]	Weighing ingredients[a]
	Chopping	Chopping
	Grating	Using a blender[c]
	Peeling	Grating
	Using a tin opener[b]	Peeling
		Using a microwave[d]
		Using a tin opener
		Using the oven[d]
Most difficult		Using the stove/hob[e]

a – measuring liquids and weighing were separated in the measure; b - tin opener was placed in the younger age before the expert panel review moved it into the 9+ age category; c – blender replaced mixer as mixer was more associated with baking as opposed to cooking; d – oven and microwave were separated in the measure; e – Using the stove/hob was added as a means of factoring in the use of a cooker/cooker top for those that may not have an oven/as a means of trying to include stirring over heat

Figure 3.1 The Development and Validation of Age-Appropriate Children's Perceived Cooking Competence Measures (Dean et al., 2020).

When developing cooking skills classes for primary children it is worth looking more closely at the subject of Home Economics in secondary school which takes a constructivist approach. Students develop transferable skills and knowledge, as well as an ability to be adaptive in order to address everyday food and health issues. It is a "problem-solving oriented discipline and addresses practical, real world, perennial problems of individuals and families in a socially responsible manner" (McCloat and Caraher, 2016, p. 2). Worsley *et al.* (2016) found substantial evidence to suggest that home economics education brings about long-term changes in food knowledge. Lavelle *et al.* (2016) argue for wider access to home economics education

stating that there is a reported deskilling of domestic cooks, that mothers (being the primary source of learning) may no longer have the ability to teach cooking skills to the next generation.

3.3 Sustainability

3.3.1 How Food is Framed in Policy

The majority of neoliberal governments within the Organisation for Economic Co-operation and Development countries tend to create food policy that is focused on individual behaviour change and personal responsibility rather than wider structural change of the food system (Cullerton, 2017). However, targeting the population at large can bring more sustained benefits at a lower cost than individually targeted dietary interventions (Cobiac, Veermen and Vos, 2013). Policies do not exist in isolation, they are built upon, made up of those that came before (Ball, Maguire and Braun, 2012) and have influence on people's daily lives. Policymaking is rarely a linear process and is formulated by interactions between politicians, advisers, interest groups and public servants, as well as a range of other participants (Bridgman and Davis, 2004). Foucault documents that police, policy and politics derive from the Greek polis, and 'thus' he states that "policing the population is carried out through the development of policy so as to act on the conduct of individuals, their morals, their occupational capacities, their honesty and how they are to respect the law" (Coveney, 2000, p. 89). "How we frame food - as a tradable commodity, a human right or a source of social meaning associated with identity, pleasure or anxiety - has implications for how policies are formulated" (Science Advice for Policy by European Academies, 2020, p. 19).

The Irish state has proved risk adverse when tackling some of the food system problems outlined by Nestle (2013), Lang (2020) and BiteBack2030 (2020). It has not curbed aspects of the food industry such as the marketing of ultra-processed food to children (Browne *et al.*,

2019), nor fast food sales in close proximity to schools (Browne *et al.*, 2020; Cork Food Policy Council, 2019), or school procurement issues (Browne *et al.*, 2020; Darmody, 2021). The binary conversation about food within the classroom reflects the wider societal norms and the complex relationship with food in Irish society. Ireland is still largely an agricultural country, but people are becoming further removed from production of their food. Farming systems are becoming less labour intensive and increasingly mechanised. Irish farms today tend to focus on a single commodity, most often beef or dairy (Teagasc, 2022). There is an increasing reliance, in Ireland, on food manufacturers, as the food consumption outside of the home increases (World Health Organisation, 2017), matched by an increased availability of ultra-processed foods on Irish shop shelves (Monteiro *et al.*, 2018b). Six out of ten people in Ireland are either overweight (37%) or obese (23%) and it is estimated that 145,000 people in Ireland are either under-nourished or at risk of malnutrition at any given time (Health Service Executive, 2020). Inequalities in diet related ill-health are closely linked with wider social determinants (Healthy Ireland and Department of Health, 2013) with people in a lower socio-economic bracket having a lower life expectancy and an increased chance of developing noncommunicable disease compared to those living in more affluent areas. Government policies related to food and diet are spread among many different sectors which inhibits clear cohesive thinking and future planning. Bord Bia, which promotes Irish food abroad paints an image of a bucolic 'green' island, but others argue that Ireland's reliance on beef and dairy is causing harm to that very same green environment. Ireland has not met its targeted reduction in CO2, as outlined by the EU, mainly due to the nature and scale of the farming industry (Buckley and Donnellan, 2021). Small holding or multi-crop farms, which tend to have a more positive impact on environmental biodiversity are rare in Ireland (Rusinamhodzi, 2019; Francis and Porter, 2017).

3.3.2 Challenging the Food System

According to Davies, Cretella and Franck (2019) "people should have enhanced opportunities to actively participate in 'shaping the food system'" (2019, p. 9). Any signature pedagogy for food systems education "should engage with issues of politics and power, and incorporate collective action, systems thinking and experiential learning" (Mann, 2018, p. 5). Food systems, according to Afshin *et al.* (2019) "have the potential to nurture human health and support environmental sustainability; however, they are currently threatening both" (2019, p. 1). Freire provides an insight into how students can be engaged and subsequently 'emancipated' from such a system by encouraging critical thinking and providing the capability to reflect and analyse. Freire's understanding of the politics of education can be used as a template when providing an expansive food education. Freire's 'pedagogy of the oppressed' (2017) was not simply a pedagogy for the classroom, but rather "a living pedagogy to be infused into all aspects of people's lives, including personal politics. Freire helped educators to understand how the hegemonic culture of schooling socialises students to accept their particular role or place within material order" (Darder, 2014, p. 8). This is a useful lens to adopt when looking at the hegemonic food system, which presently has profit at its core. As food studies professor Marion Nestle states "the primary mission of food companies ... is to sell products. Food companies are not health or social service agencies, and nutrition becomes a factor in corporate thinking only when it can help sell food" (Nestle, 2013, p. 2).

The evidence of how processing effects the nutritional quality of food is mounting (Monteiro *et al.*, 2019; Monteiro *et al.,* 2018a) with the term ultra-processed being used to describe foods which now make up 45.9% of many Irish families' diets (Monteiro *et al.,* 2018b). Such foods are made "mostly from substances extracted from foods, such as fats, starches, added sugars,

and hydrogenated fats. They may also contain additives like artificial colours and flavours or stabilisers" (McManus, 2020, url). Most of the food being heavily marketed to children is ultra-processed in nature. BiteBack2030 have campaigned successfully for the reduction of the advertising of ultra-processed foods before nine o'clock on British television.

3.3.3 Critical Thinking Skills for Environmental Stewardship

In modern times food is not simply sustenance taken from nature and lightly processed to make it edible, it is part of a complex system. The food system is a term used to describe "everything that happens to a food, from the time it is produced, transported, processed, served, and eaten, to dealing with the waste it causes. It is the entire cycle of food production and consumption" (Nestle, 2018, url). Using Freirean theories of expanding agency through experiential learning and taking a broad approach to food education can involve building a critical ability within the learner to question the complex food system within which they live and tackle the issues that arise in sustainability discourse. These can be built upon Bandura and Giddens theories on efficacy and agency. By examining government policies that effect how and what we eat, we can better understand why it is beneficial to equip children to ask critical questions about the food system and its effects on the natural world. "Critical thinking is "thinking which perceives reality as process, as transformation, rather than as a static entity - thinking which does not separate itself from action, but constantly immerses itself in temporality without fear of the risks involved" (Freire, 2017, p. 65). Education is a tool that can support students in understanding environmental stewardship and the impacts of food on biodiversity.

"Climate change, biodiversity, animal welfare, local economic development, social justice and cultural regeneration aspects of food are topics that may create alternative routes for health education messages" (Jones *et al*., 2012, p. 449). Sustainability and food are intrinsically linked

(Smith, Wells and Hawkes, 2022; Willet *et al.*, 2019; Mason and Lang, 2017; Harvard School of Public Health, 2022), the food sector being a major contributor to increasing effects of the Anthropocene (Whitmee *et al.*, 2015; Willet *et al.*, 2019). Children develop an awareness of sustainability at a young age (Morote and Hernández, 2022), environmental attitude and behaviour can be reliably measured from the age of seven (Otto, 2019), as pro-environmental attitude and behaviour are necessary in the fight against climate change, environmental or sustainability education at primary school age is important. The majority of children are getting information about climate change from digital media where they are subjected to misinformation (Morote and Hernández, 2022). Schools can play a part in ensuring that education on the topic is based on researched scientific facts.

Human impact on the environment and biodiversity is ever-changing and necessitates a unique teaching approach. What makes something sustainable is context specific (Sterling, 2003; Christie *et al.*, 2013) and therefore there are no sets of rules or codes of practice that represent 'sustainability' independent of context, nor is there a set curriculum that a teacher can impart to the students. Accordingly, a teacher centred approach is not ideal when delivering content about sustainable practices; critical reflection on contexts, values and goals is needed, the subject is fluid and requires judgement and complex problem solving (Sandri, 2022). Climate change issues can also be difficult to teach as some can fall "too close to advocacy for classroom educators to address" (Monroe *et al*, 2019, p. 792) which can lead away from action-based work to teaching 'just the facts" (Monroe *et al*., 2019, p. 792). Experiential and action-orientated approaches to education are encouraged to effectively tackle the subject (European Food Information Council, 2019; European Commission, 2022), but the question of how exactly to integrate this into curricula still remains unclear (Sezen-Barrie, Miller-Rushing and Hufnagel, 2020).

3.3.4 Sustainability Education

The term 'sustainability education' is taken from Sterling (2003) who states that it is a learner-centred approach and is in contrast to 'education about sustainability' or 'education for sustainability', it is a reflexive mode where sustainability principles inform the learning and teaching (Sterling, 2003). It is often referred to as Education for Sustainable Development (ESD), which has been defined as education that "allows every human being to acquire the knowledge, skills, attitudes and values necessary to shape a sustainable future" (UNESCO, 2014).

> Education for sustainable development is a challenge for societies all over the world due to persistent social, ecological, and economic problems resulting in injustice, inequality, the exploitation of resources, and climate change. In order to achieve sustainability, education is meant to be a primary medium to sensitise people to these problems and equip them with the competences to join in the great societal transformation required (Zala-Mezo *et al.*, 2020, p. 673).

With the food sector being a major contributor to increasing effects of climate change (Whitmee *et al.*, 2015; Willet *et al.*, 2019; Springmann *et al.*, 2018) the Global Citizenship Food and Biodiversity Theme (GCFBT) creates a direct link between sustainability and food education. Sustainability education programmes can engender a student's sense of connection with their local area and environment (Green and Somerville, 2015), creating a sense of connection with local place which is strongly supportive of environmental learning (Roberts and Green, 2013; Smith and Sobel, 2010). School grounds, provide hands-on pedagogical material in the form of gardens, or other spaces for practical investigative activities. Sustainability education also provides the possibility for direct engagement with the wider community (Green and Somerville, 2015; O'Mahony and Fitzgerald, 2001) and for connecting actions in the school grounds to wider global issues relating the food system.

Sustainability education can trace its history from environmental education. The UNESCO's The Tbilisi Declaration (1977) was one of the founding documents with goals outlined as follows.

> To foster clear awareness of, and concern about, economic, social, political, and eco-logical interdependence in urban and rural areas; (2) to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment, and skills needed to protect and improve the environment; and (3) to create new patterns of behavior of individuals, groups, and society as a whole towards the environment (Schild, 2016, p. 19).

Orr (1994) argues that all education is environmental education by virtue of "what is included or excluded, students are taught that they are part of, or apart from the natural world" (1994, p 12). He poses the same question as Biesta "what is education for?" It should in his mind, espouse to create citizens who value the natural world and have a knowledge of how its ecology is affected by human behaviour, he is clear on the importance of education that does not emphasize theories over values; "abstraction rather than consciousness; neat answers instead of questions; and technical efficiency over conscience". The goal of education should entail the mastery of one's person not the mastery of subject matter. "The way in which learning occurs is as important as the content of particular courses" (Orr, 1994, p 14).

The Department of Education and Skills has drawn up a framework for education for sustainable development (Department of Education and Skills, 2021), and there may be opportunities to link this more directly to critiquing the food system and its effects on the school environment as well as global food issues. There is also an opportunity for schools to not only teach about sustainable food but to teach by example. A book published in relation to teaching climate change in primary schools (Dolan, 2021) emphasises the importance of cross-curricular pedagogical approaches, with a focus on climate justice. A previous book by the same author (Dolan, 2020) placed elements of climate change education and sustainability into the

geography syllabus, aiming to help children understand how these contemporary issues influence their current and future lives.

Effective education for sustainable development should focus on knowledge, skills, and attitudes for effectively dealing with real-life sustainable issues (Breiting and Mogensen, 1999; Cincera and Krajhanzl, 2013, p 118); what Boeve-de Pauw and Van Petegem (2011, p. 1516) identify as internal factors, which include "motivation, knowledge, values, attitudes, emotional involvement, and locus of control", while external factors are represented by institutional, social, and cultural circumstances. An educational approach that targets the internal factors, could be key to achieving internalised responsible environmental behaviour, according to Boeve-de Pauw and Van Petegem (2011). Moralising or behaviour-modifying teaching does not lead to behavioural changes (Boeve-de Pauw and Van Petegem, 2011). The influence of knowledge on behaviour is complex. While researchers agree that knowledge alone will not motivate someone to adopt a new behaviour (Schultz, 2002; Stern, 2000), it is equally clear that a lack of knowledge can be a barrier to changing behaviour (DeYoung, 2000; Schultz, 2002). As Nussbaum puts it "knowledge is no guarantee of good behaviour, but ignorance is a virtual guarantee of bad behaviour" (2009, p. 9).

3.3.5 Sustainability Education Through Eco-Schools

Eco-Schools is the largest global sustainable schools programme with over 16 million students taking part in their environmental educational projects (Eco-Schools, 2022). Established in 1992 by the Foundation for Environmental Education (FEE), a non-governmental organisation which brings together national governmental and non-governmental organisations. It implements programmes for environmental education, management, and certification, Eco-Schools is one of them (Boeve-de Pauw and Van Petegem, 2011). Every participating country,

of which there are seventy-two, has one national operator organisation who cooperates with FEE and who is responsible for the implementation, monitoring, and certification of the Eco-Schools programme within that country (Eco-Schools, 2017). In Ireland, the Eco-Schools programme is known as Green-Schools and is coordinated and facilitated by *An Taisce* (The National Trust for Ireland), a charity working to preserve and protect Ireland's natural and built heritage. Green-Schools is Ireland's leading environmental management and awards programme, established in 93% of schools, both primary and secondary, across Ireland.

The goal of the Eco-Schools programme is to increase pupils' environmental awareness by involving them in class, school, and community-based events, motivating young people to take an active role in protecting the environment and to share what they have learnt with family and friends (Shanker, 2017). Students' participation in decision making is key for the Eco-Schools programme (Cincera and Krajhanzl, 2013), to engage "the youth of today to protect the planet of tomorrow" (Eco-Schools, 2022, url). The programme aims to involve everyone in the school community "by working, as much as is possible, on locally relevant issues at the interface of school, environment, and community" (Schroder, Wals and van Koppen, 2020, p. 1090). Research into participation in Eco-School programmes has shown a link to beneficial actions within the community (Foundation for Environmental Education, 2019; Pirrie *et al*., 2006) as well as an increase in the environmental performance of schools (Boeve-de Pauw and Van Petegem, 2011; People and Work Unit, 2007; O'Mahony and Fitzgerald, 2001; Pirrie *et al*., 2006). The implementation of the programme however varies greatly from country to country ranging from what Goldman *et al.* (2018) call 'light green' or ad-hoc project and environmental management-oriented approaches compared to more systemic 'darker green' integrative approaches (Schroder, Wals and van Koppen, 2020, p. 1090). Morgensen and Mayer (2005) add that when school management results become the only consideration, the programme

becomes limited to "mere physical improvement in the school environment, lacking the perception of its educational effects" (2005, p. 86).

In Ireland, *An Taisce*'s Environmental Educational Unit operate the Green-Schools programme, in partnership with some Local Authorities. It is also supported financially by a number of government departments, semi-state bodies and charitable donations from companies such as the Wrigley Company Ltd. among others (Green-Schools, 2020). The programme is not funded by the Department of Education and Skills, but in the past has been supported through an allowance called 'Croke Park hours'. The Department of Transport is one of the largest financial supporters of Green-Schools, of which the Transport Theme is the most prolific, allowing for more interaction with schools. Thirty-four of the fifty-seven Green-Schools staff are working on transport or Safe Routes to School initiatives (Green-Schools, 2022b).

Green-Schools programmes are student-led with involvement from the wider community, and traces of the projects last many years after the initiative finishes, "it starts in the classroom, it expands to the school and eventually fosters change in the community at large" (Green-Schools, 2020, url). "Recycling levels of glass, paper/cardboard and aluminium along with levels of home composting are higher within the homes of Green-Schools students than within the homes of Non-Green-Schools students" (O'Mahony and Fitzgerald, 2001, p. 30). The Green-Schools programmes save the Department of Education and Skills money, by encouraging schools to save electricity and water. The programme also encourages civic awareness within the wider community, "overall, the Green-Schools students are less likely to drop litter and more likely to participate in local clean ups and environmental projects, conserve water and electricity and consider the environment when making a purchase" (O'Mahony and Fitzgerald, 2001, p. 32).

3.3.6 Environmental Opposition

"The environment is largely a public affair, consisting as it does of the air, water, and land that people consider to be integral to their daily lives, their homes, their work, and their play" (Hays, 2000, p.79). There are debates as to the origin of environmental politics, with most agreeing it emerged after the Second World War (Hays, 2000). Books such as *Silent Spring* (Carson, 2002 [1962]) frame the conversation of what became known as the environmental movement in the 1960s. There has been shifting public support for environmental policies over time (Clark *et al*., 2019), yet in the past decade a broad consensus has emerged within the EU and in other United Nations Countries (United Nations, 2020) that has resulted in environmental policy becoming prevalent in many aspects of society. This has filtered into education (Strife, 2010), in Ireland more specifically since the publishing of the UN SDGs (United Nations, 2020). Hays (2000) noted that there was limited focus on the environmental opposition, with a wide range of literature existing about the environmental movement, but little systematic observation of the opposition as a persistent development. Some note that environmental alarmism forgoes advocacy for evidence-based solutions to climate change (Nordhaus and Shellenberger, 2007), more recently there was increased criticism of environmental alarmism or what is termed apocalypticism (Uekotter, 2018). Sceptical environmentalists feel that environmental campaigning can often feature a biased and exaggerated presentation of its case (Lomborg, 2001). As with any strand of politics or campaigning, there are varying reasons for people's involvement within the environmental movement, and there are groups with contrasting approaches.

While there is a majority consensus on the importance of acting on climate change (United Nations, 2020; Willett *et al*., 2019; Global Panel on Agriculture and Food Systems for Nutrition, 2020; Foundation for Environmental Education, 2019; Kalsoom, Khanam and

Qureshi, 2022; O' Flaherty and Liddy, 2018; Schild, 2016; Environmental Protection Agency, 2022a; Orr, 1994) the previous section shows that there are also dissenting voices within the debate. Education which focuses on sustainability is becoming more prevalent (Dolan, 2022; Brennan *et al.*, 2021; Ardoin *et al.*, 2018; Eco-Schools, 2017; Monroe, 2019; National Council for Curriculum and Assessment, 2022). Incorporating food into sustainability education and providing a critical reflection on the food system is an important element of CFE, which along with experiential learning and pleasure present a rounded approach to food education.

3.4 Pleasure, a Novel Approach to Children's Food Education

The following text is meant as a catalyst for new thinking about how pleasure can be used to shape innovative approaches to food education within Irish primary schools. Within CFE, pleasure and enjoyment are seen as a positive force for educating children about food. This section outlines what is meant by eating pleasure in this context, and details research that explains how pleasure can be learnt. This is followed by a comparison of the French attitude towards pleasurable eating and sets this in relation to that of the UK and the USA before presenting some of the Irish complexities in relation to food pleasure and education.

3.4.1 What is meant by Pleasure?

A growing body of research puts emphasis on using pleasure as a motivating factor in wellbeing and food choice, to the extent that some countries including pleasure in their policies and dietary guidelines (Government of Canada, 2019; Finnish National Board of Education, 2008; Government of Brazil, 2014). By focusing CFE on the pleasurable aspects of diet, it may be able to realign how children form relationships with food. The pleasure of eating is closely linked to food preferences and food habits. Pleasure in food can be used to promote health

(Bétard, 2020), with Trudel-Guy *et al.* (2019) arguing that it is essential to include pleasure in the promotion of healthy eating habits, in fact, they consider eating pleasure as central in the development of children's food identity. Students can gain pleasure in food by building trust in their own taste buds (Wilson, 2018) and slowly engaging and educating the senses and building hands-on skills. In this context pleasure is considered a purposeful, action orientated endeavour where the bodily outcome is one of long-term fulfilment and satisfaction rather than a quick corporeal reaction. There is a danger that pleasure is not seen in a measured light but simply as an immediate gratification, a greedy response to the foodstuff on a plate. Pleasure can however be more than an immediate anatomical response to the victuals that we put in our mouth, it can be extended to the preparation of food and the knowledge that what is prepared provides nutrition and sustenance in the long-term.

Epicureanism is one of five major schools of ancient Greek and Roman philosophy (Palmer, 2016). Epicurus considered pleasure, including pleasure in food and drink, not only to be the main motive of our actions but also the supreme good, stating "pleasure is our first and kindred good. It is the starting point of every choice and of every aversion, and to it we come back, inasmuch as we make feeling the rule by which to judge of every good thing" (Wilson, 2019, p. 10). Epicurus may have lauded pleasure, but in his view, pleasure was not gluttonous; rather it was paired with avoidance and prudence. He reminds us that the pursuit of small pleasures now can bring on severe pains later, while the endurance of certain pains now can bring more pleasures in the future (2019). A pleasurable life is "one free of deprivations, starting with freedom from hunger, thirst and cold, and the freedom from persistent fears and anxieties" (Wilson, 2019, p.10).

In his essay entitled *Utilitarianism*, John Stuart Mill (1806-1873) describes a hierarchy of pleasure. He argues that intellectual and moral pleasures (higher pleasures) are superior to more physical forms of pleasure (lower pleasures) (Mill and Bentham, 1987). Utilitarianism's system of ethics has had an enduring influence on moral philosophy and legislative policy, it propounds the view that the value of an action rests in how well it promotes the welfare of those affected by it, aiming for the greatest happiness of the greatest number. "Utility … holds that actions are right in proportion as they tend to promote happiness. By happiness is intended pleasure, and the absence of pain" (1987, p. 278). A more expansive approach to food education has the ability to create positive outcomes for society (Sandell *et al.*, 2016). Learning and educating about food may provide the knowledge, skills and ability for students to live a more pleasurable life. "Pleasure plays a central role in eating for adults and children alike. Pleasure from eating is also learnt and contributes to the development of children's eating habits, which remain mostly stable until adulthood" (Olsen, 2019, p. 26).

3.4.2 Research that Suggests why Pleasure is a Good Basis for Food Education

Bodily reactions can be manipulated and moulded, "your tongue is no one else's tongue; your nose is unique; your sense of pleasure and labour ... is yours alone" (Rosner, 2019, url). Pleasure from eating can be viewed as subjective but a study by Marty *et al.* (2018) breaks pleasure into three dimensions to better understand its effects and to see if these could be learnt and developed. The three dimensions were sensory, interpersonal and psychosocial. The authors explored the possibility that these three dimensions of pleasure could be used as alternative levers for the adoption of healthy eating behaviours in children. The study outlined that pleasure could be derived from the sensory sensations felt during food consumption, from the social context of food sharing or from the cognitive representations of food. Children could learn to like and eat healthy foods by early, positive, and repeated experiences with those foods,

as well as through opportunities to observe others consuming those foods. Marty *et al.,* concluded that "the learning of deriving pleasure from eating is a process, which constitutes a major opportunity to shape healthy eating behaviours from early childhood" (2018, p. 271).

Research on over-eating and self-regulation by Cornil and Chandon (2016) associated eating pleasure with "short-term visceral impulses triggered by hunger, external cues, or internal emotional urges" (2016, p. 52). If visceral eating pleasure was the short-lived hedonic relief created by the satisfaction of eating impulses, Cornil and Chandon's study aimed to sharpen our understanding of what they call Epicurean eating pleasure. They then wanted to use this increased understanding to promote well-being. Drawing on research into the social and cultural dimensions of eating, the authors stated that Epicurean eating pleasure was the "enduring pleasure derived from the aesthetic appreciation of the sensory and symbolic value of the food" (2016, p. 53). Using Epicurious's idea that pleasure manifests in conjunction with moderation and well-being, Cornil and Chandon used this as a starting point to establish a means to measure eating pleasure tendencies. They developed a scale with which to measure Epicurean eating pleasure. According to their findings those with a higher score had a more benign relationship with food, choosing smaller portions and savouring their food more. An Epicurean perspective on pleasure could equally facilitate moderation and well-being. Cornil and Chandon advocated a paradigm shift from 'food as health' to 'food as well-being'. The study also underlined the pitfalls of the moralisation of pleasure in food research. They argued that "the moralising approach, equating the pleasure of eating with 'low-level' visceral urges should give way to a more holistic approach which recognizes this positive role of Epicurean eating pleasure" (2016, p. 52).

Batat *et al.* (2019) expanded on the work of Cornil and Chandon, by introducing the notion of experiential pleasure of food and pleasure as an ally to well-being. Experiential pleasure of food was described as "a journey that involves the enduring cognitive and emotional pleasure consumers gain from savouring the multisensory, communal, and cultural meanings of food experiences" (2019, p. 392). Batat *et al.* advocated for the savouring of these practices in order to promote enduring health and well-being. The authors stated that "food, like art, is imbued with meaning by its creator through its sociocultural lens and as it is interpreted by the audience/consumer" (2019, p. 393), which was building on Cornil and Chandon's idea of the "aesthetic appreciation of the sensory and symbolic value of the food" (2016, p. 53). Consumers who consciously develop experiential pleasure of food perspectives view food as an artistic experience to be savoured and shared whenever possible, rather than regarding it solely as a survival mechanism or as an immediate pleasure. "They see eating as a transformative and evolving experience that allows them to accumulate both knowledge and pleasure in order to achieve food well-being" (2019, p. 394). Batat *et al.* (2019) listed the differences between their approach and that of Cornil and Chandon which are illustrated in Figure 3.2.

Epicurean eating pleasure (EEP) vs. experiential pleasure of food (EPF).

Epicurean eating pleasure (EEP)	Experiential pleasure of food (EPF)
Goal oriented	Process oriented
Pleasure	Delight
Micro perspective (individual)	Macro perspective (society, culture)
Define	Empower
Improved well-being	Enduring well-being
Epicurean tendencies	Integrated holistic food experience
Aesthetic appreciation	All-inclusive appreciation
Disembeddedness	Embeddedness
Etic approach	Emic approach
Static	Scalable
Single authenticity	Multiple authenticities
Single driver experience	Several driver experience
Consistent	Transformative

Figure 3.2 Epicurean Eating Pleasure compared to Experiential Pleasure of Food

Batat *et al.* (2019) believe that the experiential pleasure of food allowed consumers to increase savouring. This I through mindfulness, the appreciation of sensory information and shared meaning, as well as the promotion of positive sociocultural identities, which in turn, increased satisfaction and delight. Practitioners, policymakers, and scholars were encouraged to focus on promoting pleasure in food experiences. Figure 3.3 illustrates the three stages described by the authors that facilitated creating experiential pleasure of food. This approach was deemed necessary because people have consistently been encouraged by food researchers, nutritionists, and the media to exercise restraint and sacrifice pleasure for the sake of long-term health. The narrative encourages a resistance of "the siren call of tempting foods by averting attention away from bodily states... Food pleasure is typified as fleeting and rebellious, being a simplistic hedonic satisfaction resulting from indulging visceral urges. Food pleasure, therefore, is cast as the antagonist to healthy food decisions" (Idem, 2019, p. 391). An alternative view, one where people developed experiential pleasure of food characterises food pleasure as a positive pathway to well-being. "This positioning asserts there are benefits to having greater self-awareness of pleasurable sensory and bodily states during food experiences instead of focusing externally on avoiding perceived temptations" (2019, p. 391). The authors believe that experiential pleasure from food is a sustainable journey able to promote enduring food-well-being as well as healthy eating.
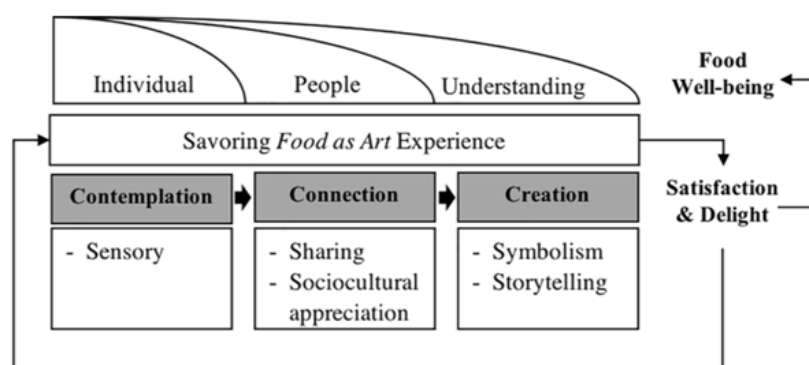
Figure 3.3 The Experiential Pleasure of Food journey

A study of pleasure orientation (Huang and Wu, 2016) concluded that those with a higher pleasure orientation, such as the French, tend to focus more on the experience of eating and less on the health consequences of eating. Pleasure orientation focuses on "to what extent food is associated with sensorial and social pleasure" (2016, p. 75). The study explained that an over reliance on healthiness as a driver for dietary decisions could backfire, that "people usually hold a healthy=less tasty intuition" (2016, p. 75). People high in food pleasure orientation evaluate food mainly from a hedonic perspective, instead of a healthy one. This hedonic approach suggested that eating well was related to, rather than distinct from, sensory pleasure. The findings indicated that it was more likely for people high in food pleasure orientation to have healthy food for pleasure. Moreover, such people did not need to compensate for their healthy choices with unhealthy side dishes or desserts. The authors continued by saying that:

> food pleasure orientation increases people's tendency to eat healthy food in general and also reduce the total amount of calories that people consume. This perspective may partially explain why people in cultures that emphasize the pleasure of food consumption, such as in France and China, seem not to suffer from a serious overweight problem (Huang and Wu, 2016, p. 77).

3.4.3 French Pleasure in Food

The writer Alice B. Toklas once said about the French approach to food that "they bring to their consideration of the table the same appreciation, respect, intelligence and lively interest that they have for the other arts, for painting, for literature and for the theatre" (2004, p. 2). When researchers discuss pleasure in eating, France is often referenced to as being highly food–pleasure-oriented and less food–health-oriented (Rozin *et al.,*1999; Rozin *et al*., 2006; Werle, Trendel and Ardito, 2013). When "analysing the interplay of the 'negative' (worry, fear, dread) and 'positive' (pleasure, anticipation, social facilitation) aspects of food in a study, that focused on Flemish-speaking Belgium, France, U.S.A. and Japan, the French attitude was described as "relaxed and pleasure-oriented" (Rozin, 1999, p. 164) (see Figure 3.4). In contrast it was stated

that there was a sense among many of the American participants that food was "as much a poison as it is a nutrient, and that eating is almost as dangerous as not eating" (1999, p. 164).
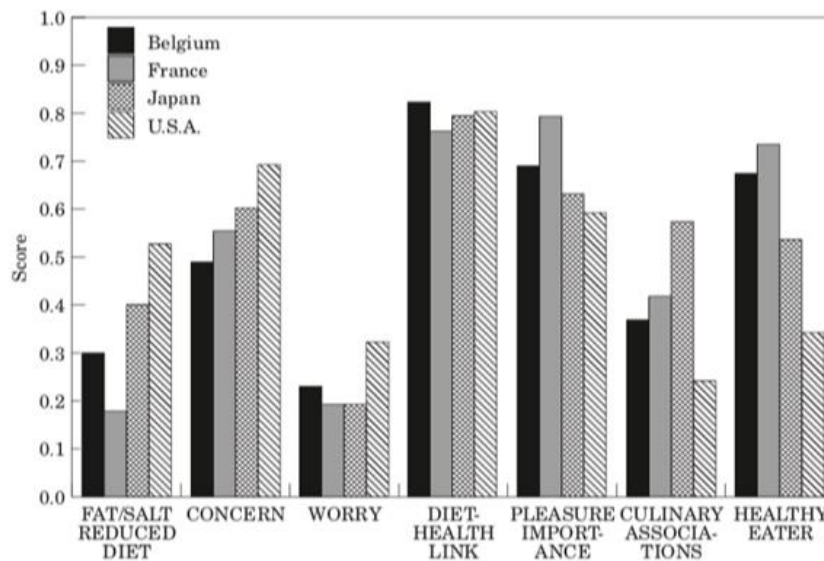
Figure 3.4 Country effects on pleasure and other major variables (Rozin, 1999)

It has been observed by Marty *et al.* (2018) that French mothers' attitude to food is focused on pleasure and taste development, whereas in contrast British mothers place more of an emphasis on health and nutrition; alternately in the USA, foods are often seen by mothers as a source of worry. When comparing American and French attitudes towards food, Rozin, Remick, and Fischler (2011) found that preferences among Americans were measured as variety, abundance, and comfort, whereas communal food values such as moderation and joy were more prevalent among the French. As well as a focus on pleasure and taste, there is an acknowledgement in France that social eating situations, which encourage interactions between people during meals, are crucial for the development of children's eating behaviours. Social engagement was noted as another way of enhancing pleasure through education. Sharing provides an opportunity to reinforce values and norms and strengthen communal ties, such as intimacy (Miller, Rozin and Fiske, 1998). Sharing, whether in an edible garden or across a table, offers a particular insight into enhancing the pleasurable experience of food: commensality and collaborative consumption (Batat *et al.*, 2019). For example, participation in a shared community garden

allows for the dissemination of recipes, tips on growing, preparing, and storing vegetables, and the exchange of nutritious foods among the community.

Werle, Trendel and Ardito (2013) who conducted a study entitled *Unhealthy food is not tastier for everyone: The 'healthy=tasty' French intuition*, found that, for Americans (from the USA), unhealthy food is implicitly associated with tastiness, whereas the opposite intuition exists in France: unhealthy food is spontaneously associated with bad taste, while healthy food is linked to tastiness. The authors claimed that the findings had important practical implications, as public policy makers may reinforce the French model thus emphasizing the pleasure of eating and avoiding increasing guilt associated with food consumption. "Our research demonstrates that restrained eaters tend to have a less strong healthy = tasty intuition, suggesting that guilt associated with food consumption could be one of the keys to explain the inter-cultural differences identified here" (2013, p. 120).

3.4.4 Pleasure in the Irish Context

Centuries of colonial rule punctuated by a devastating famine has left Ireland with a less distinct food culture than France or its other European counterparts. The approach to food within the Irish school curriculum tends not to have the cultural weight seen in countries that have a deeper food culture such as France (French Department of Agriculture and Food, 2020). Within education the focus is more akin to that in the USA, where the effect of food on bodily health are placed ahead of pleasure and enjoyment in food (National Council for Curriculum and Assessment, 1999a).

3.5 Conclusion

This narrative review presented literature relating to experiential learning, and theories on how children learn and develop efficacy, as well as the current debate on sustainability education. The final section narrated the discussion about pleasure as a motivating force for wellbeing. The literature clearly shows that there are many facets to food education and that these are interpreted differently by the various food education initiatives. While schools are ideal settings for delivering food education, at present there is very little included in the Irish primary curriculum. As noted in the previous chapter, in many Irish schools' extracurricular food education initiatives are filling this space. Positioning a broadened version of food education, such as CFE, within the curriculum, would allow for a coherent approach throughout the education system, one that can be disseminated through teacher training and DES literature. Sustainability education is being expanded and embedded in other areas of the curriculum, there is room for this expansion to include the conversation about food systems, biodiversity and how food production impacts the environment.

The theories documented in the literature not only influenced the content creation of the GCFBT but also how it was delivered within schools. Details about this are presented in Chapter 4 and the findings from an analysis of the data are documented in Chapter 6. A food education programme was built that encourages growth in children's efficacy and capabilities. This was done by taking a constructivist approach to education using pleasure and hands-on learning. Knowledge about how children learn from those around them, both adults and peers, fed into the development of workshops for GCFBT, with social constructivist theories taken on board. Bandura, Giddens and Freire influenced the elements of the programme that espouse to build efficacy and agency. An action research (AR) methodology, which aims to foster change, as well as a discussion about how change is instigated, was used throughout, in the

scoping consultation with key stakeholders (SCKS) and the final research findings feedback workshop (RFFW). This mindset influenced the choices to use an evaluative approach to the data analysis. There is a triangulation of the broad range of theorists who were presented in this review, as well as in the next chapter. These theories influenced, not only the evaluative framework, but the overall research design.

Chapter 4 Research Design and Theoretical Framework for Evaluation

4.1 Introduction

The following chapter outlines the research design and describes the methods used at different stages throughout the research. As the data collected is of a qualitative nature, this form of data collection was investigated before sketching out the ontology and epistemology that underpins the project. It was of importance to lay this information out clearly before embarking on the detailed presentation and analysis of the fieldwork in upcoming chapters. The capability approach (CA) was used as a framework to evaluate the pilot of the Global Citizenship Food and Biodiversity Theme (GCFBT) which is presented in Chapter 6. The history of the CA, as well as recent interpretations, are presented in this chapter, so too is the reasoning on why it best suited the project. Links between the CA, action research and Freirean thinking are detailed, and the limitations of the project and the ethics are documented.

The narratives of the three sections of field work are presented. A scoping consultation with key stakeholders (SCKS) allowed for a conversation with forty-six stakeholders and the gathering of data in relation to their opinions and advice on the topic at hand. When assessing what works best in schools, for both teachers and students during the SCKS, it was felt that a deeper exploration was needed. A two-year development and pilot, of a food education initiative was embarked upon. The pilot strove to see things from the perspective of those implementing and experiencing education within classrooms. The findings from the literature, the SCKS, and the GCFBT pilot were then explored and verified within a final research findings feedback workshop (RFFW). This was conducted with teachers in training, teachers, school principals and policy makers from the NCCA. The term circular food education (CFE)

was coined as it was felt there was no existing way to describe the broad approach to food education that was being developed during the research.

4.2 Research Design

A multi-method action research methodology was used throughout the research. The research design entailed three steps that were designed to answer the MRQ and the four RSQs (Figure 4.1). Step One was 'Diagnose and Plan' which included a narrative review of literature, theory and government documentation, as well as the hosting of a scoping consultation with key stakeholders (SCKS). The SCKS allowed the researcher to determine what was of importance to the stakeholders, as well as providing up-to-date information on the topic. The combination of literature, theory, and the data from the SCKS facilitated the planning and implementation of Step Two, 'Act and Observe'. For this step a food education programme, GCFBT, was developed and piloted. Feedback on the results from Step One and Step Two were gathered through the RFFW in Step Three, 'Evaluate'. The data collected from this workshop and throughout the project were evaluated and analysed at this stage in the design.

Step 1		Step 2	Step 3
Diagnose and Plan		Act and Observe	Evaluate
Literature Review Scoping Consultation with Key Stakeholders	Theoretical underpinning Analysis of the current state of play in relation to food in Irish society	Development and piloting of Green-Schools Food and Biodiversity Theme	Research Findings Feedback Workshop
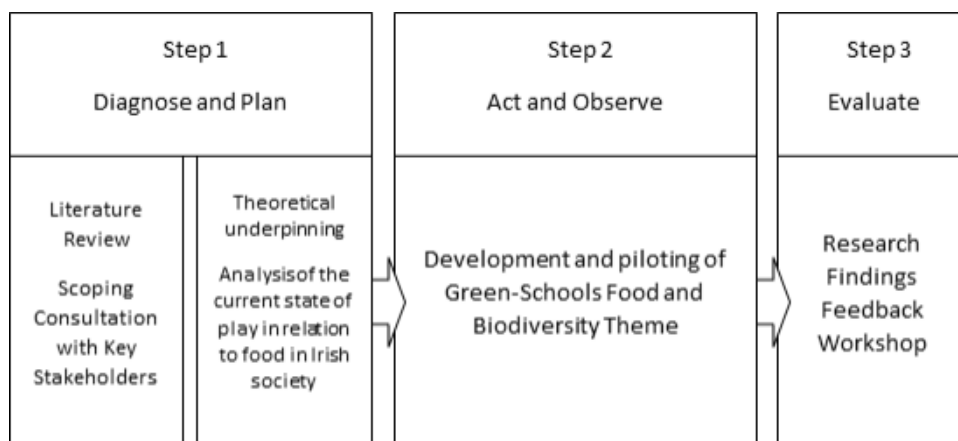
Figure 4.1 Three Steps of the Research Design

Within each of the three steps, when conducting the fieldwork, an AR methodology guided the researcher on the path of learning through action. There was an understanding that there is no one way to conduct AR, and that the models provided are guides, or recipes that can be adapted to suit a particular research project. Various templates are offered, Susman and Evered (1978), Elliot (1991), Kemmis and McTaggart (2005) and O'Leary (2004). A word of caution is issued about following any one model too rigidly (Koshy, Koshy and Waterman, 2010) as opportunities that arise from within the research may be overlooked. Kemmis and McTaggart (2005) also acknowledge the fluidity of AR and note that individual stages specified in a certain model may overlap, or that initial plans may become obsolete in a short period of time due to the emergent nature of the process.

Three action research cycles were included in the design and were used to develop the GCFBT fieldwork in Step Two. There were five-phases within each cycle. The five-phases were influenced by Susman and Evered's (1978) five-phase model and based on O'Leary's (2004) cycles of AR, which in turn was based on Kemmis and McTaggart's (2005) AR spiral. Susman and Evered's five phases of diagnosing, action planning, action taking, evaluating, and specifying learning (1978) were considered each step of the way allowing for the development of a multi-method research plan, one that was adaptive, layered and nuanced. The three AR cycles which were used to develop and pilot the GCFBT are depicted in Figure 4.2. Iteratively adapting the development throughout the cycles and reflecting on the data gathered, allowed the programme to be refined in conjunction with the students and staff.

2 x Teacher engagement sessions

10 x Initial school visits

CYCLE 1

Evaluate

Review of research

Soil and seed workshops
including feedback and discussion
with students and teachers

CYCLE 2

Evaluate

Garden workshops
including feedback and discussion
with students and teachers

Review of research

Cooking workshops
including feedback and discussion
with students and teachers

6 x 2 Feedback from coordinating teachers

2 x Feedback from Green-Schools staff

CYCLE 3

Student feedback

Analysis of observation notes and images

Evaluate

Feed into research workshop
and
recommendations

Figure 4.2 Action research cycles for the Green-School Food and Biodiversity Pilot

4.3 Evaluation of the GCFBT

The cycles within the GCFBT pilot were evaluated through a reflective journal kept by the researcher who facilitated the workshops within the pilot, the collection and recording the students' work, and teacher and Green-Schools staff evaluation sheets. The researcher carried out all three of these mechanisms for evaluation at various stages throughout the two years that the workshops were being delivered. The PhD research was used as a pilot for the national roll-out of the GCFBT.

4.3.1 Reflective Journal

Reflective notes were taken in a journal after each of the eight school visits and after the researcher facilitated (see Figures 4.3 and 4.4) each of the 17 workshops (see Table A). The students were asked as a group at the end of each workshop "what went well?", "what they enjoyed doing?" and "what they would change?". They were given the opportunity to raise their hand and talk about their experience of the workshop. This created debate and conversation among the group. The researcher took notes in a reflective journal after each workshop in relation to this feedback and also took note of what could be done differently for the next iteration of the workshop. The reflective journal is a reflective writing tool that provided the researcher with a process that enabled them to consciously reflect on each element of the delivery of and learning gained from each workshop.

> Teachers should be aware of the differences between reflecting on, in, and for action. They can reflect after, before, and during class, and, ideally, all these moments of reflection link to each other as teachers reflect on, in, and for action. (Farrell, 2020, p. 32)

By writing in the journal immediately after each workshop the researcher could capture any learning that emerged during that workshop or from the participants feedback after the workshop. With these reflections the researcher was able to note any reflections for action and

make informed changes to the design of the workshops. One limitation to using this type of student feedback is the favourable bias that may arise from the researcher being the person collecting the feedback. However, by including analysis of the students' work and an awareness of the high levels of engagement in the workshop activities, this feedback bias may be mitigated to some degree.

Figure 4.3 Instructions for the taste workshop - researcher facilitating with Green Schools staff observing

Figure 4.4 Facilitating a garden workshop

The students' work consisted of artefacts created during the workshops (see Figures 4.5, 4.6 and 4.7) which were photographed during each workshop by the researcher or a Green-Schools staff member. These artefacts document practical and experiential learning items that the students had produced through their participation in the programme. A portion of the artefacts show work created by students when they were working together in small groups on a task. In these instances, it meant that the researcher was unable to distinguish the work of each student individually, but they provided documentation of the interpersonal and environmental aspects of the programme (see Figure 4.8). These interpersonal and environmental elements of the programme were further elaborated in the teachers' evaluations.

Figure 4.5 Examples of seedlings potted by students during a garden workshop

Figure 4.6 Examples of herbs grown and picked by students before a kitchen workshop

Figure 4.7 Map drawn by a student during a Habitat Mapping workshop

Figure 4.8 Salad made by students during a kitchen workshop

Students' projects (see Figure 4.9 and 4.10) were also used as evaluation tools. These provide an insight into how each individual participant was engaging with the material and an understanding of how students' capabilities were expanded through the programme. This occurred in two ways; firstly, the projects were created by the students at the end of the two years so there was a culmination of learning on view, and secondly, they were presented and

explained by each student to the researcher (online due to COVID-19 school closures), they demonstrated the learning they gained from their participation on the course. These projects were clear examples of individual students work.
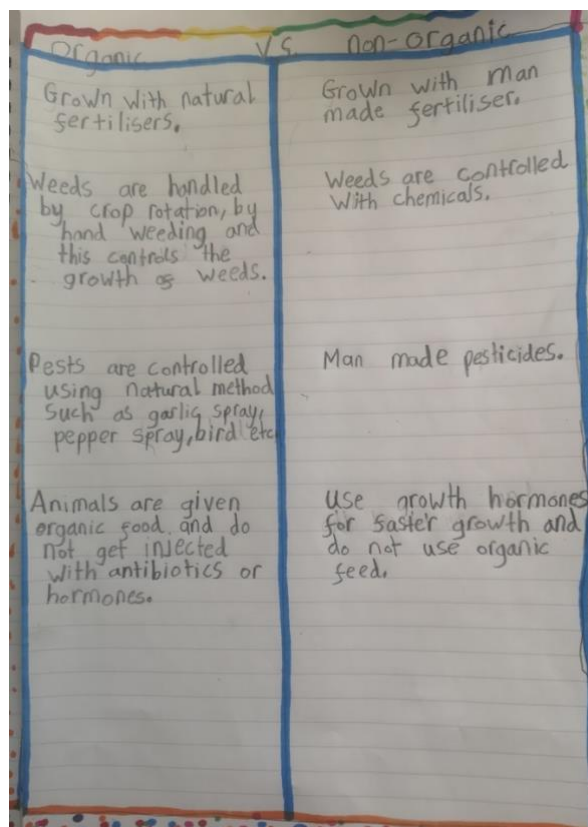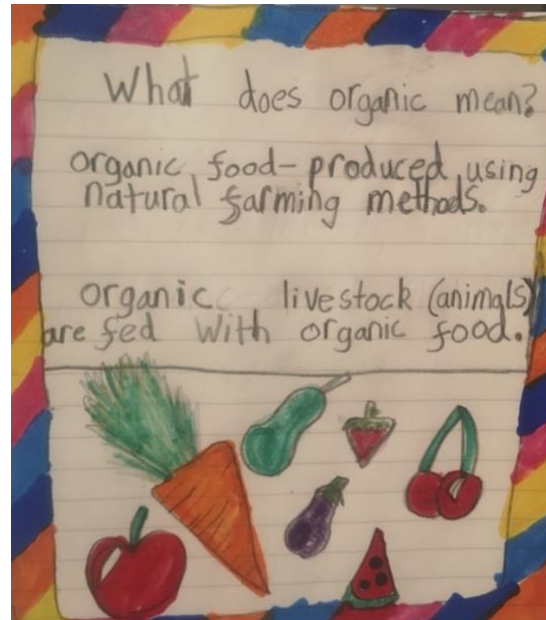
Figure 4.9 An example of two pages from a student's project on organic farming

Figure 4.10 An example of a page from a student's project about palm oil and deforestation

4.3.3 Green-School Staff and Teachers Evaluation Sheets

The evaluation questions were created by the researcher in relation to the capabilities framework and contain eight questions, to be completed at the end of the first half of the programme and twenty-two questions on completion of the entire programme. These were

emailed to staff and returned to the researcher via email. The questions were created in SurveyMonkey software (see footnote 2 in section 4.13.4). The questions were focused on gathering a sense of the capabilities gained through participation in the GCFBT. Viewed through the lens of the capability approach, schools should ensure that all students meet a threshold that enables them to exercise agency (Nussbaum, 2009b). By considering critical thinking, world citizenship and imaginative understanding as capabilities gained, teacher and Green-schools staff feedback allowed the researcher to evaluate if the agency of the participating young people was increased through empowerment in learning (Sen 1993) and being active participants (Biggeri and Santi, 2012; Lipman, 2003) in the programme (see Figure 4.11).

4.3.4 The Evaluation Tools in Relation to the Capabilities Framework

The evaluative tools were used to observe changes on the children's capabilities as well as their skills and abilities. The triangulation of the three evaluative tools gave a holistic understanding of the students' participation in, and satisfaction with the programme. The capabilities approach was used as an evaluation model both throughout the programme implementation, and at the end of the two-year pilot when all of the evaluation tools were gathered (see Figure 4.11). Foundational methods (Byskov, 2017) were used to select the capabilities of critical thinking, world citizenship and imaginative understanding as they were linked to both the original aims of the Green-Schools staff (see section 4.14.3) and the contents of the programme. The findings from the evaluation are presented in section 6.7.1 through to 6.7.4.
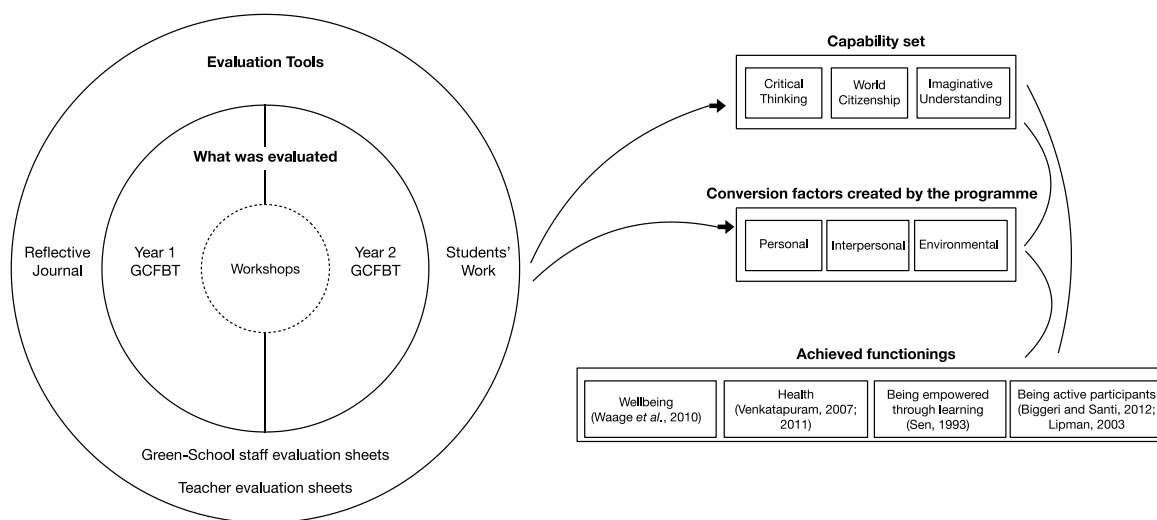
Figure 4.11 The evaluation tools and conversion to capabilities and functionings

4.4 Ontology and Epistemology

Often a combination of more than one paradigm underlies the ontology and epistemology of a research project. Throughout this project for example both constructivist and pragmatist paradigms are drawn upon, as seen in the theorists most often cited; Dewey, Freire and Sen.

Ontology is the question of 'what is reality'. In more descriptive terms, the Oxford Dictionary defines it as "a branch of philosophy that deals with the nature of existence" (2021, url). A realist ontology sees one single reality, but a relativist ontology is based on the philosophy that reality is constructed within the human mind, and as such no one 'true' reality exists (Hoffman and Kumar, 2020). Reality is instead relative to how individuals experience it at any given time and place. A relativist viewpoint is taken throughout this project. In the piloting of the GCFBT, knowledge was constructed from a set of lived experiences, accepting that children build their own knowledge through action and hands-on learning. According to Freire we must recognise

the unity of subjectivity and objectivity in the act of knowing. Reality is never simply the objective datum, but is also people's perception of it (Freire, 2017).

Epistemology refers to what is knowable and what is worth knowing, how do we know if things are true or false, and what steps do we take to gain knowledge of the world. The word comes from the ancient Greek *episteme* meaning 'to know' (James, 2015), *ology* refers to the debate about what knowledge is. Meanings are constructed by human beings as they engage with the world they are interpreting. "Epistemology is concerned with providing a philosophical grounding for deciding what kinds of knowledge are possible and how we can ensure that they are adequate and legitimate" (Maynard, 1994, p. 10).

In constructivism there is no one objective truth waiting to be discovered, "truth and meaning, comes into existence in and out of our engagement with realities in our world" (Crotty, 1998, p. 16); in this understanding of knowledge people create meaning in diverse ways. Constructivism is the view that "all knowledge, and therefore all meaningful reality as such is contingent upon human practices, being constructed in and out of interaction between human beings and their world and developed and transmitted within an essentially social context" (Crotty, 1998, p. 52). In the context of this research, a methodology that involves multi methods and embraces an AR perspective aligns with both constructivist and pragmatic paradigms and embraces a relativist ontology. This feeds into how the research design was developed in line with an AR methodology, which espoused an iterative qualitative approach where both the researcher and the participants co-created the knowledge as the project progressed.

Constructivist dialogues acknowledge that there are multiple perspectives, values, and ways of life created by people of the world (Given, 2008). Food and one's relationship to it cannot be

fixed and absolute, there may be singular or multiple versions of the truth and reality, which may sometimes be subjective and sometimes objective (Cohen, Manion and Morrison, 2007). There are common interests between constructivism and pragmatism. Dewey (1997) contends that pragmatism seeks to find the truth whether it be an objective truth or the relative truth of multiple realities. As knowledge can be considered personal and subjective in pragmatism, it is necessary to examine interpretations of the world, as seen through the eyes of multiple participants (Cullerton, 2017). For this research a constructivist approach was taken as constructivism is not simply an epistemology but also a learning methodology.

4.5 Qualitative Research

A mainly qualitative approach is taken throughout the research, with one foray into quantitative data collection, which was a survey administered to two classes within each school participating in the GCFBT case study. The aim was to provide before and after quantitative data relating a broad spectrum of the participating children, the large sample size of 686 students would allow for some generalisability of the results. Due to COVID-19 school closures, the second stage of survey data collection became impossible. Thus, the research became reliant solely on qualitative approaches, which leads it to be multi methods rather than mixed methods; a mixed methods design being where the researcher collects and analyses quantitative and qualitative data separately on the same phenomenon and then the different results are converged (Creswell, 1999). Multi methods on the other hand refers to different qualitative methods being used in a single research study (Hesse-Biber, 2010).

According to Denzin and Lincoln "a complex, interconnected family of terms, concepts, and assumptions surrounds the term" qualitative research (2018, p. 41). This form of research often has a small sample size, which can make it difficult to draw generalisations, but it can result in

more in-depth and richer data. Methods, such as participatory action research and reflective note taking subsequent to workshop facilitation, provide a unique insight into the lived experience of participants, thus allowing for the collection of information regarding cultural, societal, and organisational norms (Robson, 2002). At times "politicians and hard scientists call qualitative researchers *'journalists'* or 'soft' scientists. Their work is termed unscientific, only exploratory, or subjective" (Denzin and Lincoln, 2018, p. 40). Yet these very criticisms can in turn be strengths. The exploratory nature of the inquiry can be of benefit when answering certain research questions, particularly questions that relate to lived experience, where reality is not seen as a stable and unchanging objective truth. In fact, reality is seen as subjective and multidimensional, which in turn aligns with a constructivist paradigm (Creswell and Clark, 2007).

An over reliance of policy makers on positivist quantitative data has formed the health-based food education we have in Ireland today (Health Service Executive, 2021). This tends to stem from neoliberal discourse (Denzin and Lincoln, 2018). For Wright "every overtly social justice-orientated approach to research … is threatened with a de-legitimisation by the government-sanctions, exclusivist assertion of positivism … as the gold standard of educational research" (2006, p. 799). Conducting detailed qualitative research can reinforce and bolster the quantitative data already available to policy makers (Health Service Executive, 2021). For this project it was necessary to use different qualitative methods to gain insight into the differing opinions and desires of those involved in the research and it helped to incorporate lived experience and richer data into the discussion.

4.6 Methods and Methodology

As the literature suggests, food is a complicated subject and many different approaches can be taken to food education (National Nutrition Council of Finland, 2017; Morgan and Sonnino, 2007; Persson-Osowski, Göranzon and Fjellström, 2012; Kohlstedt, 2008; Wang, 2010; Block *et al.,* 2019, McGowan, 2021b). To answer the research question, it was necessary to embrace a methodology that allowed the issue to be examined from different viewpoints. Methodology refers to the choices that have been made about methods and design. There are always alternatives, so a methodology needs to set out the reasons for certain decisions and the argument as to why research was approached from one direction and not another (James, 2015). The rational for using a multi-method action research methodology was guided by the nature of the topic. There are many stakeholders in food education; the children who learn, the teachers, the schools, the NCCA and Department of Education, but also other policy makers and organisations. Action research encompasses "a family of approaches that have different orientations, yet reflect the characteristics which seek to 'involve, empower and improve' aspects of participants' social world" (Koshy, Koshy and Waterman*,* 2010, p. 15). Second person practice was engaged throughout this research (Reason and Bradbury, 2012) (see Chapter 1 section 1.2).

Methods are the techniques used to find something out, the activities we engage in so as to gather and analyse our data (Crotty, 1998). Methods are generally explicit to the reader and documented in detail within research projects (James, 2015). In this instance a multi-method approach was taken which encompassed a variety of methods, such as a scoping consultation, facilitation of participatory workshops throughout the development and piloting of a food education initiative in eight participating schools, as well a research findings feedback workshop. The multi-method qualitative approach allowed for cross validation. According to

Denzin (1970) multiple research methods are beneficial because each method reveals a different aspect of reality. Reflexive thematic analysis was used to analysis the data from the SCKS and the RFFW. These methods, and the different evaluative steps taken will be further articulated in the next three sections of this chapter, each section relates to the fieldwork conducted in one of the three research design steps. One of the desired outcomes of the research project is to produce recommendations for a different approach to food education and the research methods employed were chosen to support this, as they built a picture from differing angles. Table 4.1 outlines the perspectives taken throughout the research and these align with the qualitative approach to collecting data.

Ontology	Epistemology	Theoretical perspectives	Methodology	Methods
Relativist	Constructivist	Constructivist principles Deweyan pragmatism Capability Approach	Action Research	Multi-Method Approach: Scoping Consultation Participatory Action Research Reflexive Thematic analysis

Table 4.1 Perspectives taken throughout this research

4.7 Action research

The term AR, introduced by Kurt Lewin, "was designed to combine a generation of theory with a desire to change the social system, by the researcher acting on or in that social system" (Susman and Evered, 1978, p. 586). Action research methodology is a particularly useful approach, being congruent with Freirean theories on education and emancipation. It emphasises the importance of practical democracy and education in the practice of inquiry (Reason and Bradbury, 2012), while being a "participatory process concerned with developing practical knowing in the pursuit of worthwhile human purposes" (2012, p. 4). It can help to deepen an

understanding of educational processes by developing strategies to bring about improvements (Walker, 2009, p. 302). When conducting AR, the researcher does not remain distant from the object of study, but works within a "conscious relational space, broadening perspectives and producing results together" (Bradbury, 2020, p. 54), in collaboration with others involved in the practice. The importance of collaboration is apparent by the fact that it is embedded into the seventeenth UN SDG; Partnerships and Goals (United Nations, 2020).

Action research seeks social justice, democratic innovation and social change for the common good through collaboration and enquiry (Ness and von Heimburg, 2020). In AR, collaboration is coupled with citizen engagement, and the use of co-construction to address complex issues "to promote human dignity and flourishing in present and future generations" (Ness and von Heimburg, 2020, p. 35). The 'common good' referred to being the Aristotelian notion of the common good as a 'public interest'. "All citizens can flourish and fulfil their purpose as human beings in community life, as opposed to pursuing the interest of sovereigns and other powerful leaders" (Ness and von Heimburg, 2020, p. 35). The complex problem of climate change and the manifold nature of food education require a methodology that is adaptive and embraces this change for the common good through participation and collaborative enquiry. Efforts to pursue the common good need to adjust in an ever-changing society and by engaging citizens, acknowledging them as part of the solution – nurturing capabilities and capacity building.

Walker and Loots are critical of the "tendency of researchers to merely use action research as a research method rather than a methodology, and sometimes even only as an intervention of action-reflection to address practical issues" (2018, p. 168). To preclude this, the research knits together Freirean theory which "expands the conceptual bases and social environments for participation and dialogue" (Flores-Kastanis, Montoya-Vargas and Suárez, 2012, p. 460) with

AR. An AR methodology not only has affinities with Freirean theories but also with the capability approach (CA) which has at its core an aim to create better lives and outcomes through research (Walker, 2009).

Journaling is the practice of recording events, ideas and thoughts throughout a research project (Coghlan and Brydon-Miller, 2014). This is particularly important in the context of action research (Hendricks, 2017) because the process is iterative and changeable by nature (Bradbury, Lewis and Columbia Embury, 2019) and having ability to reflect adds clarity to the research process.

4.8 Participatory Action Research

Participatory action research is a strand of action research which involves researchers and participants working closely together to understand a situation and to create change. It is not simply a research method rather an epistemological orientation that highlights the importance of subjective experiences in knowledge construction (Minkler and Wallerstein, 2008). Participatory action research seeks to create greater awareness of a situation in order to take action, creating this awareness through the meaningful participation of those involved in the research. However, participatory action research with children faces challenges because of inherent power differences (Shamrova and Cummings, 2017). To work towards an equal distribution of power, where meaningful participation is possible, there needs to be a child-friendly platform for intergenerational dialogue and a constant consideration of children's involvement (Alderson and Morrow, 2011).

4.9 Theoretical Framework

4.9.1 Theory Triangulation

The theorists who influenced the research were introduced in Chapter 3 and are outlined further in Figure 4.12. Their work encompasses key concepts relating to constructivist education; how children learn, how they build knowledge in the world around them, and the importance of building efficacy, which can in turn lead to increased capabilities. The social aspect of learning was particularly relevant in relation to this research, the GCFBT was grounded in experiential learning and student-led project-based work was used to build efficacy and capabilities. While the theories presented vary, there are colorations, with each having a basis in constructivism.
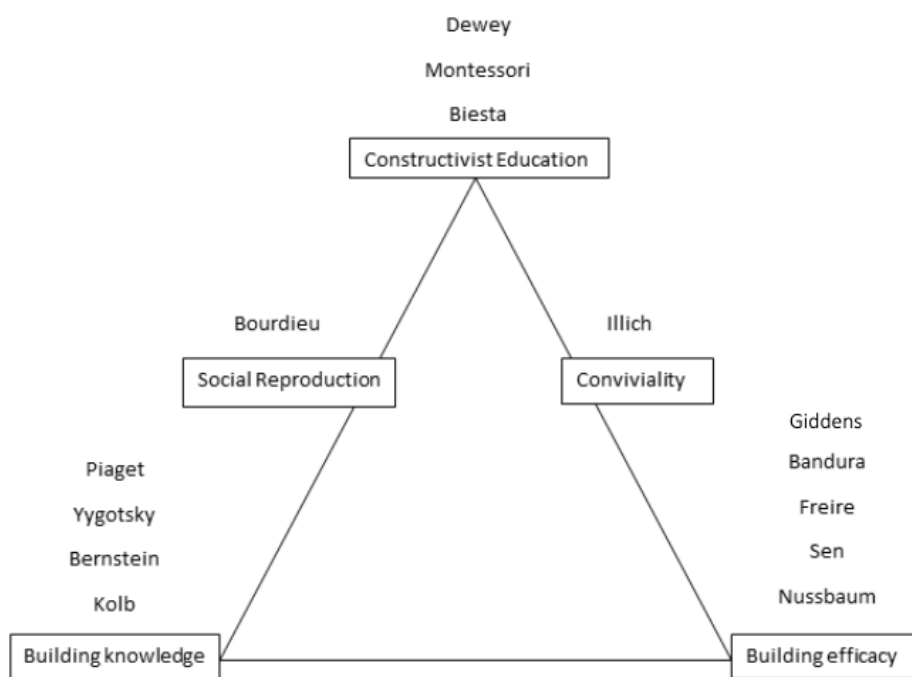
Figure 4.12 Key Theorists used Throughout the Research

The term triangulation emanates from navigation, relating to the use of two fixed points to determine a third unknown point (Turner and Turner, 2009). In academia, triangulation is used to increase the credibility and validity of research findings (Olsen, 2004; Altricher, Posch and

Somekh, 1996). Credibility refers to trustworthiness of a study, while validity is concerned with the extent to which a study accurately reflects or evaluates the concept or ideas being investigated (Cohen, Manion and Morrison, 2007). The main objective of triangulation is to increase confidence in the findings, and it provides support in interdisciplinary research (Olsen, 2004).

Four types of triangulation are proposed by Denzin (1970); data triangulation, investigator triangulation, methodological triangulation and theory triangulation. Theory triangulation encourages the use of several theoretical schemes to enable interpretation of a phenomenon; theory triangulation is the focus of this section, where complementary theories are used to supplement and highlight different aspects of a phenomenon (Cohen, Manion and Morrison, 2007).

The set of theories used in the research are outlined in Table 4.2. They are theories that have had influence on the development of educational practice and the formation of curricula (Dewey, 1997; Kolb, 2015; Bandura, 2002; Freire, 2017; Bernstein, 1973). When designing curricula, theories or models of learning can inform both the process of design as well as the product (Cunningham *et al*., 2007). Together the theories presented provided a strong base for the research and helped the researcher take a coherent approach to the development of GCFBT. The concepts guided the choices made in relation to the hypothesis, but further still influenced the choice of methodology and the methods used.

Key concepts for triangulation		
Constructivism		
Developing pedagogy	**How children learn**	**Building efficacy**
Dewey – Learning by Doing	Piaget – Cognitive Development Theory	Giddens - Structuration
Montessori – Child-Centred Learning Environments	Vygotsky – Social Constructivism – Zone of Proximal Development	Bandura – Human Agency
Biesta – Domains of Purpose	Kolb – Experiential Learning Theory	Freire – Problem Posing Education
Bernstein – Pedagogic Device	Bandura – Social Learning Theory	Sen – Capability Approach
		Nussbaum – Capability Approach

Table 4.2 Set of theories drawn upon

Constructivism is a learning theory, as well as a mode for explaining child development. Learning is seen an active process, where knowledge is constructed by the learner (Given, 2008). The two forms of constructivism used in the theoretical framework are cognitive and social constructivism. Cognitive constructivism tends to conceptualise the child as "individual active scientists" whereas social constructivism developed the image of "children as social beings who construct understandings from social interaction with specific socio-cultural settings" (Pollard, 2004, p. 286). "We do not confront abstract 'learners' in schools. Instead, we see specific classed, raced, and gendered subjects, people whose biographies are intimately linked to the economic, political and ideological trajectories of their families and communities, to the political economies of their neighbourhoods" (Apple, 1986, p. 75). Social constructivism works to identify the processes by which people 'make sense' in social situations, but also there is an acknowledgment that children come to learning with prior experiences. Vygotsky's view was that children can structure elements of past experience with the present (Doolittle, 1997). One of his key constructs, the Zone of Proximal Development, outlines the importance of a more experienced person helping the learner to build knowledge (Vygotsky, 1978; Mooney,

2000). A learner can reach their intellectual potential when scaffolding is provided to help them go beyond what they can do unaided (Doolittle, 1997). "What a child can do today with support, she can do tomorrow independently" (van der Veer, 2012, p. 64). Vygotsky suggested that children differ in their ability to profit from the assistance provided. This prompts the idea that classroom learning should be consistent with where a child is at on their learning journey, and curricula and educational programmes should be shaped in this knowledge, to accommodate different stages along a child's journey.

4.9.2 The Theoretical Frameworks Influence on the Research

Gergen (2020) references the formation of the social sciences as being an important step in the development of constructivist pedagogies. There was a burgeoning emphasise on dialogue and collaboration as opposed to mastering the words of authoritative texts. "The ideological and political implications of traditional texts were thrown into question, thus paving the way for more varied, inclusive and individualised curricula" (2020, p.6). In a changing world with increasingly complex environmental problems, education can be used as a tool to address some of the issues (Orr, 1994; Ardoin *et al*., 2018; O'Flaherty and Liddy, 2018); and considering the complexity of the problems, an adaptable curriculum is needed to find a viable solution (United Nations, 2020). Bandura (2006) states that human agency has a significant role to play in shaping a better and sustainable future (Koskela and Paloniemi, 2023). This is important in a subject as complex as sustainability education, where paradigms and concepts shift as the Anthropocene shapes the natural world (Willett, *et al.,* 2019). Concepts of objectivity and truth have emerged and changed across cultures and times. "This does not eliminate the importance of truth claims, but invites cognisance of the time, place and communities for whom they have value (or not)" (Shapin, 1995, p.5). According to Lewin "realistic fact-finding and evaluation is a prerequisite for any learning" (1946, p. 35). Developing a national curriculum and

organising teacher training is of increased importance within a subject that is malleable, so that students are presented with realistic and relevant approaches to the subject.

Agency is the capacity to influence the course of events (Bandura, 2006) and within CFE there is a belief that active participation can facilitate addressing the problems associated with climate change. This can be achieved by creating a programme that helps children to see themselves within a broader system, and to develop a capacity to initiate actions and to understand complex concepts through the use of social learning. Food is a complex subject, not easy to define, as the literature in Chapter 3 has clearly shown. Bandura's social cognitive theory and Vygotsky's social constructivism conceptualise learning through observation and the use of modelling strategies to build self-efficacy. It is also through language and speech that a child acquires a worldview that reflects reality, and school education is a driving force in creating new meanings for that child (van der Veer, 2012).

For Montessori, environment had primacy. While a teacher is present to guide a child, the learning environment should enable the child to discover for themselves. The environment should promote freedom of exploration by making a wide choice of materials available (Murray *et al.,* 2023). Before Montessori, Dewey (1997) conceptualised learning by doing. During the development of the GCFBT, collaborative environments were created, in the classroom or school garden, where students could become actively involved in their own learning.

4.9.3 Emancipatory Education

According to both Sen and Nussbaum, education is invaluable to a prosperous society, increasing capability, therefore choice (O'Hearn, 2009). Education has redistributive effects between social groups, households, and within families, but it is often reduced to education for

profit-making which seeks to produce technically trained people (Nussbaum, 2009). There is a contrast between this form of education and an education for a more inclusive type of citizenship, where education is used for social good and democratic freedoms. In short, for Sen, 'education' is an unqualified good for human life (Walker and Unterhalter, 2007).

Freire has strongly inspired the field of human development; however, his largest contribution is in the field of education, more specifically an education that leads to change. Jaques Rancier (1940-) (1991) in more recent times also focused on the emancipatory nature of education and proposed a pedagogy that acknowledges that all people have equal intelligence. While there is no precise conclusion, by either theorist, as to what an emancipatory education might look like, "the possibility of an emancipatory education cannot be ignored if education is to be considered as more than the passing down of skills and knowledge necessary to socialising people into current society" (Galloway, 2012, p. 2). In Freire's discussion on the banking form of education:

> students can only appear as objects of the acts of the teacher and not as human subjects in their own right.... Emancipatory education therefore needs to begin with addressing the 'teacher-student contradiction' which in his [Freire's] view can only be done by reconciling the poles of the contradiction so that both teachers and students are simultaneously teachers *and* students (Biesta, 2017, p. 57).

Education that focusses on sustainability and critical thinking necessitates an emancipatory approach where students and teachers work together to examine an ever-changing situation.

Illich argued for the democratising of education and its disentangling from institutionalised control (2000). Irish school education can too often focus on personal achievement and 'working to the test' (Freire, 2017) and not leave enough room for practices that enhance teamwork, empathic relationships and critical thinking. People possess different forms of intelligence (Gardner, 2011) and intellectual skills (Burns *et al.*, 2018), the intersubjective and

hands-on style of CFE gives it scope to reach a broad sway of students. Although it is naive to think that education can break the class structure, an emancipatory approach can be a redistributive tool (Piketty, 2014).

4.9.4 Capability Approach as an Evaluative Framework

Using the CA as an evaluative framework, the research argues that the purpose of food education should be to provide students with the ability to lead a flourishing life. The CA is used as an evaluating tool as the approach puts students' wellbeing and their ability to flourish at its centre; flourishing meaning that the ultimate goal should involve expanding people's ability to live full and creative lives (Sen, 1999; Robeyns, 2005). The CA is an alternative to welfare economics, which focuses on the allocation of resources (Sugden, 1993). The approach allows for a candid discussion about what matters to people within their own lives, what they have reason to value (Sen, 1993). Sen defines a capability as "a person's ability to do valuable acts or to reach valuable states of being; [it] represents the alternative combinations of things a person is able to do or be" (Sen, 1993, p. 30). The outcomes themselves Sen calls 'functionings', the ability to achieve the outcome is the capability. The term 'capabilities' is used in reference to a wide range of capacities, potentials and opportunities required for human well-being as a whole (Alexander, 2016, p. 56) but Sen considers nutrition, life expectancy and health to be basic 'functionings' which people should have the ability to achieve (2016, p. 57).

The values of emancipation and empowerment upheld by the CA complements the basis for an AR rationale. A normative viewpoint is taken in the CA, achieving wellbeing is seen as a good in and of itself, and there is a recognition of the dignity of the human being and their right to flourish. While AR may be best known for its second person group practices, it stretches

beyond these methods to a methodology which draws on ideas of justice and ethics, "it is not a neutral affair, either ethically or politically" (Bradbury, Lewis and Columbia, 2019, p. 19) but rather is anchored in personal values and is underwritten by a desire to change systems through co-creating and changing those systems in the direction that stakeholders wish to go. Reason and Bradbury (2012) go further, arguing that AR is a particular orientation and purpose of enquiry rather than a research methodology.

4.10 When Researching with Children

Childhood was conceived by Prout and James (2001) as a social construction, rather than a biological stage in life, and this has led to renewed discourse and research focusing on childhood. Prout and James note that researchers should focus on children not only as 'future beings' but as 'beings-in-the-present' (2001); in this instance children are no longer regarded as citizens of the future, but as citizens of today (Biggeri, Arciprete and Karkara, 2019). One of the four general principles of the United Nations Rights of the Child is "that the child's views must be considered and taken into account in all matters affecting him or her" (Children's Rights Alliance, 2010, p. 2). Centring the child within research has been in evidence across many disciplines and sections of society in the recent past (Maher *et al.,* 2019; Dolan and O'Reilly, 2016; Thomas and Gunter, 2009). By stating that children have agency there is an acknowledgment that they can make choices regarding the things that they value.

AR has been applied in educational settings since its inception, particularly in the USA and the UK (Corey, 1954; Stenhouse, 1975; Car and Kemmis, 1986; Elliott, 1991; Hopkins, 2002), often being used to reconceptualise curriculum development, and to study theory and practice of teaching. Involving students in the development of curricular and pedagogical decisions that are relevant to their lives can have a democratizing effect and lead to projects or policies that

are eventually more relevant and sustainable. AR offers a robust methodology to ask if we are "teaching each child to be a critical agent in her life" (Walker, 2009, p. 310). Freire's concepts of participation and building agency lean heavily on education's redistributive force; he argued that when it comes to research, people who are the focus of the research have a right to participate in its production (Freire, 1984). Researching with people means that they are "engaged as full persons, and the exploration is based directly on their understanding of their own actions and experience, rather than filtered through an outsider's perspective" (Reason and Bradbury, 2012, p. 9). Children's participation in research is a valuable way of identifying the capabilities that they themselves perceive as valuable. As the CA focuses on agency and participation, it makes it well placed for seeing young people as active social agents, with the capability to influence the life they have reason to value.

Equal distribution of power is one of the greatest challenges when research is designed by an adult but includes children. For this reason, AR is a good model to help mitigate challenges in the area, children and youth can be involved in data collection, and in helping the researcher interpret the findings. This comes with ethical implications, practically in the assurance of child-friendly data collection tools and by creating platforms for intergenerational dialogue and also in assessing the harms and benefits (Alderson and Morrow, 2011). Full account was taken of each school's policies in relation to health and safety, food allergies and child safety. Green-Schools staff members and school staff were onsite for all workshops.

4.11 Ethics

Reflexivity is the process of reflecting on how one's values and perceptions impact the research, affect data collection and analysis (Gerrish and Lacey, 2006). Throughout the research, regular notes in a diary helped to address transparency and ensure reflexivity.

Throughout school visits and the conducting of workshops, the focus was on authentic, sincere communication, with the researcher taking time to become familiar with the individual school settings. A key factor to the successful implementation of the pilot was establishing a good working relationship with the teachers and schools' staff.

In line with current legislation, and the Child First Act 2015 (Department of Children and Youth Affairs, 2019), if any neglect was observed, when working with the students, or a disclosure of abuse was made, the first step was to inform the child's teacher and the second was to inform the Designated Liaison Person within TU Dublin. The Designated Liaison Person will decide if a report should be address to Tusla, the Child and Family Agency.

A research integrity module was completed by the researcher with the researcher receiving a certificate in both Research Integrity–Arts and Humanities and Research Integrity–Social and Behavioural Sciences. Regular debriefing meetings with the researcher's supervisor helped to ensure accountability throughout the project.

Ethical approval for this research project was granted by Technological University Dublin ethics committee. For the pilot of the GCFBT, consent forms were sent to all of the participating schools. Parental/guardian consent forms were handed to each student in an envelope (Appendix B). These forms were collected by their teacher and given to the researcher. Consent forms were then scanned and kept in a secure location on the project supervisor's computer in TU Dublin and this was articulated to signatories. The forms clearly described why the work was being carried out and what it would be used for. Participants, or their guardians, were able to contact the researcher at any time during the study. Parents/guardians and students were informed that they could withdraw their consent at any time if they so wished. The defined end

point for withdrawal was once the data has been coded and anonymised. Consent forms were stored in a separate location to other data collected.

Surveys were administered to students for the GSFTB during school hours in a room specifically set up for the task. The door was left open and other teachers and the principal, or a member of the teaching body was in the vicinity. In line with ethical clearance, students were talked through each question and the information was then entered by the student electronically. The research design allowed for two control schools to be included in the survey. Due to COVID-19 school closures, it was not possible to administer the second section of the survey. The research design was changed, and the control schools were not included in the second iteration as data was analysed from evaluations of those participating in the GCFBT instead of the survey. The design had not included participatory workshops in the control schools. The two schools were participating in a different Green-Schools theme one focusing on biodiversity but not food and biodiversity (Green-Schools, 2023).

In accordance with ethical clearance, any tasting or eating was done under supervision of the researcher and a class teacher. All vegetables were washed and cleaned by the researcher once picked from the garden. All food prepared were low risk of contamination, no meat or fish was used in any of the sessions. Foods with high allergen risks were also omitted. Each school had data on children with allergies or dietary restrictions, and the researcher and Green-School staff members were debriefed in each school about their procedures in relation to this.

Students signed an assent form which was explained to them in detail (Appendix B.2). Interactions with students were conducted under the guidance of the school Principal or a member of the teaching body. No signatures, email addresses or other personally identifying

information were collected except the first name of each student and the teacher's name. These were only recorded at the outset to allow a longitudinal study. Each participant was given a unique reference number which was be linked to their data. Once the data was coded the reference number was used for easier tracking and also to ensure anonymity.

Data for the SCKS and the RFFW was recorded with an iPhone and saved as Mp4 files on a password protected hard drive. The recordings were transcribed into a Word document, labelled and stored on a password protected hard drive. Signed consent forms were collected at both events. Participants could withdraw from the study at any time. The defined end point for withdrawal was once the data has been coded and anonymised. Consent forms were stored in a separate location to other data collected.

4.12 Limitations

As with any research project there are limitations; time and funding being two. In this case COVID-19 became the most limiting factor. Sudden school closures during the second year of the GCFBT case study meant a shift in methodology had to be undertaken. Analysis was conducted from teachers' evaluations rather than from all of the planned youth participatory AR sessions. A base survey was used for analysis, but the lack of a follow up meant that a comparison of this data before and after the project was unattainable.

The pilot was in-depth in nature, but this led to it being small in scale, with qualitative data collected in eight schools. The research approach also necessitated the researcher having a large amount of input into the research which may make it difficult to replicate. A further limitation is the difficulty in measuring the impact of food education as so many determinants effect a

person's relationship with food. Disparate government departments and actors are involved in the field which hinders a coherent discussion at policy level.

English language texts have been used throughout, and this may have restricted the research. This restricted scope did allow for some comparison within similar contexts to Ireland.

Making connections to the home in relation to improved food education arose in the data and literature. This is beyond the scope of the research project to hand, where the focus is on primary schools. However, research has shown that when done well, education projects based in a school can have impact on the home setting (Maher *et al.*, 2019; Green and Somerville, 2015; O'Mahony and Fitzgerald, 2001).

4.13 Fieldwork in Step one: The Design of the Scoping Consultation with Key Stakeholders

Within Step One of the research design, the SCKS (Darmody, 2023) was used as an exploratory method for assessing the most up-to-date opinions on whether food education should be embedded into Irish primary school classrooms. It examined the opinions of those working in schools, as well as the Department of Education, NCCA and the other bodies who attended. Opportunities for knowledge transfer and exchange can be incorporated into a consultation (Levac, Colquhoun and O'Brien, 2010) and an additional aim of the SCKS was to encourage continued conversation between researchers, educators and government officials. The SCKS had a change agenda at its heart, exploring novel ways to embed food education into the Irish primary school system. In educational settings "the practice/inquiry combination at the heart of the [collaborative inquiry action research] work aims at making a situation such as a classroom or whole-school system better by responding to the continuous need for

development or change" (Bradbury, Lewis and Columbia Embury, 2019, p. 7). Participatory and collaborative methods prevailed during the SCKS, with round table sessions and opportunities for feedback created on the day. This encouraged discussion and transformative social learning, learning that "shapes the world *with* others in a more desired direction" (2019, p. 7). A reflexive thematic analysis was subsequently taken to further analysis the data recovered at the event (Braun and Clarke, 2019). In line with AR principles, the data gathered from the SCKS was used to influence further aspects of the research and to develop the concept of CFE. The timeline for the fieldwork in Step One is outlined in Table 4.3.

2 0 1 8	Jun - Dec	Sept	Nov
	Exploring literature Examining theories	Starting to draw up a list of stakeholders for the Scoping Consultation. Purposive sampling conducted	Invitations sent to Scoping Consultation stakeholders

2 0 1 9	Jan 22nd	Feb – Mar	Mar - Jul	Sep 25th	Nov
	Scoping Consultation with Key Stakeholders hosted in Grangegorman TU Dublin	Mapping exercise using Survey Monkey software conducted with Scoping Consultation stakeholders and their contacts	Thematic analysis of data Continuous reading of literature	Meeting with the Minister for Education and Skills Joe McHugh in Leinster House	Visit to Stephanie Alexander Kitchen Garden Foundation

Table 4.3 Timeline for fieldwork in Step 1.

A scoping consultation with stakeholders can either inform or validate findings (Levac, Colquhoun and O'Brien, 2010). In this case, it was used to inform future research. It not only provided opportunity for stakeholder involvement in research, but it also provided insights beyond those in the literature (Arksey and O'Malley, 2005). "Scoping involves the synthesis and analysis of a wide range of research and non-research material to provide greater conceptual clarity about a specific topic or field of evidence" (Davis, Drey and Gould, 2009, p. 1386). "It is generally synonymous with a preliminarily investigation in which information is systematically gathered and examined in order to establish strengths and weakness and guide

in which ever context, future decision-making" (2009, p. 1396). For Levac, Colquhoun and O'Brien (2010), consultation should be an essential component of scoping study methodology. Consultation approaches have associated benefits such as better dissemination and implementation of research findings and they can improved the relevance of the research (Pollock *et al.*, 2022). Establishing a clear purpose for a consultation is important (Levac, Colquhoun and O'Brien, 2010), with clear articulation of type of stakeholders to be consulted, as well as a clear outline of how the data will be collected, analysed and integrated into the overall study (2010). Defining the research question helped to establish a clear purpose for the SCKS. In this case the research question had two parts; "Is there a need for food education to be more embedded in the Irish primary school curriculum?", "*If yes*, how can this be achieved?"

4.13.1 Selecting Key Stakeholders

Purposive sampling was used to select the stakeholders (Palinkas *et al*., 2015). Purposive sampling can have a strong researcher bias, therefore an expert in the field, Michael Kelly of Grow It Yourself (GIY), was asked to help determine criteria and select participants. GIY is a non-profit social enterprise which is focused on food growing, and who run nationwide food in schools' initiatives (Grow It Yourself, 2021; Grow It Yourself, 2022). In addition to including academia, it was considered important to include practitioners whose work will be affected by this research, as well as chef advocates, and policy makers who have the capacity to influence food education in schools. Selection criteria were identified (Table 4.4) and participants were subsequently selected for being "information-rich cases related to the phenomenon of interest" (Palinkas *et al*., 2015, p. 533). The final list of attendees on the day numbered forty-six, and these are documented in Table 4.5. All participants signed consent forms (see Appendix B.3) and further details on the ethics are available in Chapter 3.

Government Departments with an involvement in food education	

Government Departments with an involvement in food education
National organisations with an involvement in food education
Chefs who have publicly spoken about involvement in food education
Teacher representatives as well as others working within schools, principals for example
Teaching bodies
The NCCA
Non-profits and charities with a vested interested in food education
All island academics working in the area of food in schools
Organisations working with food in Irish schools
Universities involved in teacher training

Table 4.4 Identification and selection of stakeholders

2 x Agri Aware (Incredible Edibles)	2x Grow It Yourself (GIY)
Akidwa	3 x Health Service Executive
1 x Airfield Trust	1 x Healthy Ireland
1 x Ballymaloe Cookery School	2 x Irish Food Writers Guild
2 x Bord Bia (Food Dudes, Incredible Edibles)	2 x Irish Heart Foundation
1 x Chef and cookery class instructor	1x Institute for Global Food Security - Queens University Belfast
1 x Creative Schools	1x MSc Agri-Food Business Development – University College Cork
1 x DAIRE project	1 x National Council for Curriculum Assessment
1 x Dept. of Agriculture, Food and the Marine	1 x National Dietetic Advisor Health and Wellbeing Division
1 x Department of Education and Skills	1 x Principal of local School
1x Dept. of Health	1 x PhD Researcher on Food Literacy
1 x Dept. of Social Protection and Employment Affairs	1 x Profession Development Services for Teachers (PDST)
Early Childhood Education DCU	1x Safefood
Educate Together	1 x Slow Food
1 x Education is Lacking Let's Get Cracking	1 x St Angela's College
1 x egg and chicken (Chef Network)	Taste Council
1 x Euro- Toques	1 x Teagasc
1 x Food on the Edge	2 x Technological University Dublin
1 x Friends of the Earth Education	2 x The Irish Nutrition and Dietetic Institute
2 x Green-Schools (*An Taisce*)	1 x Warrenmount School Canteen

M.CO helped to facilitate the event
Those included in grey had accepted the invitation but sent apologies on the day. They opted to received subsequent email communication

Table 4.5 List of attendees for the scoping consultation with key stakeholders

4.13.2 Facilitation of the Scoping Consultation

M.CO. is a company who provide a range of facilitation services, as well as concept and strategy development, and detailed programme and change management projects. They have worked closely with government departments. Due to the large size of the scoping consultation, M.CO. was approached by the researcher to facilitate and ensure the smooth running of the day which allowed the candidate focus on the workshop rather than the procedural elements. They assisted with the facilitation of the event pro bono as the founder EveAnne Cullinane was interested in supporting the research. Meetings were held between the researcher and Cullinane prior to the event to brief Cullinane in line with the goals of the research. The layout of the day was presented by the researcher (Figure 4.6) and a clear outline of how the data was to be collected was also presented.

During the day-long event, participants were seated at seven round tables with approximately six people on each table. The day was divided into three sessions. Each session began with a short introductory talk after which the stakeholder participants at each table focused on a topic together (Table 4.6). The sessions were interspersed with ice breakers and spectrum questions to help the participants think about why they were in the room. Rudimentary diagramming of the data was carried out on the day. A designated stakeholder wrote down the observations, findings, or ideas at each table. These were given to the researcher and the resulting diagrams were created by M.CO., as outlined in prior meetings. These diagrams grouped the main ideas from each session. They were then displayed to the stakeholders and live feedback was noted down. When discussing 'Framing the opportunities' (Figure 4.13) for example, a number of potential opportunities associated with improving food education were highlighted: personal

growth, multi-sensory experiences, harnessing existing initiatives, subjects and interests, learning outcomes and physical and mental benefits, as well as connection with home life.

Session 1: Framing the opportunities
Roundtable Discussion: What are we all talking about? What does it mean and look like to put food on the curriculum?
Tables worked together to develop an understanding of what we as a group wanted to achieve
Session 2: Harnessing what works well
Roundtable Discussion: The School Year
Each table worked in groups to imagine a school year with food on the curriculum. Contributing their own ideas and expertise they explored the 'moments that matter', influences, achievements, and outcomes.
Session 3: How can this work in practice?
Roundtable Discussion: Developing a roadmap to achievement.
Based on key ideas and outcomes which emerged from the previous sessions, tables worked together to explore the ingredients for success; and to identify who needs to be involved, the priorities and next steps, and potential barriers and enablers.

Table 4.6 The three sessions of the scoping consultation were structured prior to the event

At the close of the event, a final drawing, summarising 'Ideas for action', was created by the facilitators. These were distilled down to eight key actions (Figure 4.14) which were presented on a poster. Participants were asked to first highlight the idea of most importance to them, and then to discuss their choice with the larger group. Most people and groups focused on two options: 'Defining the key message' and 'Food in schools forum'. It was felt that a forum would address many of the other ideas for action, by creating a body that would engage politicians, teachers, and a wider audience and, also, that the mission statement of a forum, including its vision and values, would, by its nature, define the key message to be conveyed in relation to food education.
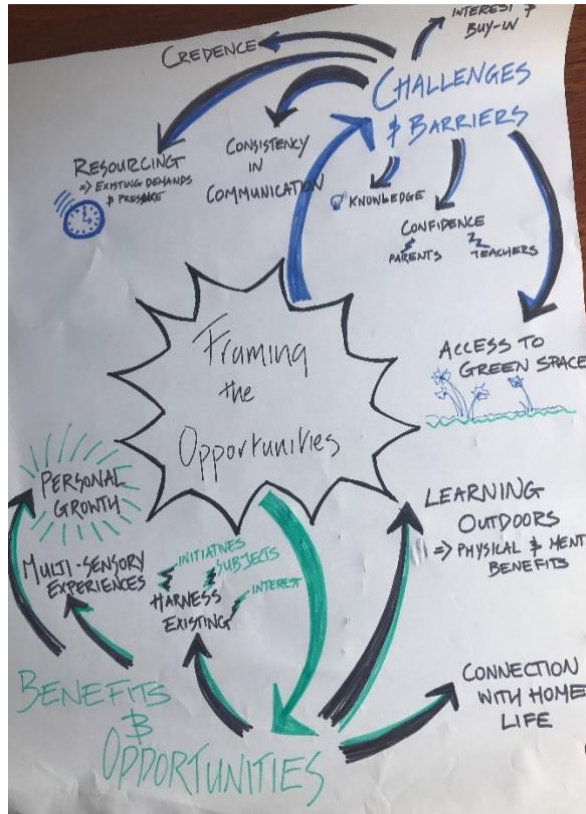
Figure 4.13 Summary of Framing the Opportunities Diagram from the SCKS
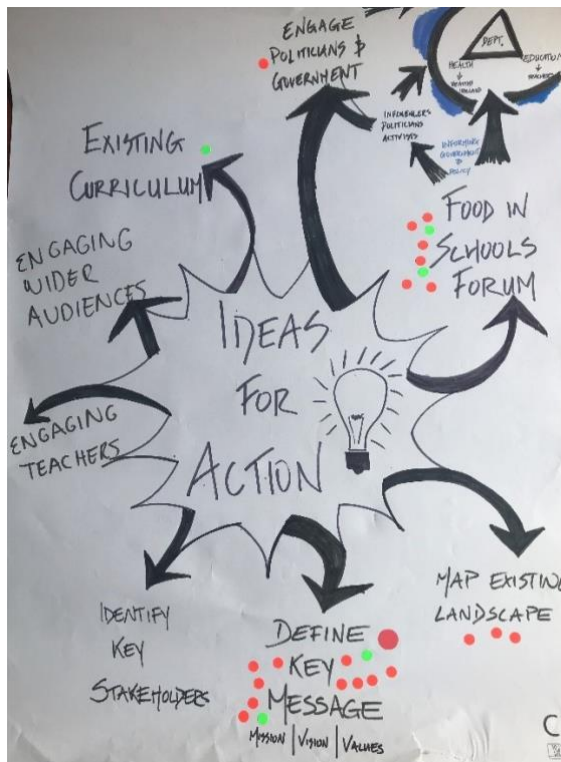
Figure 4.14 Ideas for Action. Feedback sheet from SCKS

Listening to the voice of the student was considered important when planning the SCKS. A local primary school's 6th class students created large diagrams voicing their opinions and desires for food education, as well as essays and pictures of food related projects, all of which were on display. A recent secondary school graduate conducted one of the presentations. Her speech listed reasons why food and its effects on the environment should be addressed in more detail within the school curriculum. Catering for the day was supplied by a scratch-cooking school canteen, from an inner-city Dublin school.

4.13.3 Data analysis for the SCKS

A clear outline was created for how the data would be analysed and integrated into the overall study (Levac, Colquhoun and O'Brien, 2010) (Table 4.7). A reflexive thematic analysis (TA) was used to analysis the data corpus, which is documented in Table 4.8, this is in keeping with the AR methodology which predominates the research, and it fits well with the multi-method of the overall research project. Sessions were recorded on the day and the audio recordings were subsequently transcribed by the researcher. Example worksheets are available in Appendix C. The theoretical flexibility of TA made it more attractive than approaches which hold embedded theoretical assumptions. A reflexive approach to TA was taken as it allowed for the researcher's active role in knowledge production (Braun and Clarke, 2019), reflexive TA relies on the researcher's interpretive analysis of the dataset, as well as their theoretical assumptions and analytical skills (Braun and Clarke, 2019).

Scoping Consultation			
Data collection	Data analysis		Integration into overall study
	Reflexive Thematic analysis		
Audio recordings – transcribed by the researcher Feedback sheets at each session Feedback sheets at the end of the day Postcard workshop Spectrum questions	Generate codes	Generate themes	Synthesise findings	Influenced the development of the GCFBT Formation of facets of CFE Recommendations for a changed approach to food education

Table 4.7 How the scoping consultation data was collected analysed and integrated

Data corpus from the scoping consultation with key stakeholders		
Recordings of each of the three sessions and summary of the day	4	TS S1 - 4
Individual recorded interviews with attendees	14	attendees
Feedback sheets from each round table session 1	7	S1 T 1 - 7
Feedback sheets from each table session 2	6	S2 T 1 - 6
Feedback sheets from each table session 3	6	S3 T 1 - 6
Feedback sheets from the end of the day	30	FB 1 - 30
Postcard workshop results from attendees	28	PC 1 - 28
Spectrum questions from attendees	8	SQ 1 - 8

Table 4.8 Data corpus from the scoping consultation with key stakeholders

All data created from TA should be transferrable, dependable, and confirmable (Lincoln and Guba, 1985) yet "researcher judgement is necessary to determine what a theme is...the 'keyness' of a theme is not necessarily dependent on quantifiable measures – but in terms of whether it captures something important in relation to the overall research question" (Braun and Clarke, 2006, p. 82). Being familiar with the landscape of food education in Ireland enabled the researcher to note when innovative ideas were being presented and to explore these in more detail. At the same time, it was necessary to be conscious of bias and act sensitively towards this, as noted by Creswell (1999). In line with Creswell's recommendations, any opinions raised were correlated with other participants' comments. For example, three participants stated

that there was already enough food education on the curriculum: this being the minority sentiment, their job description was examined in more detail and compared with others of a similar profession as well as wider participants.

Generating first codes, and then themes was carried out by examining features which related to the research question and then organising these in a systematic manner (Tracy, 2013; Sharp and Sanders, 2019; Braun and Clarke, 2006). Braun and Clarke's (2006) often cited six step process of TA was used to ensure this. The texts and visual data were read several times to ensure an overall picture of the corpus. Audio recordings were transcribed, and notes were taken with particular focus paid to emerging patterns. The data was then analysed to identify statements or categories that were similar, or to extract patterns that were noticeable, these were then grouped together, and initial codes were generated. Affinity diagrams were created to aid the researcher to dig 'deeper' into the data (Appendix D). The diagrams allowed for a synthesising of the findings and a distillation of overarching patterns. Affinity diagramming is a qualitative analysis method that works well in conjunction with TA, it helps organise related facts into distinct clusters and is particularly useful when organising large sets of ideas. It was adapted from the KJ diagramming method (Kawakita, 1991). In this instance the data was quite literally 'cut-up', codes which represented "some level of patterned response or meaning within the data set" were then explored and grouped into themes (Braun and Clarke, 2006, p. 82).

Initial themes were identified in the data during the next stage. Sorting the emerging patterns allowed for a more in-depth TA. "The process of coding (and theme development) is flexible and organic, and very often will evolve throughout the analytical process" (Byrne, 2021, p. 3). Themes were created by clustering similar codes to show patterns of shared meaning across the data. The themes encompassed numerous insights that underpinned the central question.

Upon further inductive analysis, the researcher noted that the stakeholders' views were similar at times yet were being expressed in diverse ways and some themes were amalgamated. For example, one important theme concerning change, and more specifically policy change, reoccurred in different guises. There was a stated need for governmental change, but also a need for a shift in policy within schools and teacher training colleges to facilitate increased food education. This theme of changing policy 'fit' within the research because it helps to directly address the research question. Another theme, relating to the age at which engagement with food education should start, was not as prevalent if a simple content analysis was conducted on the data, as it did not occur as often or as forthrightly as the term 'policy change'; but it is of importance to the researcher, and the research question, as it helped to solidify when best to engage students in food education.

4.13.4 Mapping Exercise

A mapping exercise was completed by the researcher after the event, using Survey Monkey online survey software[1] (see Tables 4.9 and 4.10). Its aim was to capture what was taking place in food education nationwide. The stakeholders were invited to enter details of the projects they were aware of, or in which they had participated. They were then invited to share the survey link with other project organisers. The researcher also contacted food education initiatives directly and asked them to submit their details. Thirty-eight projects were catalogued, ranging from small local initiatives to ones with nationwide reach. The data was used as reference when researching existing food education initiatives. The software allowed the data to be viewed in

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[1] SurveyMonkey is a cloud-based software that allows the researcher to develop surveys that can be disseminated to participants via email. Once participants answer the questions or add their data to the software programme it generates insights. These insights can be formed into diagrams and graphs that allow the researcher to view or analysis the data. SurveyMonkey was used by the researcher to generate the survey and create graphs with the data that were then shared with participants.

easy-to-read diagrammatic form. The exercise highlighted the breath of food education already available, but also showed that the sector is severely fragmented which helps to bolster the argument for including a coherent approach to food on the school curriculum. The answers also presented self-reported links between the food education initiatives and the NCCA learning outcomes, as well as the UN SDGs.

Name	Funding Stream
Media Wise	Safefood - Dept. of Health (NI), Dept. of Health (ROI)
Healthy Lunch Boxes	Safefood - Dept. of Health (NI), Dept. of Health (ROI)
Tastebuds	Safefood - Dept. of Health (NI), Dept. of Health (ROI)
Healthy Food Made Easy	HSE
Pasture to Plate: Healthy eating recipe challenge	Agri Aware charitable trust, Bord Bia, FBD, the Irish Dairy Board, the Irish Farmers' Association (IFA) and the Irish Farmers' Journal
Meeting the animals	Safefood - Dept. of Health (NI), Dept. of Health (ROI)
Incredible Edibles	DES, Dept. of Health, through the Healthy Ireland framework, Agri Aware's along with the Dept. of Agriculture, Food and Marine, Bord Bia and the horticulture industry
EED national network of educational centres	Each member funded differently
Food Dudes Healthy Eating Programme	Managed by Bord Bia who hire Real Nation, the programme receives financial support from the Dept. of Agriculture, The Dept. of Food and the Marine and the European Union through the School Fruit Scheme
Grow in Schools	GIY- community fund, GIY not for profit social enterprise. At present their sponsorship partners are Cully and Sully, Energia and Innocent drinks. The social enterprise has also been funded by The Ireland Fund, Ulster Bank, Skills and Opportunities Fund (Royal Bank of Scotland) and the Arthur Guinness Funds
Irish Heart Foundation - healthy eating awards	National charity - 2017 90% of income from donations, sponsorship and fundraising activity. 3% was funding received in State grants.
Eco UNESCO	Local Agenda 21, Irish Aid's WorldWise Global Schools Programme
Healthy Eating Policy Training	HSE and Dept. of Education and Skills
SPHE - taking care of my body	Dept Education and Skills
Cool Dude Food Programme	HSE
Irish Food Writers Guild Healthy Lunchboxes	Fundraising, Bord Bia
CORPORATE PROGRAMMES	
SuperValu Cooking All Stars	
Lidl Serious Support cookery demos	
The Big Grow – Innocent smoothies	
Brennan's Healthy Hero's Lunch Club	

Table 4.9 List of nationwide food education initiatives identified from Mapping Exercise

NAME	FUNDING STREAM	LOCATION
Grow, Sow, Munch	Ed. for Sustainable, Dev. Forum	Ulster
Growing for the Future	CCEA, Tourism Northern Ireland	Northern Ireland
FEAST	Charitable donations, founder investment	Galway
Airfield Estate	Charitable donations	Dublin
East Cork Slow Food	Charitable donations, membership fees	Cork
Food on the Edge	Conference income	Galway
Irish Seed Savers for Schools	Non-profit charity	Clare
Tipperary Food Tours	Leader and LEO	Tipperary
School Activity, Confidence Eating	HSE	Longford, Westmeath, Laois, Offaly
Dromoland castle - Adopt a School	Hotel funding	Clare
Edible Landscapes	Healthy Ireland fund 2017	Mayo
Eggsellent Breakfasts	PTA of schools	Cork
Caherbeg Farm Visits	Student donation for mileage, no farm cost	Cork
Green Door Food Market and St Cillian's	Charitable donations	Dublin
CORPORATE PROGRAMMES		
Kellogg's Breakfasts for Better Days		Dublin
PRIVATE BUSINESSES		
The Cool Food School		Leinster

Table 4.10 List of food education initiatives identified from Mapping Exercise which are not available nationwide

4.14 Fieldwork in Step two: The Design of the Development and Piloting of the Global Citizenship Food and Biodiversity Theme

4.14.1 Introduction

This section of the chapter describes the development and piloting of a two-year educational programme called GCFBT (Darmody, 2022). The programme was used as an opportunity to explore the six themes raised in the SCKS (which are documented in the upcoming chapter on Table 5.1) and to put elements of CFE into practice in a classroom setting. As noted previously CFE encompasses the teaching of food skills, building knowledge around climate change, biodiversity loss and food waste, and instilling a critical approach to food marketing. CFE helps

to develop the ability to view food within a broader system using experiential learning and critical thinking. When developing content for the GCFBT, in conjunction with the staff and students in eight pilot schools, the elements of CFE were kept in mind, and a model was drawn up linking sustainability and food education, experiential learning and pleasure.

Three systematic cycles of reflection and action carried out for the development and piloting of the programme. The first cycle focused on the initial programme design. During the second cycle, the GCFBT was implemented and adapted cooperatively with participating teachers and students. Workshops were devised and facilitated by the researcher using an iterative engagement process which helped identify what worked best. Reflective notes were also took place over a period of two school years and provided a range of different contexts, as well as rich data. A third cycle was amended due to COVID-19. Repeated surveys were no longer possible. The evaluation of the programme was conducted using three tools, students work, teachers and staff evaluation sheets and reflective journaling. The framework used to evaluate these tools was the capability approach (CA). It was chosen because it puts students' wellbeing and their ability to flourish at its centre. Flourishing means that the ultimate goal should involve expanding people's ability to live full and creative lives (Sen, 1999; Robeyns, 2005). There are also affinities between the CA and action research (AR), as both aim to create better lives and outcomes through research (Walker, 2009). A capabilities framework was used in two ways The first using Nussbaum's ten universal, or normative, human capabilities. This was followed by a more in-depth evaluation of the findings in relation to the capabilities of critical thinking, imaginative understanding and world citizenship. Table 4.11 shows the timeline over which the development and piloting of the GCFBT took place.

The combined data from the workshops within the eight pilot schools is presented as a single pilot, this format reflects the iterative nature of the study design. Data from each workshop were revisited constantly throughout the research period, evaluations, and findings from the workshops in all eight schools are presented as a whole, rather than separately. Combining data from the eight schools allowed the viewing from a range of perspectives and allowed the workshops to be developed from multiple vantage points.

2018	Jun	Sept	Oct 10th	Nov	Dec
	Noting the prevalence of the Green-Schools initiative in Irish schools	Meeting with Director of *An Taisce* Education Department.	Ethics application submitted outlining proposed work within schools	Meeting with Green-Schools staff. Mapping out general ideas for a food education programme	Deciding with Green-Schools staff to work within 8 schools and hosting a teacher consultation session

2019	Jan – Mar	Mar- Jun Sep–Dec
	Ethics approval Initial GCFBT School visits GCFBT Survey within 8 pilot schools using Survey Monkey software. Survey in 2 control schools	GCFBT Workshops facilitated by the researcher in the 8 pilot schools

2020	Jan – Feb	Mar	Apr – Dec	May	June	July
	GCFBT Workshops facilitated by the researcher in the 8 pilot schools	COVID-19 school closures	GCFBT moved online	Planed Participatory Action Research cycles with students cancelled due to COVID -19 Planed follow up survey in 8 pilot and 2 control schools cancelled due to COVID-19	On-line call out for Green-Schools chefs through Euro-Toques and Chef Network	Cooking kits researched by the researcher and purchased by Green-Schools. These were given to each of the 8 pilot schools.

2021	March	April
	Meeting chefs online Cooking classes streamed live in classrooms	Maternity leave

2022	Jan	Jun 28th
	Return from maternity leave	Research workshop St Patricks College, DCU

Table 4.11 Timeline for fieldwork in Step 2.

4.14.2 The Green-Schools (Eco-Schools) Approach

Prior to this research, Green-Schools had nine themes which develop competencies in relation to:

1. Litter and Waste
2. Energy
3. Water
4. Travel
5. Biodiversity
6. Global Citizenship Litter and Waste
7. Global Citizenship Energy
8. Global Citizenship Marine Environment
9. Global Citizenship Travel (Green-Schools 2020, url).

Each participating school spends two years on a specific theme, and they are awarded a flag if the work is deemed successful by Green-Schools staff. Once a school commences one of the Green-Schools themes, a series of seven steps is undertaken (Table 4.12). The school generally adopts the seven steps of the programme over two years and once completed, they can apply for the Green-Flag Award. The school's application is reviewed and if necessary, recommendations for further action are made. When the recommendations have been implemented the school receives an assessment visit. Once a school has received the award, it can fly the flag for two years and must then renew its application (O'Mahony and Fitzgerald, 2001). In general, schools will move onto a different themed flag consecutively rather than waiting for two years.

1) Forming *The Green-Schools Committee* – The Green-Schools Committee comprises pupils, teachers, non-teaching staff, parents and members of the community. The committee directs the school's involvement in the project.

2) *The Environmental Review* – This step involves the school examining its environmental impact in order to identify targets for action and improvement.

3) *The Action Plan* – This comprises a number of specific time-tabled targets identified from the review.

4) *Monitoring and Evaluation* – This ensures that progress towards targets is followed, that any necessary changes are made to the action plan and that achievement is celebrated. It further ensures that environmental education and care is an on-going process in the school.

5) *Integration of the project into curriculum work* – This is provided by the curriculum materials which give good ideas on how to integrate environmental issues into lessons.

6) *Informing and involving the wider community with the project* – This is a publicity campaign that keeps the school and wider community involved and informed through displays, assemblies, press coverage and a day of action.

7) *Formulation of a Green Code* – this is a statement of the school's environmentally friendly ethos.

Table 4.12 Green-Schools seven steps

As outlined above, a whole-school approach is undertaken with all of the classes participating in the programme to help the school receive the flag. The whole-school approach is in line with Irish government recommendations (Health Service Executive, 2017) and those of Schools for Health in Europe (Schools for Health in Europe, 2020). Ireland is a member country of Schools for Health in Europe, which is supported by the World Health Organisation. Disseminating a programme across the school, linking it with the home and having regular input from staff and students in planning and implementing are all highlighted as important to the success of an educational initiative by SHE (Buijs *et al*., 2013). Green-Schools programmes are student-led and involve the school community.

4.14.3 The Narrative of The Global Citizenship Food and Biodiversity Theme pilot

The Director of *An Taisce* Education Department was approached by the researcher to ascertain if Green-Schools would be interested in creating a theme focusing on food and the food system.

During this consultation with the director and the manager of the Environmental Education Unit, it was apparent that none of the existing themes dealt with food, or its links to sustainability and climate change (Springmann *et al.*, 2018) in sufficient detail. It was agreed that the researcher would develop a programme for Green-Schools focusing on food and biodiversity and that this would be piloted with the aid of Green-Schools staff member Dr Meabh Boylan. Boylan is the Senior Theme Coordinator for Biodiversity. This role was subsequently filled by Clare Patten, Green-Schools Biodiversity Officer, due to maternity leave.

The main aims of the GCFBT, as determined with Green-Schools staff members at the beginning of the pilot, were as follows:

- To educate Irish school children about food, sustainability and the food system
- Create a programme that could be implemented and then scaled nationwide
- To educate Irish school children about the environmental and social impacts of food
- To enhance food related skills
- To create more food literate school environments
- Increase biodiversity on school grounds and to have each school create an edible school garden
- To engender pleasure and enjoyment in food practices
- Increase knowledge of UN Sustainable Development Goals - life on land, equality, sustainable cities
- Reduce use of food packaging and increased awareness of food waste, and airmiles.
- Increase knowledge of the importance of pollinators and soil health to food production and introduce children to farming practices.

The programme was developed and piloted over the course of two years from September 2018 to March 2020 (when Irish schools closed due to COVID-19). In September 2020 the programme was rolled out nationally by Green-Schools. (Not all elements could be conducted during the pilot because of the COVID-19 school closures and were therefore implemented for the first time during the national roll out. These will be included in the text and identified as such). Table 4.13 outlines the design changes that occurred because of the school closures.

Global Citizenship Food and Biodiversity Theme changes due to COVID	
Original data collection plan	Changed approach
Survey administered in 8 pilot schools before the programme's development	Survey administered in 8 pilot schools before the programme's development
Survey administered in 2 control schools before the programme's development	X
Consultation with teachers in the 8 pilot schools	Consultation with teachers in the 8 pilot schools
Participatory action research and garden visits in 8 pilot schools	Participatory action research and garden visits in 8 pilot schools
Continuous participant observation	Continuous participant observation
Participatory action research workshops with students	X
Survey administered in 8 pilot schools after the programme had been piloted	X
Survey administered in 2 control schools after the programme had been piloted in the 8 participating schools. Control school completed a different Green-Schools theme.	Evaluation from coordinating teachers
	Evaluation from Green-Schools coordinating staff
	Student presentations of global food topics

Table 4.13 Changes to research design due to COVID 19 School Closures

4.14.4 Schools Participating in the pilot

The eight pilot schools were located in the greater Dublin area and were chosen by Green-Schools staff as they needed to progress to another Green-Schools theme. Two control schools were requested by the researcher. Four of the eight pilot schools were registered in the Delivering Equality of Opportunity in Schools (DEIS) initiative. Schools participating in DEIS receive significant additional supports and resources, including school meals (Darmody, 2021) and additional staff, which are distributed according to the level of disadvantage in the school community (Department of Education and Skills, 2020). Codes were developed for each school and will henceforth be used when referencing the school. The codes as well as the school size, patron body and DEIS status are listed in (Table 4.14).

School Code	Patron Body	DEIS	Local Authority	Students 2018/19	Teachers/ support staff 2018/19	Size	Location	Classes	Make-up
NO	Educate Together		Kildare	275	18	Med	Suburban	Full	Mixed
BH	Catholic		Kildare	643	46	Large	Suburban/Rural	Full	Mixed
VI	Catholic		DCC	316	20	Med	Suburban	Senior	Girls
MA	Catholic	DEIS 1	DCC	310	28	Med	Suburban	Full	Mixed
OL	Catholic	DEIS 2	Meath	456	28	Large	Suburban/Rural	Full	Mixed
ED	Catholic		SDCC	103	5	Small	Rural	Full	Mixed
CA	Catholic	DEIS 1	DCC	195	14	Small	Suburban	Senior	Girls
LO	Catholic	DEIS 1	DCC	357	36	Med	Suburban	Full	Mixed
Control schools									
EO	Catholic	DEIS 1	DCC	145	12	Med	Suburban	Full	Mixed
CC	Catholic	DEIS 2	DCC	228	20	Med	Suburban	Senior	Girls

Table 4.14 Information about each pilot school

The two control schools were participating in a before and after survey only. No other engagement was scheduled within the research design, such as workshops or observation. Due to COVID 19 school closures the control schools were not used in the final analysis as it was not possible to conduct the second stage of the survey.

4.14.5 First Cycle

The first cycle focused on the initial programme design. Two teacher engagement sessions were facilitated by the researcher and Green-Schools staff and a visit to each school was undertaken by the researcher. These visits were documented by note taking and image collection, as well as in a reflective journal. This stage of the research also entailed reviewing literature related to food education programmes, and meeting with others who work in food and sustainability education, to gain insights and learn from their practice (which is also in line with the SCKS findings). This included organisations such as SEED: School Earth Education - whose tag line is "turning school gardens into living classrooms" (School Earth Education, 2022, url), Seed Savers, GIY, and later the Stephanie Alexander Kitchen Garden Foundation (SAKGF) in Australia. Teachers from schools in Lucan and Blanchardstown, both of which have thriving school gardens, were also interviewed and reflected upon in the researcher's diary. Access to the schools also allowed for an exploration of what food education was already taking place within those schools.

Initial school visits	
School	Date
NO	21.01.2019
BH	22.01.2019
ED	23.01.2019
MA	24.01.2019
CA	04.02.2019
VI	08.02.2019
OL	14.02.2019
LO	15.02.2019
EO – control (change of method due to COVID-19)	26.03.2019
CC – control (change of method due to COVID-19)	08.04.2019

Table 4.15 Initial school visits (including to control schools for survey collection).

A survey was administered at the beginning of the pilot to assess students' knowledge and to help ascertain what would be of most value to those taking part (the results are available to view in Appendix I). The survey was created by researcher using SurveyMonkey software. A preliminary survey was forwarded to staff in the Economic and Social Research Institute to judge for child appropriate language and content. After consultation with teachers during the engagement sessions it was decided that the survey would be administered to 4th and 1st classes in participating schools. In the case of three schools (two pilot, and one control school) it was administered to 2nd instead of 1st class, as they were senior primary school only. When the survey was administered in schools, teachers or another member of staff were in attendance, and a Green-School staff member was also on site. A total of 686 students completed the survey using school computers.

The survey results were analysed and in conjunction with other findings were used to inform the resources and workshops which were developed over the following months. The ages of those surveyed varied from six to twelve years old with only 0.17% being twelve and 0.66% being 11. The majority of those surveyed were seven to ten years old. Since two of the participating schools were all-girls schools, 71.57% of the students were female and 28.43%

were male. In addition, because the Dublin catchment area was chosen for the pilot 76.03% stated that they either lived in a town or city. The survey results were examined to ascertain what was of importance to the students. When assessing students' attitude about wanting to take care of the environment, 95.38% said it was important to them. When asked if they liked to work together with classmates, an average of 85% said that they liked working together, with the same average saying they look forward to being outdoors. This was noted and many of the workshops created for the GCFBT were experiential in nature involving group work and could be hosted out of doors.

A series of participatory workshops and garden visits were then facilitated by the researcher in the pilot schools during cycle 1, as shown in Table 4.16 with further information in Appendix F. The research methods were dialogical in nature, with evaluation continuously given by Green-Schools staff, students and teachers. The workshops focused on the experiential growing aspect of food education. The students were seen as worthwhile partners in the endeavour contributing to design and implementation. As well as interaction with students, deep reflection was conducted after each workshop; data was collected by student feedback, image documentation and conversations with teachers. The validity of qualitative research conducted in this manner has been discussed (Maxwell, 1992; Ball, 1990) and the importance of being able to monitor the researcher's own role in the gathering and analysing of data, was seen as "essential to establishing the rigour of qualitative data" (Tricoglus, 2001, p. 138). Engaging in AR enabled the researcher to gain critical knowledge while advocating for change (Susman and Evered, 1978), as the researcher was situated at the heart of the project helping to shape events as they unfolded (Kemmis and McTaggart, 2005), being a participant rather than an expert within the process.

Workshops and Garden visits in Cycle 1		
School		Date
VI	Garden workshop	20.03.2019
LO	Garden workshop	26.03.2019
ED	Seed workshop	27.03.2019
OL	Garden workshop	01.04.2019
NO	Seed workshop	02.04.2019
CA	Seed workshop	30.04.2019
MA	Garden workshop	02.05.2019

Table 4.16 Workshops hosted in pilot schools Cycle 1

4.14.6 Second Cycle

During the second cycle, the GCFBT was further implemented and adapted in conjunction with teachers and students. Discussion and analysis led to novel approaches when, for example, workshops resources were organised into age-appropriate blocks; and clearer curriculum links and more science focused activities, such as pH soil testing and garden measuring tasks, were added. During each workshop, children gave feedback and opinions. When students requested 'proper knives', teachers were first consulted, and knives were purchased for a cooking kit (see Appendix G). Videos on knife safety and care were also created. Ideas discussed by and with the children were used when the researcher was creating content for the recipe booklet for teachers Appendix G.

Ten more participatory action research workshops were facilitated (Table 4.17) (with further information in Appendix F), with participatory feedback included to deduce what worked best for the group of students, with each educational workshop documented and then discussed between the researcher and Green-Schools staff, before being amended if necessary. This iterative process favours repetitive and recursive data collection and analysis. Using this approach allowed for the adaption of workshops to suit the needs of each school and for the

researcher to 'get to know' the subject in a classroom setting. Reflective journaling continued also. This series of participatory action research workshops focused on the experiential aspect of building cooking skills, taste education and habitat mapping. Due to classroom settings workshops entailed the researcher divining the students into groups, with each group mastering a capability together. Peer instruction was developed with the students by the researcher demonstrating to a small number of students then they in turn showed their group how to do the action. The groups were supervised by the class teacher as well as a Green-Schools staff member as the researcher facilitated.

A feedback session was facilitated by the researcher after the workshops, children discussed what "what went well", "what they enjoyed doing" and "what they would change". Examples of these discussion entailed the students informing the researcher what equipment they felt they needed for future workshops. This led to the purchase by Green-Schools of cooking kits. Six of each cooking utensil was decided upon for the cooking kit. This allowed for the larger classes to be broken into six groups.

In the second school year of the programme, which started in September 2020 the focus turned further afield to how food impacts the world, through global food projects. This section of the GCFBT allowed for deep engagement by the whole-school on a topic of a global and political nature.

While the student feedback allowed for the development of subsequent workshops in conjunction with students, the intention was to host additional participatory action research workshops with a group of children from each participating school. These would have involved

the children in data collection, interpretation of findings, as well as dissemination of these findings through their reflection on their own participation in the GCFBT.

Workshops in Cycle 2		
OL	Kitchen workshop	20.05.2019
CA	Kitchen workshop	12.06.2019
NO	Kitchen + garden workshop	13.06.2019
VI	Tasting + kitchen workshop	20.06.2019
LO	Tasting + kitchen workshop	10.10.2019
VI	Habitat mapping	17.12.2019
VI	Soil health workshops	17.12.2019
LO	Habitat mapping	10.02.2020
LO	Soil health workshops	10.02.2020
ED	Kitchen workshops	27.02.2020
Cancelled due to COVID 19		
MA	Kitchen workshop	01.04.2020
NO	Soil health	02.04.2020
CA	Soil health	21.04.2020
BH	Habitat mapping	23.04.2020

Table 4.17 Workshops hosted in pilot schools Cycle 2

The implementation of the growing section of the programme was adapted from year one to year two after evaluation of the teachers feedback. For example, in the first year, a list of possible vegetables and fruit crops was sent to the school and distributed to all teachers so that they could choose the seeds they wished to plant. This led to much duplication and an extra step for the Green-Schools coordinator in collecting the sheets and trying to negotiate with those teachers who had duplicated. In the second year a simplified system ensured that teachers from different years were presented with a reduced choice which was more specific to their class group. As can be seen in Table 4.18, these were linked to the curriculum and then further linked to the tasting/cooking workshops which were held when the crops were harvested. In the second year, both teachers and students were encouraged to rotate the crops in the garden and to choose an alternative to the crop they planted in year one.

	Junior	**Middle**	**Senior**
Classes	Jr Infants -1st	2nd - 4th	5th - 6th
Crop Options	Potatoes, Spring Onions, Peas	Carrots, Radishes Strawberries	Lettuces, Garlic
Curriculum links			
Maths	Counting, sorting by size, adding and subtracting.	Weighing, measuring	Making graphs and charts. Calculating distance needed between seeds. Using ratios to change recipes
SESE	How plants grow, what parts of the plant can we eat	Effects of weather, soil, pests on crop growth	Effects of weather, soil, pests on crop growth. How heat effects materials, how liquids interact with each other.
Language	Increasing vocabulary with words for plant parts, making signage for garden	Learning and using different tasting and experiencing words. Recipe reading and following instructions	Deliver instructions/presentations to younger classes on planting. Create and write out/design their own recipes
Geography	Learning what parts of the world plants grow in	Creating food map, sketching, using scale	Food Mapping, using scale

Table 4.18 Curriculum links for garden classes

4.14.7 Third Cycle

A third cycle consisted of an analysis of the programme. Further participatory sessions with students were cut short due to the COVID-19 pandemic. As it was not possible to continue research within the schools, the research plan was adapted. Evaluation from the coordinating-teachers, those who were most involved in implementing the programme in their school (6 + 6) was used in its place (see Appendix H). As was evaluation from Green-Schools staff (2) (Table 4.19). While the teacher and Green-Schools staff evaluation is a comparatively small number, it was found to be adequate considering the substantial amount of data collected during the workshops and in the reflective process after each workshop. Documentation of students' outputs and presentations of global food projects were also used as evaluation tools.

Data corpus from the Green-Schools pilot 2018 – 2020	
Teacher engagement sessions	2
School visits	10
Student engagement workshops	14
Continuous participant observation	24
Evaluation from coordinating teachers	6 year 2 6 year 1
Evaluation from Green-Schools staff	2
Student presentations of global food topics	10
Initial student survey	686

Table 4.19 Data corpus from the Green-Schools pilot 2018 – 2020

Building capabilities was at the core of the GCFBT, the programme embraced the development of self-advocacy. The participation activities included in the programme helped to develop the students' critical thinking, imaginative understanding and awareness of world citizenship (Nussbaum, 2006). This was done through the exploration of food systems, and the use of group discussions and project work, encouraging opinion forming throughout the entire student body, and through the creation of a Green Code for each school (see Chapter 6.). Figure 4.15 clarifies the links between the theoretical frameworks, and the methods used, it also illustrates the various components of the GCFBT. The components of the theme fall into two broad categories, student led components and hands-on skills acquisition. Keeping the 'facets and content of food education classes' (which was an SCKS theme) in mind, a broad approach to food was taken.
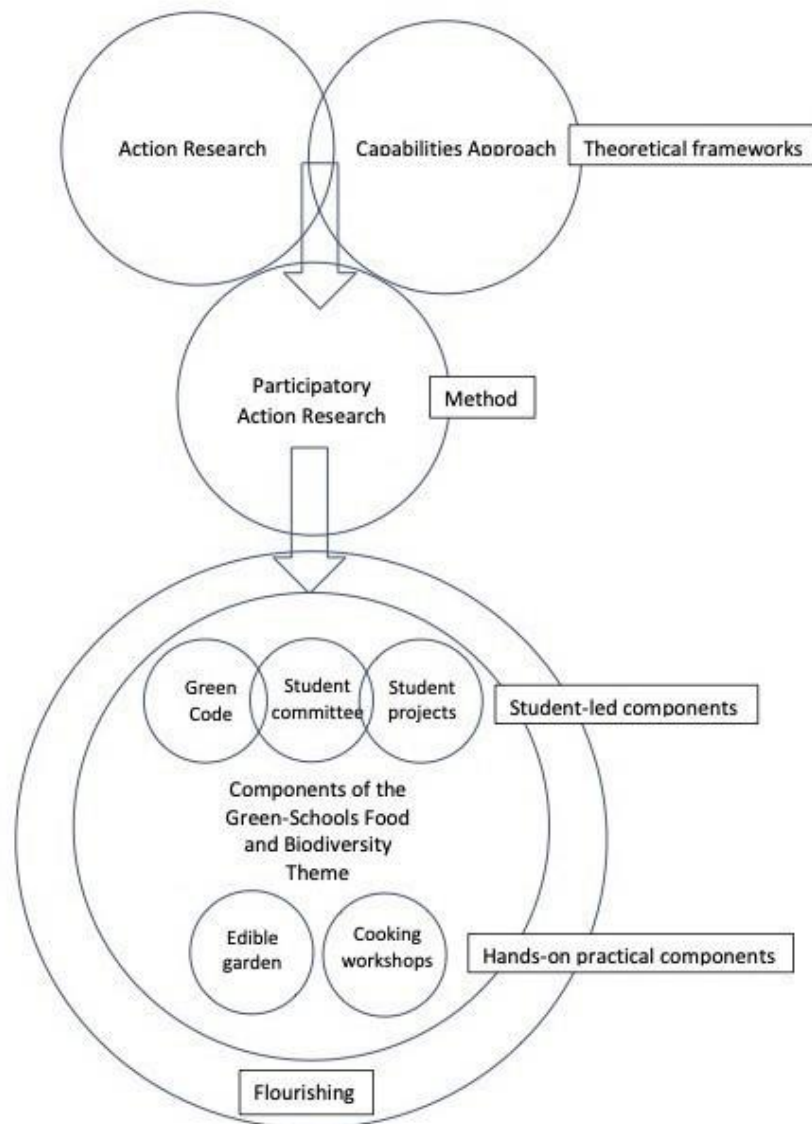
Figure 4.15 GCFBT Theoretical Framework

4.14.8 Development of Content for the GCFBT

The resource booklet will provide schools and teachers, who will participate in the national roll out of the programme, with the details of the GCFBT. This is included in the Appendix A, the codicilia provides further details. Links to further resources on the Green-Schools website, as well as links to instructional videos relating to skills acquisition are also provided in Appendix A. This was developed subsequent to the research period documented in this thesis and based

on the research findings. The following section details the development of the various workshops within the eight pilot schools which were facilitated by the researcher. Appendix F details the planning for the various workshops which included a participatory evaluation session with the students.

4.14.8.a Growing Food on the School Grounds

The planting section of the GCFBT programme is seen as integral (Figure's 4.16 and 4.17) (see Appendix F.1), it allows children to be outdoors learning about nature and biodiversity, while also learning about foods that can be grown in Ireland. In addition to completing the seven steps, it is a prerequisite for the GCFBT that the school creates an edible school garden. This can be done in whatever capacity the schools can manage, either financially or logistically, but they do need to have somewhere available for the children to plant crops and to encourage biodiversity in the school grounds. The school garden then provides ingredients for the tasting and cooking workshops to come. Evaluation from teachers highlighted the many favourable aspects of bringing the children out into the fresh air, from reduced behavioural instances to increased concentration.

Figure 4.16 Seed nurturing

Figure 4.17 Planting herb bed and getting raised beds ready

From evaluation of the initial survey data, it was noted that students did not always cook with the edible plants that they grew prior to participation in the programme, nor did consistently link the garden with the kitchen. It was considered important by Green-Schools staff and the researcher for the programme to bridge this gap (see Appendices F.2 and F.3). The cooking facilities and equipment available in each school were examined at an initial school visit. Cooking and tasting were then designed by the researcher to be universally applicable to each school with their varying facilities. For example, some of workshop were designed and facilitated so the students could improve their capabilities without an oven or a hob. A workshop was designed so students could make bowls of salads with mixed green leaves, herbs and carrots from their garden. While the children did not use hot cooking facilities they learned to wash the vegetables, to peel the carrots and thinly cut them into strips with the peeler, to crush garlic and to measure the ingredients for the salad dressing. They were led through the steps by the researcher and the class teacher and Green-Schools staff member then helped to supervise as the children did the tasks themselves in small groups.

In another workshop the children were taught by the researcher to make summer spring rolls and dips, while another group picked and washed with their potato crop before cooking with them. All suited the specific facilities in each particular school, yet still highlighted a connection with the garden and the kitchen. The conversation about the taste, flavour and texture of the food was emphasised by the researcher throughout the sessions, linking everything to using the senses and creating an enjoyment in the making and eating of the food.

During the initial survey the questions about how certain foods taste took the longest to complete for the majority of the students. In light of this, a taste workshop was developed by the researcher to coincide with the kitchen skills workshop, with the aim of encouraging curiosity and to expand children's vocabulary in relation to taste (Figure 4.9). Taste education can be problematic for some (Earl, 2020; Neilson, Dyg and Winstoft, 2020), particularly when taste is verbalised as "fixable" (Neilson, Dyg and Winstoft, 2020). In this instance, the children were brought to the school garden by the researcher where they picked the food grown, and after washing it, examined the ingredients with their five senses. The researcher then handed out worksheets to each student demonstrating the five senses and the children used words to describe each sense in relation to the ingredient (Appendix F.2). The researcher wrote of list of some of the words used by the students onto the whiteboard and these were discussed by the class group (Figure 4.18). The workshops were informed by the Sapere method as described in Chapter 2 (Figures 4.19 and 4.20). Reflective notes were taken by the researcher after the workshop and it was noted that students very much enjoyed this workshop.
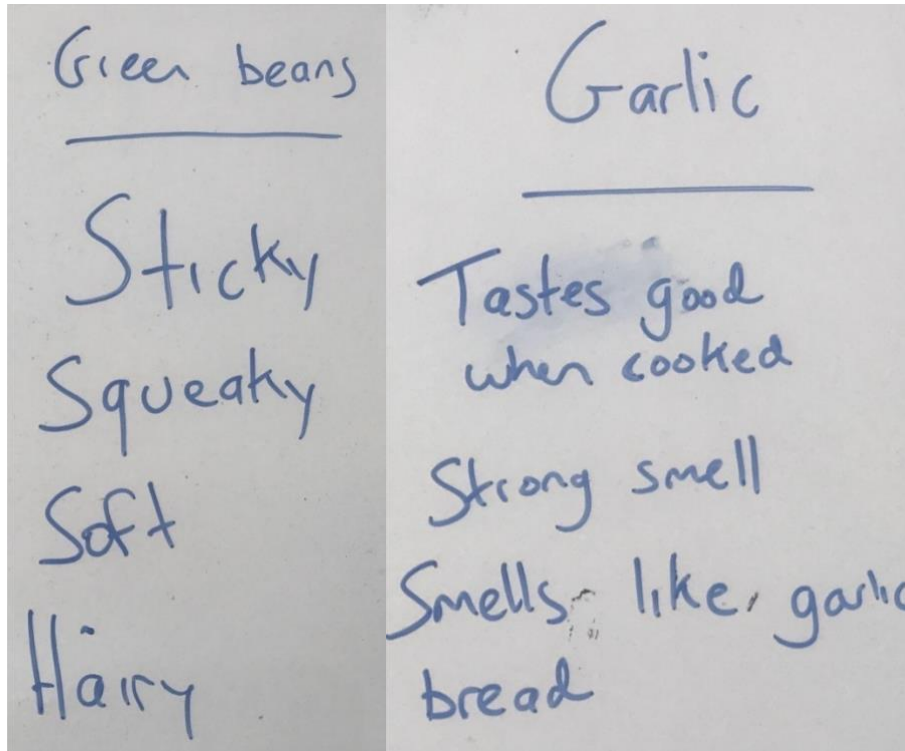
Figure 4.18 Words used by the children to describe their vegetables

Figure 4.19 and 4.20 Noting texture, look and smell of crops from the school garden

Children's feedback and reflection on their participated was used to hone subsequent workshops. Various versions of the taste and cooking workshops were held in different schools

and each one was assessed for ease of replicability, children's interaction with the content, curriculum links (National Council for Curriculum and Assessment, 1999; National Council for Curriculum and Assessment, 2017) and motor skills development (Lavelle, 2020). The workshops were experiential and hands-on; the students washed, sliced and peeled the vegetables, the tasks allowed for the building of age-appropriate skills (Lavelle *et al.,* 2016; Dean *et al.*, 2020) (Figure 4.21). Each workshop and recipe were linked by the researcher to the crops grown in the school garden (Figure 4.22). The list of recipes developed by the researcher from the workshops and during a field visit to the Stephanie Alexander Kitchen Garden project in Australia were included in a recipe booklet (see Appendix G) that is now used in the national roll out of the programme.

Figure 4.21 Making a salad with crops from the school garden

Figure 4.22 Picking potatoes for a taste and cooking workshop

4.14.8.c Seed and Soil Workshops

Two workshops were devised, one on the topic of seeds and another on soil health. The biological nature of how a seed, once nurtured, expands and grows was explored with the children, as well as examining information on pollination and biodiversity (see Appendix F.1). During the facilitation of the workshops various seeds were passed around the class; children were encouraged to touch and describe the seeds and note the differences between them. The group was ten led into a discussion on how best to plant the different sized seeds. The researcher demonstrated to the children how to filled pots with soil, plant seeds and water them, then the children repeated the process themselves (Figure 4.23 and 4.24). The seeds were nurtured in the classroom by the children until they were ready to be replanted outside in the garden. Schools were also encouraged to save seeds from their harvest for the following years' planting (seed saving information was provided in the resource pack given to all schools).

Figure 4.23 Seed planting

Figure 4.24 Seeds ready to be replanted outside

During the workshops on soil health the children were not only taught by the researcher that healthy soil is vital for growing plants they were taught that to maximise the health and productivity of soil, it is important to look after the soil's basic properties including structure, chemistry and biology (Veerman *et al.,* 2020). The workshops were experiential (see Appendix F.4) engaging the students in a series of hands-on tasks; taking measurements, checking light availability, noting the soil type and what is living in the soil (Figure 4.25). A pH test and moisture test were also conducted (Figure's 4.26 and 4.27) and a kit was introduced that allows students to investigate levels of nitrogen, phosphorous and potassium in the soil. The data

children collected was recorded by a designated student on a form such as the one shown in Figure 4.28. Information was provided to the class so the children could amend or improve their soil health before planting their edible garden, if necessary.

The children greatly enjoyed this workshop and in the feedback session at the end of the workshop when asked why, said they enjoyed being outdoors and looking for worms. It was noted during reflective journaling after the workshop that they also particularly enjoyed using the light and moisture probe.

Ideally these seed and soil workshops would be conducted by Green-Schools staff for the nationwide roll-out, but should adequate funding not be available, they were developed so that teachers can host them with their own classes. Seeds and the kits are provided by Green-Schools.

Figure 4.25 Worm counting when testing soil health

Figure 4.26 Testing pH of soil

Figure 4.27 Testing the soil's ability to hold moisture

Soil Testing Record Sheet

School Name: Date: Weather:

Area/Bed sampled: Soil Type:

Insects found:

Moisture reading: Light reading:

 Soil pH:

 Phosphorus (K) Test: Nitrogen (N) Test: Potassium (P) Test:

Figure 4.28 Soil testing recording sheet

Habitat mapping is in line with Wight and Killham (2014) and involved the students examining the best place within the school grounds to situate the vegetable garden, identifying any edible plants on the school grounds, and noting where the compost bins and outdoor water supplies were, for example water butt or tap. During the workshops the researcher aided the children in mapping food environments inside their school, including where water fountains were located, where food was delivered, where it was served, whether there were vending machines, communal spaces where students could eat their lunch, and if there was a place for food waste (see Appendix F.5). The children were given a questionnaire to make them think about the mapping exercise (Figure 4.30).

During the workshops, children were then brought out into the school grounds. They were asked to walk around the school and take notes of what edible food was growing, was there much biodiversity in their school, where the best location for an edible school garden would be. The children came back to the classroom with their notes and then created their own map of the school (Figure 29). The children were encouraged to have a conversation about the whole-school and the place of food within it, whether it was being served from a canteen or growing in the hedgerows. Each school had a different landscape and environment, and this particular activity allowed for all the variations. Schools were notified about the workshop in advance and asked if they possessed architecturally drawn maps for their school. Most were able to locate these and they were useful resources for the children, could be used for planning the hand-drawn maps.

During the pilot, this workshop was facilitated in year two of the programme, but when the GCFBT is extended nationwide it will be one of the first tasks in year one. The researcher felt

that it would be more beneficial if it was moved to earlier in the programme because it draws attention to the many different aspects of food within a school. By completing this task in year one it also allows the schools who do not already have edible gardens to decide on the optimal location for their garden before the first year of planting begins.

Subsequent to the workshop most schools then entered the collective data into a large wall drawing which was displayed in a public space within the school. Part of the national curriculum for fourth class is map drawing which takes into consideration an aerial view, and this includes drawing a map of your classroom, so the workshop was particularly beneficial for this class group. Collaboration between students was key as the larger map was an amalgamation of each individual map.

Drawing details of both the inside and outside of the building onto the one map was a challenge for students. It was noted by some of the teachers that it might be easier to have two maps, an inside and outside one or have key areas inside the school marked on the map and then larger close-up versions of a classroom/cooking rooms drawn to one side.

Figure 4.29 Drawing a habitat map

The students were asked over the coming week, keeping the mapping workshop in mind to trace the journey that their food took was a popular exercise in the schools and to fill out a lunch waste for (Figure 4.31). Students used dotted lines or "food prints" to show where school lunches travelled from school gate to each classroom, where they ate their lunch and where leftover food is disposed of. This activity led to conversations about food storage, food waste, food packaging and where eating took place, for example at their school desks or in a canteen environment. During this exercise, it was noted that the majority of the schools sent all lunch packaging and waste home with the students so bins in classrooms were not often used for food or food packaging. This was also highlighted in the answers to the forms shown in Figure 4.22.

It was also observed that each of the pilot schools was unaware that they had edible, wild foods growing on school grounds prior to the mapping project. Most common amongst them were elder trees, blackberries, hazel trees, nettles, and rosehips. From this observation, Green-Schools staff developed a resource for teachers that depicted commonly found edible plants on school grounds with ways to identify them, tips for collecting edible parts of the plants and recipes on how to prepare them. An additional benefit to the map making was that when the students drew the shape and layout of beds in the garden, this map could then be used the following year as template for crop rotations.

Food Habitat Map Questionnaire

Q1. How many pieces of litter from food/drink sources did you find today?

    Inside   Outside

Q2. What kind of bins are there in the following places?

    Classroom   Yard

Q3. Is there a compost bin? Is it being used?

Q4. What kind of food is sold in shop/vending machine/provided in school lunches?

Q5. How many raised beds/planters are there? How many are planted now? With what?

Q6. Are there any fruit bushes, trees or other edible plants growing in the grounds?

        Have the class ever eaten any of them?

Q7. Are there any wild animals feeding/signs they were feeding on:

Planted foods: Wild foods: Man- made sources:

Figure 4.30 Habitat map questionnaire

Looking at lunch waste

Choose a normal school day and investigate how much of your lunch goes to waste every day. List all the lunch and snack food items and any packaging in the table below. Note what is in your lunch box, has been eaten or was put in the bin at three stages throughout the day.

Time of Day	In Lunch Box	In Belly	Wrappers, leftovers or food in bin
School Starts			
After Little Break			
After Big Break			

Figure 4.31 Lunch waste questionnaire

The school came together to concentrate on topics as diverse as food miles, food packaging, or pollinators. Each class was asked to explore one of these subjects in detail and present the results on the walls of the school corridors. A critical investigative approach was encouraged. A list of global food topics (food waste, pollinators, your farmer, food miles, climate change, pesticides, how food effects the rainforests and seed diversity) was created after evaluation of the workshops, students feedback and evaluation from the teachers. The student committee decided for themselves which topic they would like to focus on. Figure 4.32 shows how one Green-Schools committee brainstormed the Food Waste option.

Figure 4.32 Mind map teasing out ideas before settling on a global food topic

Due to school closures, children took these topics home and created projects that were presented over virtual sharing apps such as Zoom. The students engaged deeply with the subject

matter creating posters as seen in Figure 4.33, as well as giving an oral presentation to their classmates and Green-Schools staff. In the reflective notes, it was felt the children enjoyed the exploration and had very succinct conversations about aspects of the food system that they may not have paid attention to previously, such as how far their food has travelled and how much packaging from food ends up in landfill.
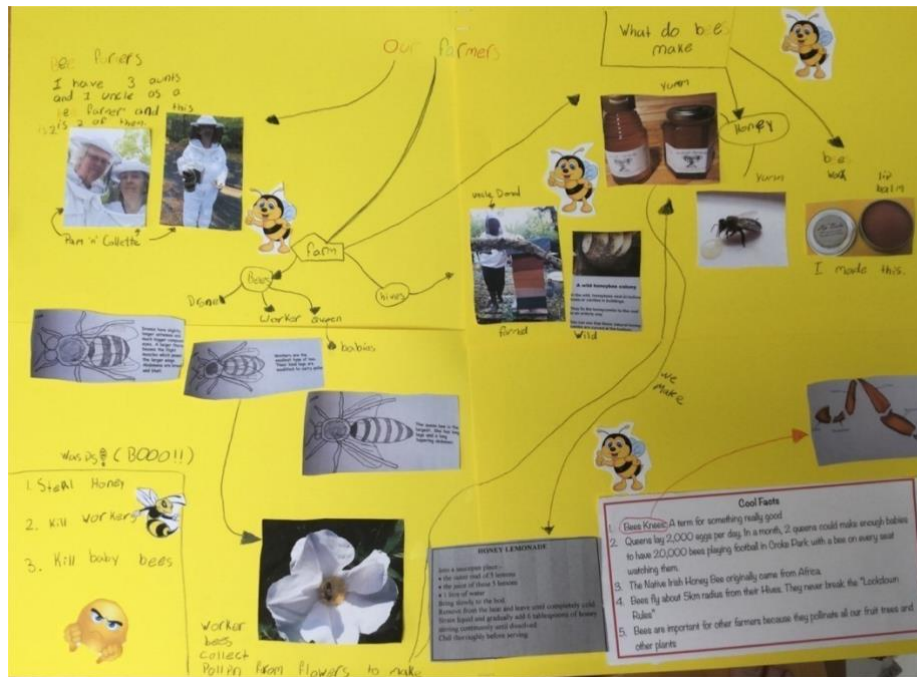
Figure 4.33 Children's global food projects

4.14.8.f Chefs in Schools

As part of the programme, a link was created between a chef and a school. Members of Chef Network and Euro-toques were asked by the researcher to register their interest in becoming a Green-Schools chef (see Figure 4.34). The chefs were asked to provide details of their location and ability to travel. The participating chefs were then provided with an information sheet about Green-Schools and the GCFBT, as well as a list of recipes which was developed by the researcher. These recipes designed with food motor skills (chopping, grating, peeling) and practicality of replicability in mind. Each recipe came with a lesson plan and a shopping list and was based around vegetables from the school garden. The school could talk directly to the

chef about vegetables available at that moment in the garden and the school facilities for conducting the class. Each school was provided with a cooking kit by Green-Schools which include chopping boards, knives, peelers, graters, a selection of bowls and a hot plate. The kit could be used by visiting chefs or Green-Schools staff. Teachers could then repeat recipes and workshops as and when they wished, as the kit was left with the school. The schools generally purchased the ingredients that were not available from the garden. Due to school closures the first round of the chef and school connection was conducted online, and the in-person version was put in place in 2022.

Figure 4.34 Requesting Chefs engagement in the GCFBT

Due to school closures, it was not possible to host the planned harvest day at the end of year two. The proposed day was meant to bring the eight schools together to share their global food projects, as well as showing each other which vegetables they had grown and to eat and share food together. Commensality, sharing knowledge, fun and interactivity are the core elements of the day which will be an integral part of the project going forward, and was hosted during the national roll out. The proposed layout for the day is illustrated the working document in Figure 4.35.

Harvest Festival

When: Mid-June

Where: Hosted in a school or two schools to allow for smaller numbers/ geographic spread/ different days to suit schedules. Maybe Dublin and Kildare

Who: Up to 30 kids from other schools, students in that school, parents?

What: Each school attending sets up a stall with their produce, foraged food from their grounds, dish(es) prepared by them, poster or info from Global Topic

Other Participants: Beekeepers, local growers, local producers, Euro toque, Chef Network

Competitions: prizes for sweetest strawberry, funniest shaped carrot, crunchiest peas, largest vegetable, brightest coloured veg, best recipe/dish, heaviest potato

Activities:

-Cooking Demo (with Euro toque or Chef Network). This could be in cooking room if available, or something outside that doesn't require oven

- tasting throughout the day and voting for the above prizes. Have a voting stall. Each school enters the best strawberries, carrots etc. and is given a number. The visual competitions- shape, colour etc. can be voted on in unlimited numbers. Could drop a token into a jar in front of it to vote. Best taste and texture could be voted on by a panel of blindfolded judges selected by each school at the end of the day.

- pollinator activities. Could be led by schools who focused on this team. If it's a nice day bring nets and jars and try to collect and identify bees/butterflies. Meabh's pollinator game

-Pest/other insect activities. Do a bug hunt and assess whether insects found are helpful, a pest or will have no effect on growing crops.

-foraging walk/demo. Depending on the school we could go on a short foraging walk. Collect any elder flowers, rose hips etc. could incorporate into cooking demo. Or invite Lucy (Phoenix Park) to bring some foraged materials and do a short presentation/tasting session.

-Bee keepers if present could do activity/demo/taste test

- Each school to do a Global Topic presentation.

-Other games throughout day (seed games, soil activities and experiments, apple bobbing, guess the seed, welly toss)

Figure 4.35 Harvest Day information

4.15 Fieldwork in Step three: The Design of the Research Findings Feedback Workshop

4.15.1 Introduction

The RFFW was hosted to gather feedback on the findings from the overall research project. In addition to providing feedback on the findings, the workshop provided an opportunity for further articulation on the concept of CFE.

The workshop used an action research model (AR) in keeping with the overall research design. It explored how to further implement elements of circular food education within Irish primary school classrooms. Creating an interactive workshop led to new perceptions, considerations and ideas. It allowed participants to understand how implementation might take place and to see what support might be needed from the whole-school, and government through the National Council for Curriculum and Assessment (NCCA) and Department of Education and Skills, to enable food to become a tool for teaching the skills to help students flourish. During GCFBT the student was at the centre of the research; this phase explored the findings in conjunction with teachers and those working within schools, as well as staff from teacher training colleges, and policy makers from the NCCA. Teacher training colleges were engaged as the research has shown that providing teachers with the tools and agency to use food within a classroom is key to increased food education (Genannt Bonsmann *et al.,* 2014; Jones e*t al.,* 2012; Charlton e*t al.*, 2021). The workshop was conducted with eleven stakeholders, in June 2022 (Table 4.20).

The RFFW was used to gather feedback in relation to the findings from the SCKS and the development and piloting of the GCFBT, and to explore how to implement elements of CFE within Irish primary school classrooms. The workshop was also conducted in order to gather feedback on whether the inclusion of food education in teacher training colleges, and within NCCA research, would provide teachers with the skills and confidence needed to instigate this

form of education, and connect it to the prescribed learning outcomes. There is both a national and international call for continued professional development for teachers in relation to food (Healthy Ireland, 2018; Health Promotion Agency for Northern Ireland, 2012; Genannt Bonsmann *et al.*, 2014).

Stakeholder position	Code		Stakeholder position	Code
Primary teacher	PD		Primary teacher	BF
Retired primary principal	CP		Deputy primary principal	FA
NCCA staff member	BC		Primary teacher	CA
Primary teacher	HD		Trainee primary teacher	TC
Teacher training college staff member	PN		NCCA staff	KA
Primary teacher	DF			

Table 4.20 Participants in research workshop, June 2022

4.15.2 Facilitation of RFFW

The workshop was facilitated by a staff member from Partners Training for Transformation who follow a Freirean approach to participant engagement, the facilitators "role is not to hand out ready-made answers, but to facilitate participants to analyse their reality and decide themselves how to respond" (Partners Training for Transformation, 2022, url). To begin, two spectrum questions were put to the participants, and they were asked to stand on either side of the room, or anywhere in between. For example, those who agreed that cooking was a joy were encouraged to stand on one side of the room, and those who completely disagreed, who found it a chore, stood on the other side. The questions were "Cooking is a joy or a chore?" and "Do you live to eat or eat to live?". The warmup sessions were used to focus the respondents on their own perceptions of food, and its place in their lives, as well as acting as an icebreaker. Following on from this, a session entitled the 4P's - was conducted (Figure 4.36). The P's being; practical, psycho-social, political and philosophical. Participants took a moment to think of a story in their lives where food was to the fore, they then considered this in relation to the 4P's. This generated a rich discussion; people challenged assumptions and explored a variety

of scenarios in relation to the food system. This session was referred back to several times throughout the day.

Figure 4.36 4 P's workshop exercise

The workshop then turned to focus on the research at hand. It was considered important to present the group with the issue in the proper context, so a presentation of the research on CFE was given by the researcher at the outset of the first feedback session. A group discussion on the topic ensued. The group critiqued CFE, examining what was feasible and what was omitted, they then documented what was happening already within their own schools, colleges and organisations. After analysing food education on an individual school level, they also looked at what is possible nationwide. Then followed a discussion about what would need to happen for more teachers to become interested in food education, what support was needed so that teachers feel that it is important and possible.

4.15.3 Methodology for RFFW

The term feedback is used by different authors to refer to very different representations of the concept (Winstone *et al.*, 2022). Feedback in educational settings can be interpreted as feedback-as-information, or feedback as an active process of engaged dialogue (Winstone *et al.*, 2022). Within this research the latter was conceptualised. The workshop used an AR model that put an emphasis on active engagement by participants. The main purpose of AR according to Reason and Bradbury (2012) is to produce practical knowledge that is useful to people in the everyday conduct of their lives, it is a participative and collaborative endeavour undertaken by individuals with a common purpose. After the action there is evaluation, then critical reflection on the evidence gathered. This then leads to changes and improvements being implemented (Koshy, Koshy and Waterman, 2010).

Two breakaway sessions were held, and a group discussion followed each one. A recording device was used to record the four breakaway and two group sessions. In the days after the workshop all recordings were transcribed by the researcher. Having a facilitator allowed the researcher to take observation notes throughout the session. The facilitator created feedback drawings on flipcharts and the participants also documented the breakaway sessions. All of these make up the data corpus which is listed in Table 4.21 All participants signed consent forms (see Appendix B.4) and further details on the ethics are available in Chapter 3. Examples of the worksheets from the sessions are in Appendix J.

Data Corpus		
Transcript group session 1.	x1	T GS 1
Transcript group session 2.	x1	T GS 2
Transcript breakaway session 1. A	x1	T BAS 1A
Transcript breakaway session 1. B	x1	T BAS 1B
Transcript breakaway session 2. A	x1	T BAS 2A
Transcript breakaway session 2. B	x1	T BAS 2B
Facilitators feedback drawings	x 2	
Table documentation	x 4	

Table 4.21 Data corpus from the research findings feedback workshop

Thematic analysis fits well with the AR rationale as it incorporates reflection and use of feedback. A deductive rather than inductive analysis was conducted on the data corpus. "Themes or patterns within data can be identified in one of two primary ways in thematic analysis: in an inductive or "bottom up" way or in a theoretical or deductive or "top down" way" (Braun and Clarke, 2006, p. 12). Deductive analysis, according to Byrne (2021) "has typically been associated with positivistic/essentialist approaches, while inductive analysis tends to be aligned with constructivist approaches" (Byrne, 2021, p.1397). While an inductive approach may fit better with the overall theoretical assumptions of the research project, in this instance it was more appropriate to use a deductive approach as the aim was to test previous research. It allowed for the amalgamation of findings from the SCKS with the new data gathered at the workshop. Two new themes that arose in the data, were 'conviviality' and 'building on what is already happening' (Table 4.22).

older children served the younger children.	1. Conviviality	
stories around food shared		
socialisation		
sharing		
children learn how to sit around the tables		
awareness of others		
sitting down to eat together		
respectful		
belonging		
small steps	2. Building on what is already happening	
looking at what we have already		

Table 4.22 Two new themes generated during the research findings feedback workshop

Braun and Clarke's (2006) six steps were used for the thematic analysis, with some adaptation to suit the deductive process. Following these steps allowed the data to be analysed in a rigorous and methodical manner.

1. become familiar with the data

2. generate initial codes

3. search for themes

4. review themes

5 define themes

6. write up

Codes reduce the data into chunks of meaning. The coding process was based on Strauss and Corbin (1998), with open coding used to work through the transcripts identifying properties and dimensions and generating the initial concepts from the data. The third step of Braun and Clarke's (2006) six step process was then adapted, with the themes from the SCKS used as a framework during this step. A search for new themes was also conducted, using a reflexive approach. After all of the themes were defined, writing up the data focused on interpreting and explaining, rather than simply describing what was said, this meant moving from a semantic to

a latent level (Braun and Clarke, 2006). It is in the latent level that the researcher "starts to identify or examine the underlying ideas, assumptions, and conceptualisations – and ideologies - that are theorised as shaping or informing the semantic content of the data" (2006, p. 84). The semantic content being the explicit meaning.

4.16 Conclusion

The research design presented in this chapter guided the researcher to ensure that the methods and methodology were in line with the research aims. The use of an AR methodology underpinned many of the choices in relation to how the fieldwork was conducted and the data collected. The three sections of fieldwork are narrated in this chapter, as well as the outline of methodology and methods, ontology and epistemology. Table 4.1 clearly outlines the perspectives taken, a relativist ontology and a constructivist epistemology. Constructivist principles underpin the research accepting that children build their own knowledge through action and hands-on learning.

Triangulation is used for synthesis of the various theories that the project is built upon. The logic of this approach is followed through in the upcoming chapters, which present the findings and analysis of each of the three sections of fieldwork. This chapter also introduces the CA, which is used as an evaluation framework and provides the basis for the argument that the purpose of food education should be to provide students with the ability to lead a flourishing life.

The development and piloting of the GCFBT was positioned in Step 2 of the overall research design; Act and Observe. What was learnt during the pilot was then used to build an innovative nationwide programme which addresses the local as well as global dimensions of food

education (Green-Schools, 2022c). The pilot programme aimed to equip children with the knowledge to make critical decisions about food and to emphasise the link between food and the environment. The programme forgoes a binary health discourse in favour of instilling pleasure in food preparation and an enjoyment in food. The GCFBT also fulfils other themes that were laid out by SCKS. 'A whole-school approach' and 'changing the school environment' were key components of the programme with 'environmental education' at its core.

Presently there is dynamism in Irish primary education, with a move away from a set curriculum, to learning outcomes and project-based work (National Council for Curriculum and Assessment, 2017). This reform is culminating in a review which encompasses feedback from "teachers and early childhood practitioners, school leaders, parents and children, management bodies, researchers and other stakeholders" (National Council for Curriculum and Assessment, 2020b, url). Much of the research presented here, the mapping exercise, the data from the RFFW show that food, and particularly food and sustainability combined, are a complex subject to teach. Leaving the subject to outsourced initiatives, with varying agendas, means that children throughout the country are being taught different approaches. There is no joined up thinking or enough teacher training in the area. The importance of addressing climate change, and its direct correlation with the food system mean that a nationwide approach is of importance.

The next chapter introduces the first section of field work which is the scoping consultation with key stakeholders.

Chapter 5. Findings from and Analysis of the Scoping Consultation with Key Stakeholders

5.1 Introduction

This chapter presents an analysis of the findings from the scoping consultation with key stakeholders (SCKS) (Darmody, 2023). It was held in order to examine stakeholder opinion on the need for increased and sustained food education on the Irish primary school curriculum, and if a need was subsequently identified, how could it be achieved? The scoping consultation was conducted in early 2019 with representatives from four government departments, as well as forty-two high-level stakeholders from other organisations with an interested in food education (see Table 4.5 for details). The report drawn up by the researcher after the event led to a meeting with the then Minister for Education and Skills, Joe McHugh, and Department of Education and Skills.

The key findings from the SCKS show a desire for a changed approach to Irish primary school food education, and a perceived need to increase its visibility within classrooms. However, the data also indicated that there is no clear roadmap for how this could be implemented. The two strongest suggestions for next steps were, the importance of defining the key message, and the need to create a cross governmental forum to address the topic. Opinion varied across the group of stakeholders, and as we will see in the upcoming paragraphs many different options were raised. While the exact content, and what would be taught was not clearly defined at this point there was a clear emphasis on child centred learning, building critical awareness and hands-on education.

5.2 Findings

Data from the SCKS were analysed using reflexive thematic analysis (TA). After a process of coding, as outlined in Chapter 4, section, 4.13.3, six themes were defined in relation to the research question (Table 5.1). These were initially created inductively then deductively in relation to educational philosophies and governmental policies relating to food in schools.

Thematic Analysis of the scoping consultation with key stakeholders		
Examples of CODES	**THEMES**	**SUBTHEMES**
government policy change		
whole-school approach	1. Changing policy	
school environment		
links with existing food education		2.a. Media awareness/critical thinking
content of food education classes		2.b. Hands-on skills such as cooking and growing
assessment	2. Facets and content of food education classes	2.c. Enjoyment in food
links to sustainability		
teacher training		2.d. Linking to existing food education
enjoyment/pleasure		2.e. Environmental education
school environment	3. Teachers' confidence and agency	
teacher training		
assessment		
health	4. Health discourse	
binary approach		
age	5. Age of engagement	
home	6. Engaging family	

Table 5.1 Themes generated from the scoping consultation with key stakeholders

During the scoping consultation an in-depth discussion took place amongst the stakeholders in terms of what they understood food education to be, or what a food-based on pedagogy might entail. For some, food education was not a stand-alone curricular subject, it was "a tool to teach,

not a topic". For example, food can be used within existing subjects to meet prescribed learning outcomes; recipe writing for procedural writing, measuring and dividing ingredients for mathematics. This sentiment was vocalised by another participant in a slightly different way, "food is not a subject, it is every subject", in this instance the stakeholder further highlighted not only that food could be used as a tool, but that it has intrinsic importance throughout a child's learning.

One stakeholder summed up the complexity of the phenomenon by stating "we need to have a really joined up approach to food that reflects health, sustainability, enterprise, community development and education. And, that food skills are really, really valued and rewarded" [attendee K from an education background]. Or another stakeholder who argued that "it is really about bringing in that critical thinking, looking at food in a really holistic way, understanding the impact of food choices. But, also the social and cultural aspects of food, the environmental impact, as well as health and nutrition" [attendee H from a food organisation]. Within these two short examples, we see reference to critical thinking, the potential impact of food choices, environmental impact, health and nutrition, enterprise, the cultural aspects of food, preparing a meal as well as pleasure and enjoyment. This reiterates the complexity of the problem as outlined in the literature in Chapter 3.

The fact that food and sustainability education are intrinsically linked (Darmody, 2022) was a common pattern in the data. The need for building "respect for the environment", "tackling food waste", "connecting with agriculture" were some of the codes which show a recurring pattern across the dataset when combined. The stakeholders recognised that the current curriculum fails to address ways in which the modern food system impacts the environment. Instilling a "passion for food" and focusing on "the pleasurable aspects of food creation" were

also deemed to be of importance. This indicates a child-centred approach to education, encouraging children to learn through seeking enjoyment, given that guiding children on the experiential continuum can encourage the child's natural eagerness for knowledge (Dewey, 1997).

With attendee S from HSE noting

[w]hat I would love generally is that people would embrace more an enjoyment of food, so that food isn't something that you are giving-up this, giving-up that, because you are worried about this or that, it's actually embracing it and really getting back that pleasure of sitting around a table having prepared a meal and enjoying it with people ... that children would get that concept and embrace it too.

Some stakeholders believed that food education was sufficiently represented within the existing curriculum but were not happy with how it was applied "it was already on the curriculum– but knowledge needs to be translated into practice" [attendee O]. The following quote from a Department of Education and Skills (DES) representative indicates, there was the assumption within the DES that food already featured within the curriculum:

I came here with the view that, well, we do already have food education within the curriculum, but what I have learnt here today is that what we have within the curriculum is good but there is plenty of scope to add to that, to link this to other subjects [attendee R from DES].

But we can see that the SCKS caused the representative to think more deeply about the situation.

At what age should food education begin? What should the focus be at different times throughout a child's education? These were some of the questions raised among the stakeholders. In the coding stage, explicit references to starting food education as young as possible were found, "because young children are more open to new tastes", or it was felt that it "needs to start in pre-school". This is in line with educational policies in countries such as Finland (National Nutrition Council of Finland, 2017) who begin food education in preschool settings starting with the Sapere method, developed by Jacques Puisais, in the 1970s (Sapere,

2016). In relation to teaching cooking skills, research highlights the importance of learning these skills "at an early age for skill retention, confidence, cooking practices, cooking attitude and diet quality" (Lavelle *et al*., 2016, p. 1).

Linking food education to the home was of importance in the data and is in line with literature (Lavelle *et al.,* 2016; Genannt Bonsmann *et al.,* 2014). Since the focus of this thesis was on food education in schools, linking to the home and engaging family was beyond the bounds of the research. The theme was noted but not explored in significant detail. However, evidence within the literature showed that, if carried out correctly, food education projects can have a transferable effect on family (Maher *et al.,* 2019; Segrott *et al.*, 2017).

Although the aim of the consultation was not to achieve consensus, but rather to get to the heart of the issue, Stakeholder D felt there was widespread agreement on the importance of using a hands-on approach to teaching about food, an approach associated with Piaget and Vygotsky, as well as Dewey (Mooney, 2000).

> there is a consensus that we need to embed practical cooking skills into the curriculum right from early learning to third level so that no child leaves school without being able to cook for themselves, or without the life skills to look after themselves properly. Cooking and food can be integrated into every subject; into geography, into history [attendee D from an education and food background].

Both a hands-on approach and a multi-sensory approach are consistent with Dewey's conception of education, which is to engage the learner in an active and sensorial process (1997). Montessori also provides a grounding for creating a multi-sensory environment where children learn by doing (Murray *et al.*, 2023; Thayer-Bacon, 2012). The current nutrition and health education modules on the curriculum are delivered in a manner akin to Freire's banking form of education (2017). These modules could be bolstered with the addition of hands-on food skills classes, and research supports multicomponent interventions such as this in schools

(Genannt Bonsmann *et al*., 2014). People who worked more directly, in a hands-on manner with food, such as chefs were particularly vocal in calling for a changed approach in teaching methods. However, stakeholders noted it was not just the manner of delivery, but the content of food education which needed to be addressed, saying we need "more than a nutritional perspective" [TS S1T5] and highlighted the need to "move away from good food/bad food" [S1 T2], and the "binary view of healthy/unhealthy food" [S1 T4].

Funding was not often expressed as a major barrier within the group, it was highlighted but not in a way that shows it was of significant importance to the stakeholders. The Oireachtas Joint Committee on Education and Skills (2018) recommended that children "are taught cookery skills, nutrition etc. from a young age as part of the core curriculum" (2018, p. 16), which suggests that funding could be prioritised. While there may be provision for cooking within secondary schools who deliver Home Economics, there is a lack of cooking facilities in the majority of primary schools.

Assessment featured in the data and encompassed the way in which food education could be marked, graded, or included for examination purposes. Physical Education was in the processes of becoming an exam subject in Irish post-primary schools (National Council for Curriculum and Assessment, 2018), and it was mooted as an example. The theme of assessment highlighted interesting questions about the reasons for increased food education. It is difficult to perceive from the data if all of those who commented on assessment were relating it directly to exams, the type of education that Biesta deems "becoming qualified to perform a certain task or job" (2010, p. 5), or if they were referring to qualification in the wider sense, "the idea that education qualifies children, young people and adults to live a successful and meaningful life in modern, complex societies" (2010, p. 5).

It was suggested that mapping food education initiatives available to Irish schools would help to capture current practice and aid future planning. The results from the subsequent mapping exercise were used when researching content for the pilot of GCFBT, these are available in Chapter 4, section 4.13.4.

5.3 Analysis of the Findings from the Scoping Consultation with Key Stakeholders (SCKS)

5.3.1 Changing policy

The need for policy changes within the wider educational field and schools was highlighted by the stakeholders. The data indicated that change is needed at the highest level in order to create lasting or embedded developments in food education. To date, governments in Ireland have not made food education a priority. When a meeting, subsequent to the SCKS, was conducted with Minister for Education and Skills, Joe McHugh, he indicated that there might however be a nascent appetite for a changed approach to food within the DES. The Minister said that he believed that embedding food education into schools was important and the "right thing to do" for children to learn essential life skills and improve their well-being. He stated that he was open to facilitating the process of developing a shared understanding of why food education matters, and what it means in terms of policy and practice in schools. Information about this meeting was sent to those who attended the SCKS (as well as the four organisations who sent apologies on the day). COVID-19 school closures, as well as a change in government, has meant that further communication with the DES has been on hold.

Unity of voice is important when advocating for political change (Cullerton, 2017). 'Defining the key message' and creating a forum, as suggested by the stakeholder group would help to

solidify this voice and approach the topic in a collective manner to ensure that it is put into better focus for policy makers. A Food in Schools Forum has now been established by Healthy Ireland "to take forward the work in Healthy Ireland Strategic Action Plan (2021-2025). The aim of the forum is to bring together all partners working in the schools setting to help maximise the wide range of initiatives underway and identify the gaps. We are exploring developing a Food in Schools Policy" (James, 2021, email). Hayes *et al.* stress that good working relationships are important "within and across government departments, intermediaries and schools [these] were critical for intervention adoption, successful implementation and sustainability" (2019, p. 1). Figure 5.1 shows that 42% of EU countries (along with Norway and Switzerland) have combined ministries working together to create school food policies.
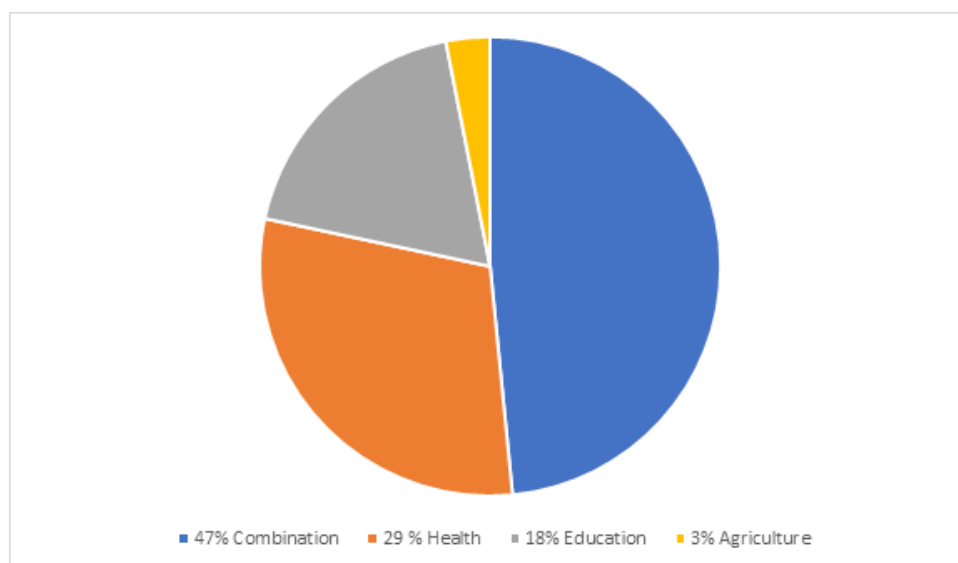
Figure 5.1 Ministries primarily responsible for developing school food policies in the EU 28 plus Norway and Switzerland. Adapted from Genannt Bonsmann et al., (2014).

Another issue that became evident within the data was the need for a change in individual schools' policy. Statements such as "there needs to be mindset change throughout the school" [S1 T2] and "there is no allocated time for eating in the school day" [S1 T1]; "school environments are not supportive" [S1 T6]; "change culture" [S1 T5] were noted throughout the day. Analysis of the findings show a perceived need for a whole-school approach to create

change; simply providing a food education module, to be inserted into an already busy schedule, does not seem sufficient in light of the data. "A whole-school approach recognises that all aspects of the school community can impact upon students' health and wellbeing" (Schools for Health in Europe, 2021, url), it is seen as a successful way to create lasting change (Schools for Health in Europe, 2021; Healthy Ireland, 2018; Buijs *et al*., 2013). In Ireland there is a toolkit available to primary schools outlining how they can develop a whole-school approach to food policy (Healthy Ireland, 2018). It is probable that some of the attendees at the SCKS were not aware of this, or some may have found the focus on healthy eating restrictive; it is impossible to ascertain from the data which is the case. Further research suggests that the framework (Healthy Ireland, 2018) is not currently being adopted in 40-59% of schools (Educational Training Boards Ireland, 2019; Department of Education and Skills, 2016). This indicates that the information could be better dissemination to school communities, or that supports should be put in place to aid schools in implementing the recommendations.

There were some indications from participants that a teacher's day is already overloaded. Therefore, any discussion about increased food education would need to address policy in collaboration with teachers and teacher training colleges. One attendee at the SCKS said:

> What I have learnt is really listening to people who work in different sectors. So for me today it was when X [from the NCCA] was talking about the curriculum and how the principles of teaching are changing, so that really helps me understand more and more the world that teachers are working in and I think we need to get the content right and we need to measure it right, but we also need to deliver it right, whatever we choose to do in schools [attendee M from a third level background].

Recommendations for overcoming barriers to implementation and sustainment of food education interventions, include the addressing the capacity to deliver within an already overcrowded curriculum (Hayes *et al.,* 2019). Providing teachers with key information about how to use food "as a tool to teach" would mean elements of food education could help to deliver curricular commitments rather than be seen as an additional burden. "Education systems

reflect the societal context in which they operate and consequently our [primary] schools are microcosms of this kaleidoscopic societal tapestry" (Ring *et al.*, 2018, p. 4). Food crosses many aspects of a child's life and can have strong cultural value as well as impact on health and environment. A curriculum should be a social construction that holds true the philosophical and political views of the nation, "where the purposes of education are no longer articulated in terms of what students should learn but in terms of what they should become" (Walsh, 2018, p. 11). An expansive approach to food education may have the ability to developing a students' critical thinking, imaginative understanding and awareness of world citizenship, which can help them to become active citizens in society (Nussbaum, 1998).

5.3.2 Building Efficacy and Agency

5.3.2.a Building Children's Efficacy Through Education

One emphasis from the SCKS was the importance of making children aware of advertising and how big businesses market food products to young people (Hobbs, 2021). Increasing media literacy, and an ability for critical reflection, in relation to food advertising within the curriculum would be in line with EU recommendations (European Audiovisual Observatory, 2018). Freirean models of education provide a template for engaging students in a form of thinking that "perceives reality as process, as transformation, rather than as a static entity" (Freire, 2017, p. 65). Building the ability to be selective about how to view marketing information is akin to building a critical awareness that will provide students with the "required knowledge, understanding and skills to navigate the myriad of food environments" (McCloat and Caraher, 2020, p. 6). Every student will interact with food advertising numerous times each day (BiteBack2030, 2020). Media literacy education is being addressed by Safefood who have produced elective resources which aim to engage children in developing an awareness of food advertising (Safefood, 2020).

The stakeholders suggested that the marketing of ultra-processed food to children should be addressed by wider policy, and not just within classrooms. The food industry could be made accountable in relation to advertising as well as promotion of 'junk' foods (BiteBack2030, 2020). This is echoed by Tull (2014) who states a need for a "collaborative group of people involved to make improvements to the style of messaging about food – to develop creative messaging and engage different disciplines [in the curriculum] in the process" (2014, p. 154). A nationwide programme to address this issue was put in place by The Irish Heart Foundation (2022) entitled 'Stop Targeting Kids'. It calls on government to protect children by introducing measures to combat the direct online marketing of foods high in fat, salt and sugar to young people. The Irish Heart Foundation having two representatives at the SCKS and being among those advocating for a cross-governmental forum, this wider issue of marketing of 'junk' food to children on their way to school, and within the media, could be tackled at such a forum, as well as the forum addressing food within schools.

Food, and its effect on the environment, has sparked research and debate (Willett *et al.,* 2019; Mason and Lang, 2017) as well as galvanising youth environmental activism (BiteBack2030, 2020). Sustainability education as seen in Chapter 3, section 3.3.4 can be strongly linked, or embedded within food education, it can support students in their understanding of environmental stewardship and the impact of the food system on biodiversity and climate change (Sterling, 2003). Self-reported data from the subsequent mapping exercise discussed in Chapter 4, section 4.13.4 supports this. The majority of initiatives (see Table 4.9 and Table 4.10) were seen to help schools address environmental issues by helping them meet several of the Sustainable Development Goals (SDGs) (United Nations, 2020) (Figure 5.2).

Which of the United Nations Development Goals does the listed project target?
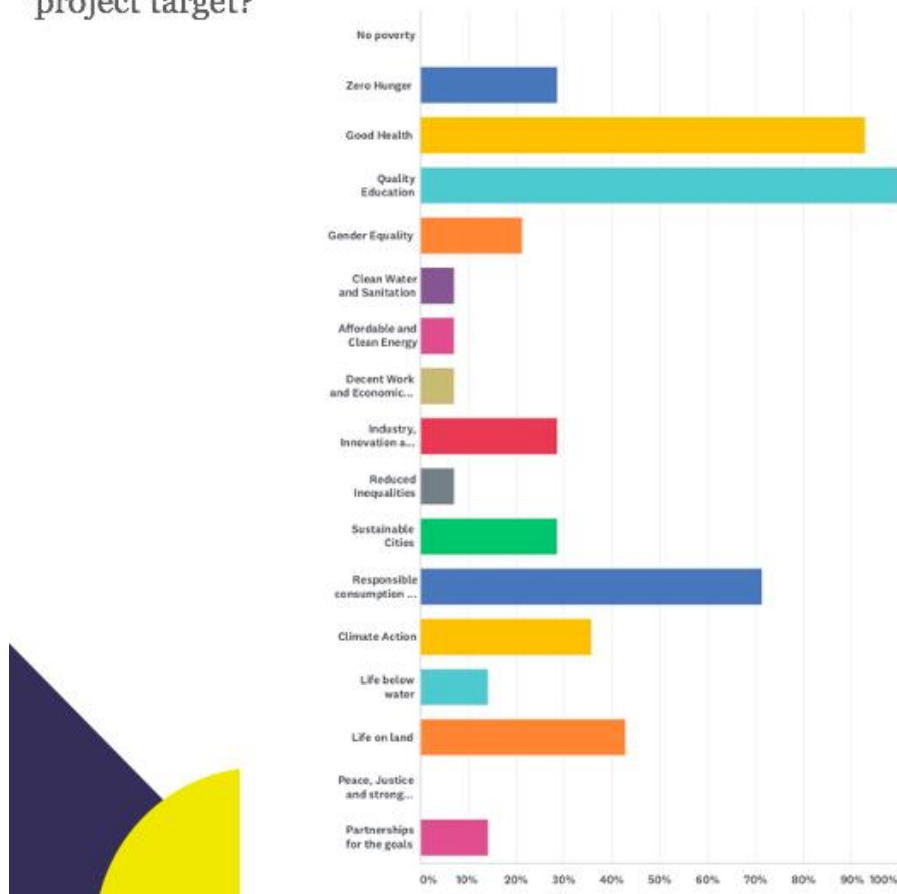
Figure 5.2 Results from the compiled list of 38 food education projects from the mapping exercise. It details the self-reported linking of the projects to the UN SDGs, by the project organisers.

5.3.2.b Teachers' Confidence and Agency

Data from the SCKS suggested that there is a need to build teachers' confidence and agency if a change in food education is to occur. Lack of both were identified as inhibitors to the successful implementation of food education. It was such a strong theme that there was an argument for advocating for policy change in relation to teacher training. Teachers are no longer seen simply as curriculum implementers, but as curriculum developers and co-constructors (National Council for Curriculum and Assessment, 2020b; National Council for Curriculum and Assessment, 2012). They are considered agentic within their own classrooms; "an agentic teacher is reflective, competent and capable of exercising professional judgement

in response to individual learning needs in a variety of contexts" (National Council for Curriculum and Assessment, 2020b, url), yet they do not have agency in relation to teaching about food. Bandura describes agency as the power to originate action (2002). Inclusion of food education in teacher training colleges and within NCCA research may provide teachers with the skills and confidence needed to instigate food education within classrooms and to connect this with the prescribed learning outcomes. There is a national and international call for continued professional development for staff in relation to food (Healthy Ireland, 2018; Health Promotion Agency for Northern Ireland, 2012; Genannt Bonsmann *et al.,* 2014). According to McCoy, Smyth and Banks (2012), teachers who were recently trained adopted a more constructivist approach to their classrooms, increasingly using active teaching approaches such as group-work and hands-on activities. This could be harnessed to include experiential aspects of food education.

5.3.3 Educational Approaches

The content for food education in schools featured largely in the data, as well as how it could be taught, which led to implicit references to education philosophies. There was evidence throughout of a focus on hands-on education, multi-sensory experience and critical thinking. This focus represents an alignment with constructivist principles which supports the overarching theoretical framework of the research. The recommendations may be linked to Dewey's philosophy of education where he saw education as a means to encourage goal-directed and social activities which influenced life outside of the school (Duster and Waters, 2006). School gardens can have pedagogical, political, and communal benefits (Dewey, 1997), as well as being a place to bring children into closer contact with nature (Ralston, 2014). Using the garden as a pedagogical tool can provide mental as well as physical benefits (Soga, Gaston and Yamaura, 2017). The work of Vygotsky (1978) and later Bandura (2002) clearly show that

children learn through social interactions and from modelling behaviours of those more experienced than themselves. Providing alternatives to classroom spaces such as kitchens and gardens, for experiential learning, can provide opportunities for children to help and instruct each other. Cooking interventions have also been highlighted as a promising method for changing children's food-related attitudes, preferences and behaviours (Dean *et al.*, 2020).

5.4 Limitations

COVID-19 prevented the researcher from organising follow-up focus groups to obtain additional information and clarification of initial responses, which would have provided a more succinct collection of viewpoints. Another difficulty is the generalisability of the results. While many organisations were represented, and purposive sampling was conducted, which ensured there was a broad representation, it was a small sample size. Even considering the limitations, the analysis provides a strong contribution to the literature on food education in Ireland. It was the first time, to the researcher's knowledge, that a group of such high-level stakeholders, from organisations with an interest in exploring ways of increasing food education in Irish schools, came together to address the subject. The report drawn up after the SCKS led to a meeting with the then Minister for Education and Skills.

5.5 Conclusion

The key findings from the SCKS highlighted an appetite for a changed approach to food education in Ireland, but also indicated that there is no clear roadmap for this to be implemented. The stakeholders felt that a cross-government forum should be the next step. They also deemed that a whole-school approach would also be necessary, one that encompasses school food environments as well as education. On analysis of the findings, a focus on teacher

training could also be deemed of importance as it would help to tackle the lack of confidence and agency which was a recurring theme.

There was uncertainty as to whether the present health focus on food in the SPHE curriculum was sufficient to address how food impacts students in modern society. The conversation focused on a broader approach to teaching about food and food skills. A form of pedagogy was outlined, by the participants, and further developed by the researcher through analysis of the findings, that could provide an education that teaches children to dig the soil, to learn to cook, to protect biodiversity and to better navigate the food system, all of which could be designed to promote greater awareness of climate change and an enjoyment in food. Sustainability education was seen in Chapter 3, section 3.3.4 to have the ability to build agency through critical thinking.

While a hands-on approach to food education was recommended by stakeholders there are challenges to hosting hands-on classes in primary schools, such as large class size and lack of cooking facilities, which were not addressed in the data. However, the reported benefits of using experiential learning in classroom settings strongly suggests the need to determine ways to develop and implement such activities (Dewey, 1997; Nelson, Corbin and Nickols-Richardson, 2013). Immediate action could entail working with teachers to find ways of integrating food topics throughout the existing school subjects and organising continued professional development in the area of food education. Both the SCKS and the subsequent mapping exercise allowed for a detailed look at the scope for increased food education in Irish schools.

Notwithstanding limitation concerns addressed in Chapter 4, section 4.12, the analysis of SCKS findings provides a strong contribution to the literature about food education in Ireland. Its utility lies in its in-depth examination of stakeholder opinion on how to ensure sustained and embedded food education is included in the Irish school curriculum. The knowledge gained from the scoping consultation, as well as the literature reviewed, helped to form the research question and coin the term circular food education (CFE). The embedded nature of the Global Citizenship Food and Biodiversity Theme pilot then allowed the CFE to be developed to encompass the many different facets of a broad approach to food education which the stakeholders outlined. The next chapter will see the findings from the SCKS put into practice within the Global Citizenship Food and Biodiversity Theme

Chapter 6. Development and Piloting of the Global Citizenship Food and Biodiversity Theme

6.1 Introduction

This chapter discusses the findings from the evaluation of piloting of the Global Citizenship Food and Biodiversity Theme (GCFBT) (Darmody, 2022). The GCFBT was developed and piloted over two years, in eight primary schools. It focused on developing food skills and increasing knowledge about the food system and sustainability, and to provide students with the ability to effectively deal with real-life issues (Breiting and Mogensen, 1999; Cincera and Krajhanzl, 2013). This was carried out through the facilitation of a series of hands-on workshops, project-based work, and group tasks such as forming a committee and writing a Green Code for the school. In the first year the focus was on local actions, including growing and eating food that was produced on the school grounds and creating a habitat map of the school environment. The second year of the programme focused on the global impacts of the food system, and the environmental problems associated with this, as well as revisiting the growing and cooking skills from year one. There was a clear aim throughout all aspects of the GCFBT to not didactically point to 'good' or 'bad' food choices (Earl, 2018), but rather to encourage an exploration through critical engagement and experiential learning. It aimed to foster an enjoyment and sense of inquisitiveness about where food comes from and how it is produced. The socialisation through shared chores in the garden, convivial eating and cooking classes, increased the capability of imaginative understanding (Nussbaum, 2007), as did the instances of active participation in group activities, where space was provided for deliberation and discussion. Children participating in the pilot were equipped with an increased ability to make critical decisions and had a higher awareness of sustainability and biodiversity. The term circular food education (CFE) was developed from these findings.

The teacher resource booklet that was produced at the end of the pilot is available in Appendix A. It was developed based on the research findings from this project. The appendices also includes links to skills building videos created for the students and teachers, as well as links to further teaching resources. While there was no additional benefit found by Lavelle *et al*. (2017) to providing video instruction to accompany written instruction in cooking interventions, on evaluation of the GCFBT data after year one, the videos were considered an important element in building teachers' confidence and agency in relation to the kitchen tasks. Links were also created between individual schools and specific chefs to aid in delivering elements of the programme that teachers did not have the confidence to deliver themselves.

Chapter 4, section 4.2 outlined the three cycles of action research (AR) used for the development of the pilot. The first cycle was used to explore other similar programmes taking place on a national and international scale, while also gathering data from the participating teachers and 686 of the participating students. During this stage, the aims of the Green-School staff and the findings from the scoping consultation with key stakeholders were analysed, and initial school visits began. In the second cycle, a series of workshops were facilitated in schools to explore how the programme content could be developed. In keeping with the AR rational, the children's participation and feedback was of the utmost importance when developing content (Bradbury, 2020). In the third cycle, the data were evaluated and the capability approach (CA) was used as the evaluative (Alkire, Qizilbash and Comim, 2008). The eight schools were assessed as one pilot, rather than eight separate units (see Chapter 4, section 4.14.1). The programme was designed to be universal and available to schools of all sizes and school types (Department of Education, 2019) throughout Ireland. Combining data from the eight schools allowed each workshop to be viewed from a range of perspectives. Using reflections and evaluations of the workshops helped ensure that subsequent workshops could

be developed in a such a way that they were malleable enough to be universal. Using an iterative, multimethod approach led to a programme with varying sites of learning, which was then more easily disseminated nationwide and throughout the whole-school.

Using the lens of the Capability Approach (Sen, 1993), children were considered as active citizens who have reason to value their actions and learning. The action research methodology that underpinned the project drew on Freirean theory (Flores-Kastanis, Montoya-Vargas and Suárez, 2012). The aim was to create a programme of value to those teachers who implemented it, and also the students who actively participated in its formation.

6.2. Building Efficacy and Capabilities Through Experiential Learning

The Global Citizenship Food and Biodiversity Theme enables children to participate in the construction of their own experience (Prout and James, 2001) in a manner that a more simplistic nutrition-based programme could not. From the initial survey conducted at the beginning of the research it became evident that the students had significant existing knowledge of what foods promoted health. This was in line with findings from Browne *et al.* (2019) who found that children "already possess knowledge around food and eating" (2019, p. 85). Therefore, creating a programme that addressed food education in a different way was of importance, one based on experiential, hands-on learning (Dewey, 1997; Nelson, Corbin and Nickols-Richardson, 2013) and critical engagement (Freire, 2017). The programme was developed to be two years in duration, as a lengthy programme was deemed more effective than short, or one-off interventions (Olsen, 2019; Buijs *et al.*, 2013). Furthermore, the second year of the programme allowed for reinforcement of the learning from year one (Garcia *et al.*, 2016). It was noted in the data that the varying sites of learning outside of the classroom, allowed for a

wide range of students to reap the benefits of the programme and gave a suite of opportunities to explore food in ways that interested a broad array of students.

Creating supportive environments and encouraging discussion helped to provide the scaffolding for social and emotional learning (Vygotsky, 1978; Bandura, 2002). This was carried out by ensuring that all children were included in each task, with each step clearly explained before the children proceeded to take part in the activity, as shown in Figure 6.1 The expression of satisfaction on a child's face as they were observed moving through the sequence of tasks involved in preparing food, or tending crops in the garden, was evidence of growing confidence. Having a teacher, a Green-Schools staff member or chef guide and support the students during the workshops helped them move through the zone of proximal development, where they transitioned from what they could do without assistance to being able to accomplish more with guidance from someone more capable of doing the task (Vygotsky, 1978). Two key components were the student's potential development, as well as the role of interaction with others. During workshops the children were actively working in groups, helping each other to complete tasks through peer instruction as shown in Figure 6.2 Age-appropriate skills were developed (Dean *et al*., 2021; Burt, Koch and Contento, 2017) through adult instruction and guidance, as seen in Figure 6.1, but also through peer support as shown in Figure 6.3 This image shows two children working side by side at a cooking task, learning from, and with each other (Vygotsky, 1978). Peer learning also happened through the group projects or through the Green-Schools committee. Students from various classes within a school were represented on the committee and worked together on tasks throughout the two years, the younger students learning from the older by watching their actions and listening to how they justify decisions.

Figure 6.1 Sequence of tasks explained to children before they begun

Figure 6.2 Children working together to create one of the recipes

Figure 6.3 Children working side by side on cooking tasks

The formation of the Green-Schools committee was an integral part of GCFBT. Students formed the main body of the committee and in most cases, they held class elections to decide who would represent each year group. Teachers were seen as agentic, guiding the children in the topics they chose to explore but ultimately many decisions lay with the committee of children. This process of engagement was found to build capacities of agency, participation, democratic discussion, and critical thinking. One teacher noted that this aspect of the theme allowed "the children to gain skills such as teamwork, communication and organisation" saying that it "also builds their confidence" [ED]. Figure 6.4 for example, shows how one Green-Schools committee discussed the reasons for choosing their global food topic. After the committee chose a subject, a problem solving, and dialogic approach was taken. Students researched the subject and then presented their individual projects to their fellow students and

their teachers (and in the instance of the pilot, to the Green-Schools representative and the researcher). Some schools then collaborated on a whole-class project, showing this to other class groups (this was interrupted by COVID-19 closures). This was found to enhance the student voice, and encourage discussion and active participation, by creating a space for deliberation about, and exploration of, complex food issues throughout the whole-school. The projects and presentation of them also allowed the researcher to evaluate what was of interest and importance to the students. Teachers felt that the global food projects, two of which are demonstrated in Figure 6.5, helped to accomplish an expanded understanding of world citizenship. According to the teachers' evaluations, students became more aware of packaging, air pollution, food miles and deforestation. Below are sample comments by students which further illustrate this:

"the rainforests are being cut down for palm oil which is used in lots of food. Lots of food we buy is wrapped in plastic".

Food can impact the environment "because all the plastic that comes from the packaging and then it either goes into landfill or the ocean and the sea animal will get stuck in it".

"Some foods are processed, and processing things uses factories and that usually causes air pollution".

"I think what we choose to eat has loads of impact on the planet because the food we grow at home is normally way better than the food that is put into plastic wrappers".
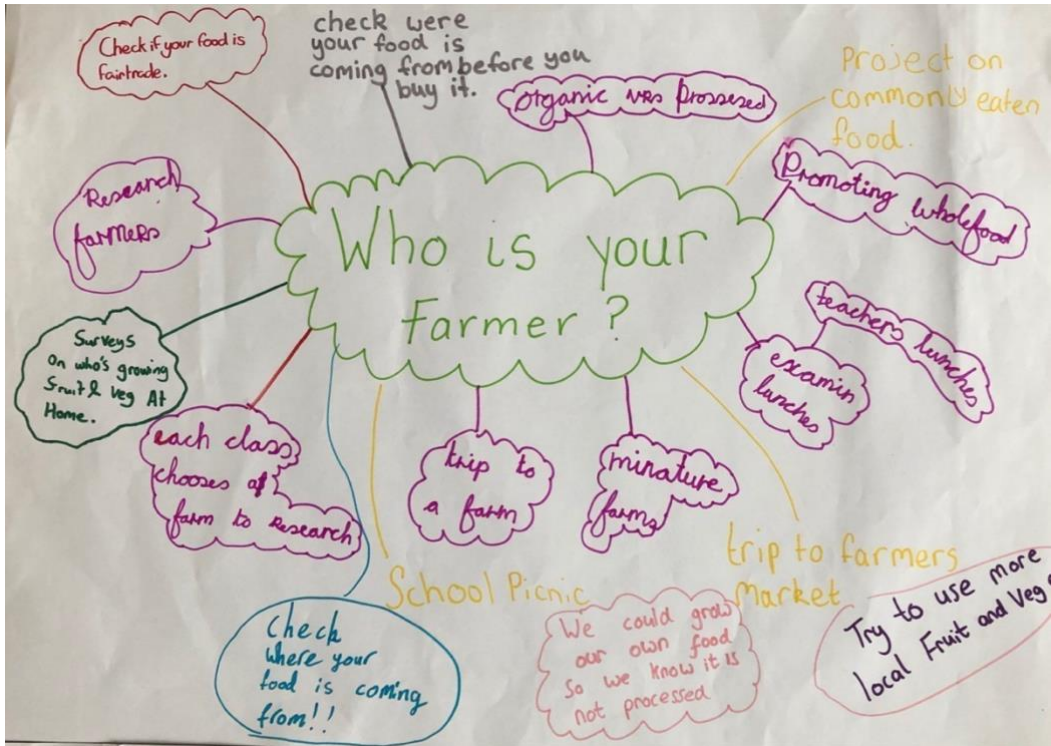
Figure 6.4 Students exploring out ideas for 'Who is your Farmer?'
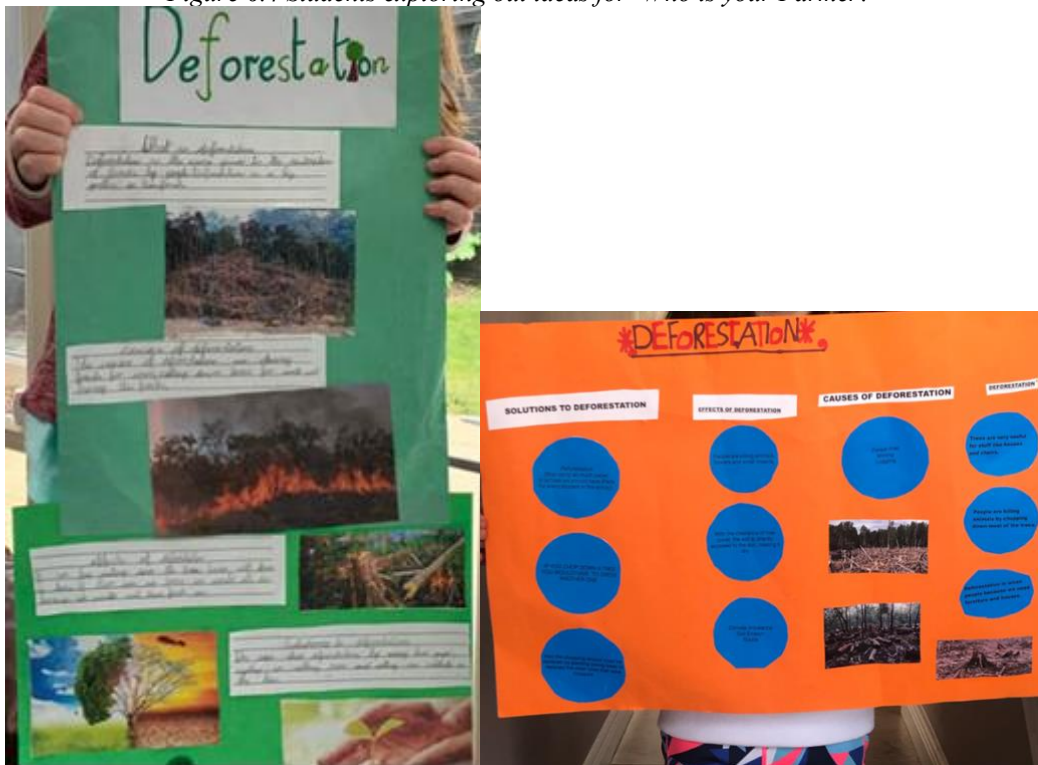
Figure 6.5 Individual student projects exploring global food topic

As students had expressed an interest in exploring their immediate food environment in more detail, food habitat mapping was added in year two of the pilot. This mapping which is in line with Wight and Killham (2014) necessitated that students interrogate where food is served or composted, how food packaging is recycled, and allowed for an examination of what wild

foods were available on their school grounds. The school environment and how children interact with food within it were better understood following the exercise. As one teacher noted "[I]t formed a good part of our planning ideas" [OP]. Another teacher reiterated that "[M]uch like a blueprint of a proposed landscape it gives a chance for the (garden) plot to develop together" [OP]. The mapping of food within and on the school grounds helped to inform the schools' Environmental Review, and then the Green Code (see Chapter 4, section 4.14.7). The Environmental Review "aims to assess your starting point as a school" (see Appendix A. This also involved students collecting information about awareness levels amongst the staff and students about food and its links to environmental sustainability.

The nature of any Green-School initiative has environmental sustainability at its core, an empathy for the natural world is nurtured (Green-Schools, 2020). A core component of GCFBT was the creation of an edible gardening space within participating schools. Research found that using the school garden was beneficial for student's wellbeing (Brien, Story and Heim, 2009; Dyg and Wistoft, 2018; Soga, Gaston, and Yamaura, 2017; Burt, Koch and Contento, 2017) and this was also found to be true of those schools participating in the GCFBT. The coordinating teacher from [CA] expressed how her class enjoyed using the garden, "we absolutely love getting out and about and in particular weeding, clearing the garden, trimming it back etc. The kids are so positive, relaxed and free in the garden!". While coordinating teacher [MA] said that "the children just love being outdoors, digging the soil and having the responsibility for caring for the crops". Learning about biodiversity in the garden helped to establish the interrelatedness of life; teacher [LO] noted that the garden was a very useful teaching tool. Teacher [VI] described the soil health workshop which were facilitated in the garden as "really excellent, and the children were really engaged".

A Harvest Day at the end of each school year was designed to provide a space where the children could eat the food they had produced together. Shared meals are forms of socialisation and social reproduction (Douglas, 2002). Children also tasted and ate the food they prepared during cooking workshops. Having sites for socialisation throughout the GCFBT, according to one teacher "allows children an opportunity to 'let off steam', have a little chat with their friends, sing, make noises etc. I love the positivity!" [CA]. Another teacher stated that following on from the theme "an inclusive and enabling culture has been well-established; pupils' holistic development and the building of their self-esteem and sense of belonging are central to the work of the school. A broad range of very effective strategies were used to develop pupils' emotional wellbeing and their social skills" [OP].

6.3 Schools Achieving SDG targets.

There is an element of commonality between the normative values of the Capability Approach (Sen, 1993) and the Sustainable Development Goals (SDGs) (United Nations, 2020, url). The Global Citizenship Food and Biodiversity Theme (GCFBT) programme aided schools in achieving their SDGs targets with all teachers stating that it helped them address the SDGs within their school. One teacher noted that the GCFBT "was a great tool for children to get concrete sense of how the whole world is connected" [OL]. Each school's Green Code related to food ways and sustainability within that school. Schools were encouraged to involve as many of the pupils and staff as possible when negotiating the code which was related not only to the Environmental Review, but to food workshops and explorations conducted throughout the two years. The Green Code was disseminated throughout the school, and parents, and sometimes local media, were informed of the schools' intentions.

6.4 Harnessing Pleasure Through Learning Environments and Conviviality

Earl (2018) described her experiences of food education classes that are nutrition based, saying that "in these classes there is not talk of food as enjoyment or as part of culture" (2018, p. 87). The literature outlined in Chapter 3 shows the power of using pleasure as a motivating force for food education (Marty *et al.,* 2018; Cornil and Chandon, 2016; Bétard, 2020; Trudel-Guy *et al.,* 2019; Wilson, 2018). Play is one of the Ten Central Human Capabilities outlined by Nussbaum (2006). Play is important in aiding adults to lead a full life, but it is a particularly important part of child development; it enhances the sense of enjoyment and exploration. Throughout the data and observation sessions the children were noted to be smiling, chatting amicably and engaging in activities. Play is a strong driver in supporting learning (National Council for Curriculum and Assessment, 2023). Increasing confidence in tasks can also lead to increased pleasure and enjoyment. It was found that an increased enjoyment in the process of cooking a meal could be gained through learning easily replicable recipes and this positively impacted confidence (Lavelle *et al.*, 2017). Analysis of the findings from the GCFBT evaluation showed correlation with these findings, that once the children's confidence was nurtured, their enjoyment increased. In line with Montessori (O'Donnell, 2013; Mooney, 2000), real implements were used in the garden and kitchen, and growing confidence was observed as children felt that they were trusted.

6.5 Different Approaches for Different Age Groups

Each school had to complete the core seven steps of the programme as outlined in Table 4.12. However, after evaluation at the end of the first year there was an awareness that the workshops needed to be malleable since schools often have differing needs. While facilitation approaches were consistent throughout, based in constructivist principals of hands-on learning, future

workshops could be adapted by the teacher. For the nationwide roll-out, although resource guidelines were provided for each workshop (Appendix A.2) and Green-Schools staff were available to advise or to facilitate workshops, individual teachers were seen as agentic within their own classrooms with an awareness of what works for their class.

During the rollout workshops can be adapted by the teachers. For example for the habitat mapping, the measuring of the school grounds and the drawing of a map of the grounds is particularly suitable for 4th class and over as it involved dexterity and an ability to understand a map from an aerial view shown in Figure 6.6. In saying this, it was explained that teachers of younger classes could adapt the workshop so that children can participate by tracing "food prints" (the journey food took after being delivered, and where the packaging went after it was consumed) through a school, or doing a nature walk in the school grounds and taking notes of edible plants. In school ED before creating an amalgamated school map (Figure 6.7), a teacher involved the younger classes and added the information to map created by the older classes.

Figure 6.6 Drawing a habitat map

Figure 6.7 Food Habitat Map
(Map key - 1. Apple trees, 2. Nettles, 3. Blackberries, 4. Rowan berries, 5. Potatoes, 6. Elder berries, 7. Fridge, 8. Bins, 9, Drinking taps, 10. Bird houses, 11. Wildflowers, 12 Conkers)

As the pilot progressed, which vegetables each class could grow was refined to suit different age groups. The stages within Piaget's theory of cognitive development allowed us to see how children's brains processed in different ways to adults and while some children passed through developmental stages at different ages, they progressively developed an understanding of the world. However, Piaget saw a child's learning as self-directed and did not take experience with others, their social environment or culture into account (Mooney, 2000). More simple tasks and skills were outlined for younger classes; for example, counting potatoes as they were picked was an opportunity for infant classes to be involved in the harvest and to dig the soil. Soil health workshop could also be facilitated on different levels for differing age groups, counting worms for younger classes which allowed socialisation and sensory play, or measuring the of pH of the soil and other scientific experiments for 4th class and over. Even with the more scientific aspects a child centred approach was still taken, with the children documenting and reporting on the results, time was made for children to discuss the next steps in the garden in relation the soil testing results. This encouraged and aided the development of self-efficacy (Bandura, 2002) and the building of capabilities (Biggeri and Santi, 2012; Gombert *et al.*, 2017; Darmody, 2022) by giving students control over decisions and

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encouraging dialogue and teamwork. Dean *et al*. (2021) provide guidance in students ability level in the kitchen. Older children benefited from procedural reading of the recipes and practiced concrete maths skills while weighing or dividing ingredients, as well as the building skill through chopping and cooking with ingredients.

While developing the GCFBT programme, the researcher noted that schools who previously had school-gardens rarely cooked with or ate the produce from that garden. Within the GCFBT tasting and cooking workshops, the vegetables grown in the garden were used. Linking the cooking with the produce grown not only provided the basis for a skills-based workshop but it also encouraged the use of minimally processed basic ingredients in the kitchen (Lavelle *et al.*, 2017). Not all teachers see the pedagogical benefits of the garden (Passy, 2014). By introducing the GCFBT as a whole-school initiative, it helped to promote cooperation among staff, with those more experienced working with those who had less gardening experience. Resources were also provided to create links to the curriculum, to aid participating teachers and highlight the pedagogical possibilities of the garden. Supporting staff was cited as critical to a well-integrated school garden by Burt, Koch and Contento (2017).

6.6 Exploring Different Frameworks for Evaluation of the GCFBT pilot

Before deciding on the Capability Approach (CA) as an evaluative framework, other methods were examined. Yeatman *et al.*'s (2013) evaluation of the Stephanie Alexander Kitchen Garden Programme was considered, and the evaluation methods and hierarchy framework were explored. Yeatman *et al.* (2013) had access to quantitative data and had a different methodology to the research at hand. Their framework would not provide the richness that participatory action research strives for. In the area of environmental education research, the three-component attitude model has been used for specifying the structure of environmental

attitudes (Leeming, Dwyer, and Bracken, 1995). The theory of reasoned action (Fishbein and Azjen, 1975) or the Hines' model, based on behavioural change, and conditions, including personality factors, knowledge of issues, and possession of skills (Hines, Hungerford and Tomera, 1986/1987), have also been implemented to assess educational initiatives.

The lens of the CA was chosen for this research as it puts students' wellbeing and their ability to flourish at its centre, flourishing meaning that the ultimate goal should involve expanding people's ability to live full and creative lives (Sen, 1999; Robeyns, 2005). There was also a recognition that when assessing how well people are doing, it must also include how well their natural environment was doing, which aligns with the GCFBT. "Humans are part of a wider ecosystem, and their quality of life is co-dependent on the good functioning of the ecosystems in which they live. The underlying anthropology of the capability approach recognises that humans are interdependent" (Alkire and Deneulin, 2018, url). As noted, there are also affinities between the CA and action research, as both aim to create better lives and outcomes through research (Walker, 2009), as well as deepening an "understanding of educational processes and developing strategies to bring about improvements" (2009, p. 302). Paulo Freire and his concept of youth autonomy also has many similarities with the CA, through the encouragement of a critical consciousness (Freire, 1984) and the use of newfound knowledge to employ agency (Orlowski, 2019).

6.7 Findings from the Evaluation of the GCFBT using the Capabilities Framework

The CA has been discussed in detail in Chapter 3. It is a theoretical and evaluative framework which entails two core claims: "first, that the freedom to achieve well-being is of primary moral importance, and second, that this freedom is to be understood in terms of people's capabilities" (Hannon, Fass and O'Sullivan, 2017, p. 1225). The central concepts of the framework are

capabilities and functionings. Capabilities are the real opportunities to do and be what a person has reason to value, "the person's capability reflects her freedom or (real) opportunities" (Alkire, Qizilbash and Comim, 2008, p. 2), for example the capability to live a long and healthy life, the capability to read and write, the capability to be healthy, the capability to live in a clean and rich natural environment (Deneulin, 2008). Functionings are what Sen calls the various things a person may value being and doing (1993). Examples include being adequately nourished, being in good health, avoiding escapable morbidity, being happy, having self-respect, and taking part in the life of the community (Sen, 1993; 1999). However, Sen has left the CA 'incomplete', particularly in relation to which functionings or capabilities are 'valuable' (Qizilbash, 2008), but also in relation to its use as an evaluative framework. Sen argues that methodology should be guided by "what serves the goals of the inquiry" (2004, p. 595) and acknowledges that these goals will vary significantly. "Underspecification has its dangers" (Alkire, 2008, p. 45) and the approach has detractors (Sugden, 1993; Srinivasan, 1994; Roemer, 1996).

> One inherent limitation of an evaluative framework may be that it focuses on comparing and fully assessing alternatives in terms of their effects on human capabilities and other relevant variables, rather than on making recommendations. Of course, evaluations may and often do feed into recommendations, but the focus of the exercise is different and importantly so. An evaluation takes time patiently to explore the benefits and disbenefits of different states of affairs/courses of actions as these appear to diverse groups and to people in different situations or with different values (Alkire, 2008, p. 32).

6.7.1 Ten Central Human Capabilities

While Sen (1993; 1999) does not provide an index of functionings, and has left the list of capabilities unspecified, Nussbaum, on the other hand, extends the approach by creating a list of ten central human capabilities (see Table 6.1). Nussbaum (2007) asserts that these should be supported by all democracies. A citizen within a state can expect the state to undertake certain duties whatever the underlying ideology of that state. For Nussbaum the list is "a basis for

constitutional thought" (2007, p. 21), a guide to what governments in all nations should guarantee to their citizens (Nussbaum, 2007). The list is malleable, which provides the capacity to suit differing states. Nussbaum does not endorse them as a definitive list but stresses "the multiple realisability of its elements" (Comim, 2008, p. 167).

1. **Life:** Being able to live a full, healthy, life
2. **Health:** Being able to enjoy health, shelter, and nourishment
3. **Bodily integrity:** Being able to move freely without suffering any form of assault, and being able to choose one's own partner
4. **Senses, imagination, thought:** Being able to attain fully formed senses pertaining to the human condition: arts, sciences, education, etc. Personal choice in music, literature, religion. Full freedom of religious expression and freedom of expression
5. **Emotions:** Being able to fully engage human emotions
6. **Practical reasoning:** Being afforded full, measured, and logical decisions
7. **Affiliation:** Being able to affiliate with whomever the individual desires, from friend to political ideology/party
8. **Other species:** Being able to live with concern for other species
9. **Play:** Being able to engage in human joviality, laughter, play, etc.
10. **Control over one's environment:** Being able to exercise personal agency with regard to marriage and politics

Table 6.1 Nussbaum's list of ten central human capabilities (Nussbaum, 2006).

While there are warnings against applying measurement criteria mechanically (Comim, 2008), Nussbaum's list of ten central human capabilities was used to think through rather than analyse the data which was gathered during the Global Citizenship Food and Biodiversity Theme pilot (Table 6.2). When the data was considered in relation to the ten central human capabilities, it allowed the value of participation by teachers and students to be established. While the primary evaluative focus was whether capabilities had expanded (Alkire, 2009), the consideration also focused on how and why such expansion occurred. Subsequently, a more in-depth evaluation was undertaken in relation to capabilities which might be developed through the educational process, namely critical examination, cosmopolitan ability, and imaginative understanding (Biggeri, Caterina and Karkara, 2019). These capabilities were selected for the evaluation because they related to students having the ability to achieve their goals and having "the practical competence and the motivational incentives" (Nussbaum, 2009, p. 8) to do something about those goals, as well as the fact that they drew on aspects of circular food education.

Capability	Metric	GCFBT Outcome	Source
1. **Life**	To live a life of value	Teachers and students reported valuing the opportunity to work outdoors. Students reported valuing the opportunity work with their hands. Teachers valued the social aspects of the project, including teamwork. Students reported feeling pride in demonstrating their cooking and gardening skills. Teachers expressed the value of developing pupils' emotional wellbeing and their social skills Teachers noted that behaviour change was less prevalent.	Teacher evaluations Student workshops Participant observation
2.**Health**	Good physical and mental health	Teachers reported significant positive benefits such as increased confidence, social skills and interpersonal skills – due to presenting project work to peers and presenting to school assemblies. Teachers expressed improvements in students' wellbeing as they were able to "Let off steam". Students stated they were better able to express themselves through project work and forming a committee.	Teacher evaluations Student workshops Participant observation
3.**Bodily integrity**			
4.**Sense, imagination and thought**	Education	Participants reported they greatly valued the opportunity to learn about global issues. Teachers expressed disappointment at not having a second chance to plant seeds (due to school closures) as they had made mistakes in year one and were looking forward to learning from their mistakes in year two. Students stated that they wanted to use 'real' knives and listed the recipes they would like to cook (see the recipes in Appendix G)	Student's projects Teacher evaluations
5. **Emotions**	Being able to have attachments to things and people outside ourselves (incl. making friends) Not having one's emotional development blighted by fear and anxiety	Students and teachers almost universally reflected on the enjoyment of the social aspects of the project Students reported talking with friends and valuing talking over problems and challenges Teachers told of the relaxed environment where students worked well together. Sharing food and discussing food from other cultures can engender empathic relations. Teachers expressed frustration about getting everyone in the school 'on board' with the theme.	Teacher evaluations Student workshops Participant observation
6. **Practical reason**	Being able to engage in critical reflection about the planning of one's life	Students reported gaining confidence from the process of planning the committee and working on a Green Code	Teacher evaluations Green-School staff evaluation sheets
7. **Affiliation**	Treated as a dignified being	Gaining skills through workshops.	Teacher evaluations

	Having the basis of self-respect and regard of others To engage in various forms of social interaction	Benefits include information exchange, learning new perspectives while participating in the project. Students were more hopeful because of the knowledge they were gaining. It is clear from almost all of the participants that the opportunity to interact with others and being outdoors was one very positive element.	Participant observation Green-School staff evaluation sheets
8. **Other species**	Being able to live with concern for and in relation to animals	The Project was designed to place growing and biodiversity at the centre of the education process The habitat mapping exercise allowed children to examine creatures, insects and plants growing on school grounds	Student workshops Participant observation
9. **Play**	Being able to laugh, to play, to enjoy recreational activities	Teachers reported a relaxed, fun atmosphere that allowed for safe interactions. Students shared an interest in cooking with the ingredients that they grew.	Teacher evaluations Student workshops Participant observation
10. **Control over environment**	Being able to engage in political participation and representation	Global topics allowed students to explore the food system on the world stage	Student's projects Green-School staff evaluation sheets

Table 6.2 A framework developed under the influence of Knight (2017) based on Nussbaum's ten central human capabilities.

6.7.2 Critical Thinking

Building critical consciousness involves the active exploration of the personal as well as experiencing the meaning of abstract concepts through dialogue (Freire cited in Kolb, 2015), this was achieved by the students through participation in the school committee, project work, and habitat mapping. According to the data, conditions for wide, active, informed and equal participation were provided to the students throughout the GCFBT programme. The data showed that the broad approach to food education helped to build a critical ability within the learner to question the complex food system, which is in keeping with Freirean theories of expanding agency and efficacy through experiential learning. When building efficacy Bandura emphasised the importance of learning from others through observation (2002). He believed that through this observation self-efficacy is built and strengthened and that nurturing environments can be used to increase self-efficacy which helps to overcome difficulties and to

develop an ability to change the situation (Koskela and Paloniemi, 2023). Freire also provides a model for how education can be used as a tool for change (1984). For Freire reality can be transformed, it is not a static entity, students can act for change (Freire 2017). When sustainability education and the issues it encompasses call for a need to change, building efficacy is of increasing importance.

6.7.3 World Citizenship - Cosmopolitan Ability

The Western cosmopolitan tradition has its origin in Greek Cynicism when Diogenes, who, when asked where he came from, responded that he was a citizen of the world (Nussbaum, 1994). In declaring this he asserted the equal worth of all human beings, removing them from their social class or country of origin. A central task of cosmopolitanism today is to reconcile the local with the global, and to consider a common belonging as citizens of the world. Nussbaum (2019) while finding flaws within cosmopolitanism defends its ideals, which work against a politics of nationalism, patriotism or ethnic or religious difference.

Food as a human right is understood not only in terms of access to healthy and nutritious food, but also the right "to culturally appropriate food and associated values, such as taste and pleasure" (Jackson *et al*., 2021, p. 3). Public health policy about eating and diet, which influences much of Irish food education, is Euro-centric in its outlook (Health Service Executive, 2016). With GCFBT, consideration is given to diversity, working to include foods and recipes from an array of cultures. By paying attention to identity and diverse cultures within schools, the programme allowed the schools and the committee to adapt certain aspects of the project to better suit the needs of their school community. The agency given to students, when they were creating projects gave them a reason to value the content.

6.7.4 Imaginative Understanding

Imaginative understanding or narrative imagination as Nussbaum (1998) discusses, is the ability to understand the lives of others, to be a sympathetic reader of another person's story. Researchers have studied the socio-spatiality of schools, in both their formal and informal spaces, and highlighted the interconnectedness of people, food and space (Berggren *et al.*, 2021). The socio-spatial dimension is of interest as research shows that pleasant food environments in schools provide "good conditions for a pleasurable meal experience and an overall positive attitude towards food and meals, which in turn can have many positive effects on children's health and wellbeing" (2021, p. 339). On evaluation of the GCFBT data it was found that the programme provided social spaces that encouraged prosocial behaviour among students (Caprara, 2000). Pleasant, child-centred environments were developed (O'Donnell, 2013) with the provision of shared empathic spaces and a belief that students could build their own knowledge (Thayer-Bacon, 2012).

6.7.5 The GCFBT Providing a Broad Approach for Food Education

If schools can be viewed as places that prepare children and young people for life as social and cultural participants in society (National Council for Curriculum and Assessment, 2012), incorporating a broad approach to food and sustainability, such as that proposed by circular food education, is one way of ensuring this. Every child will have a life-long relationship with food and will have to navigate their way to cooking and/or acquiring food that vitalises and nourishes them throughout their lives. However, as Gombert *et al.* (2017) point out that "only if what young people have reason to value makes sense to them and fits in with their lifestyles will they genuinely be able to expand their capabilities" (2017, p. 45). By focusing on active participation the GCFBT was seen to contain elements that 'made sense' in the lives of the

young people participating. By allowing the children to explore food topics that were relevant to them at that moment in time, they were seen in the present, as active citizens within the food system, rather than their future 'healthy' or 'unhealthy' selves.

6.7.6 The Focus on a Whole-School Approach

The development of the Global Citizenship Food and Biodiversity Theme (GCFBT) was built on strong foundations of constructivist theories. When looking at how and why this approach was successful, the data provided rich information for evaluation, but it also showed pathways for improvement. Teacher engagement was one of the biggest challenges the data showed, which was due to teacher's level of interest and their confidence, as well as time constraints. One teacher stated "I wish other classes would engage to the extent that ours did" [CA]. This was noted and further links were created to aligned workshops with required learning outcomes, and detailed information was provided in the resource pack. The lack of confidence was also helped by ensuring teachers that Green-Schools staff were available on the phone for advice but could also visit the school and host workshops. Links to the curriculum also help to alleviate teachers time constraints, because it advised teachers how to use elements of the GCFBT to help meet existing curricular demands. Creating a whole-school approach was deemed to be one of the most successful ways of providing teachers with support as well as helping to foster a culture within the school to facilitate a better understanding of the school's place with a wider food system.

One of the ambitions of the project for Green-Schools staff was to create a more food literate school environment. Food literacy according to Vidgen (2016) provides "the scaffold that empowers individuals, households, communities or nations to protect diet quality through change, and support dietary resilience over time" (2016, p. 63). The comprehensive nature of

the term and its dependency on context makes food literacy difficult to measure (Perry *et al.*, 2017; Truman, Lane and Elliott, 2017). By positioning the school to become a food literate entity, it moved the responsibility away from the individual, because when the focus of responsibility is solely on the individual to be 'better' the fear is that larger societal problems are overlooked (Flowers and Swan, 2015). Within the Capability Approach, it is also important to understand that increasing capabilities does not simply mean increasing skills or internal capacities, as Walker explains it is not just about individual success or failure, but about social arrangements, "for example pedagogical conditions or normative education purposes of schools that enable or diminish capability formation" (2009, p. 307). Creating a school that is food literate, means one that takes a whole-school approach to plan and manage its environment to meet needs of students and teachers. An evaluation of the data throughout the two years of the GCFBT showed that this was accomplished by planting a garden space to increase pedagogical conditions, as well as increasing biodiversity on the school grounds and creating awareness of that biodiversity. The school was also encouraged to implement nutritious, sustainable and pleasurable eating practices, which was aided by the students creating a Green Code and through the habitat mapping exercise. The whole-school approach bolstered all these elements.

6.7.7 Health Capabilities Achieved as a Result of a Broad Approach to Food Education

Nutrition, life expectancy, and health are considered basic functionings (Sen, 1993) which are deemed necessary for human survival, or to avoid serious deprivations. Diet and access to food are linked to all three. There is an increased focus on wellbeing in Irish schools (National Council for Curriculum and Assessment, 2017; National Council for Curriculum and Assessment, 2012) and Sen provides an understanding of wellbeing to be the freedoms and capability to make choices and act effectively with respect to health, education and nutrition,

as well as others such as employment, security, participation, voice, consumption, and the claiming of rights. (Waage *et al.,* 2010, p. 20). While the main focus of GCFBT was not on health, food and health are linked. Focusing on aspects of the food system such as climate change, biodiversity, and social justice can be alternative, less didactic, routes for health education messages (Jones *et al.,* 2012). Within the CA there is a consideration of the multidimensionality of health and well-being (Gombert *et al.*, 2017; Venkatapuram, 2007; Venkatapuram, 2011; Ruger, 2003) which provided scope to view the significance of the GCFBT programme in a holistic way.

Venkatapuram (2007; 2011) views health as the combination of the influence of socio-economic structures; for him the broader notion of fairness in society cannot be separated from health justice (Gombert *et al.*, 2017). Health is more than the absence of disease, it is a 'meta-capability', meaning it is a combination of other basic capabilities to be and to do things (Venkatapuram, 2011). Like Nussbaum's work, Venkatapuram's notion of the 'meta-capability' of health expands on Sen's theory (Gombert *et al.*, 2017). "The capabilities lens makes it clear that the route to tackling health inequalities is not only the provision and availability of resources, such as healthy foods and money, but the activation of capabilities to perform health through these resources" (Gombert *et al*., 2017, p. 155). Having the ability to nourish oneself is affected by many social determinates that are often immutable for a child; education such as that provided by the GCFBT can, however, offer the opportunity to enlarge students' space of activity and participation, and provide a means to express their agency (Biggeri and Santi, 2012; Lipman, 2003).

6.7.8 Education Not Just Test Results

Capability scholars, place an emphasis on education as well as focusing on health, Nussbaum (2006) has conceptually, and empirically, identified critical reflection on self and society, world citizenship, and imaginative understanding of others as core capabilities (Biggeri, Caterina and Karkara, 2019) which can be advanced through the educational process (Walker and Loots, 2018). Nussbaum (2006) observes that these three capabilities are not the result of spontaneous development but emerge from the interaction of personal talents with contextual enhancing factors. The GCFBT conceptualises food education not merely as a place for seeking academic results or lowering the BMI of students, its aim is to develop critical skills and to foster a long-term engagement with the food system by providing a food education that fosters world citizenship and the environmental awareness to understand global, as well as local, food issues. Creating imaginative school projects to a high standard and focusing on longer-term goals provides evidence that the students converted the capability of critical thinking, into functionings (Sen, 1993); assisting children to feel empowered through their own learning.

6.8 Legacy

As the GCFBT gets rolled out nationwide, many aspects will continue after the two-year initiative has ended, the school garden will remain in place, links will have been formed with local chefs and the cooking kits will also be left in situ (see Appendix G). The habitat mapping and an awareness survey about biodiversity, food packaging and food waste continue to inform both students and staff along with the Green Code. A drawback of using the Green-Schools model is that a school focuses on a theme for two years, after which they move on to another theme. While there is a legacy from the GCFBT a more sustained and embedded approach to food education within Irish primary schools would be preferable.

A shift in policy from statistics to a more process-oriented outlook, which is more aligned with the CA, would suit further investment in environmental, food and educational projects that help children to become citizens who are able to navigate the food system. Nussbaum (2006) argues that there is a moral difference between a policy that promotes health and one that promotes health capabilities, stating that it is the one that promotes health capabilities that is most supportive of people's freedoms (Earl and Lalli, 2020).

6.9 Limitations

The sample size for the GCFBT pilot, being eight schools, with approximately 2650 students between them, was small in the context of Irish primary education, the total number of primary schools in 2021 being 3104 (Department of Education and Skills, 2022). The schools which partook in the pilot were located in the greater Dublin area, with 78% of the students when surveyed stating that they lived in a town or a city, therefore the pilot may not reflect the reality of rural schools. There was a higher percentage of girls participating in the pilot due to two of the schools being single-sex girls' schools. These are limiting factors when a programme is designed to be implemented nationwide with varying school sizes and locations. One of the eight schools however had only five teachers and reflected the smaller size of many rural schools (Department of Education and Skills, 2022). Observation notes after each workshop in this school showed a high level of engagement, and the children's enthusiasm was noted. It was felt that in this case the mixed ages of children within each class, due to small teacher numbers, and the very personal relationships throughout the school aided the delivery of the programme. The class projects were of a high standard and the edible garden was very well tended and maintained.

The cooperation of the Green-Schools coordinator, usually a teacher within a school, is integral to the implementation of any Green-Schools programme. They are the point of contact between *An Taisce*'s Environmental Educational Unit and the school. If a coordinator is unavailable for a period of time, as was the case on one of the pilot schools, due to maternity leave, it can make coordination and implementation more difficult. The Green-Schools coordinator is a voluntary position within a school.

Being in each of the eight schools, observing how the school operated and, engaging in discussions with Green-School staff allowed for rich reflective notes prior to receiving teacher and Green-Schools staff evaluations. Keeping a reflective journal also allowed for scrutiny, and challenged potential biases and values (Dosemagen and Schwalback, 2019).While there are benefits to the researcher having worked within the food industry and having a deep interest in food education, there are also complications, for example loss of objectivity due to familiarity. Employing multiple data collection strategies, see Appendix F and Table 4.9, to corroborate the findings minimised this bias.

It is recommended that ongoing evaluative research be carried out on the GCFBT as it is implemented and scaled to accommodate an increasing number of schools each year. The rollout will necessitate increased funding and Green-Schools staffing commitments. Having a funder for a specific theme, as is the case with the Transport Theme (Green-Schools, 2022b) aids the implementation of the programme. While *An Taisce* is a non-governmental charitable body which is funded from multiple sources, its Environmental Educational Unit receives restricted funding from government departments and is in partnership with some Local Authorities (Green-Schools, 2020). The Director of the Environmental Educational Unit aims

to cultivate a specific funder for the GCFBT to ensure its facilitation by an increased number of staff.

6.10 Conclusion

This chapter presented the findings from the development and piloting of the Global Citizenship Food and Biodiversity Theme (GCFBT) then it outlined the findings from the data generated from the fieldwork. Food and sustainability are inherently linked, and the present Irish education system does not provide food education that reflects this. The GCFBT by contrast, presented a form of food education, in line with circular food education, that focused on environmental issues, while at the same time encouraging pleasure in food. The programme afforded the space to develop capabilities which led to an increased ability to make critical decisions about the food system; it also assisted the building of skills and knowledge through a child-centred approach to food, sustainability and wellbeing.

The findings from the GCFBT illustrated how educational approaches that stem from constructivism, that included, hands-on class, building agency to think critically, with the use of collaborative and social learning methods, can be put into practice. The development of the GCFBT was grounded in theory which was outlined in Chapter 4. This theoretical basis allowed for a programme to be built that had various sites of learning and one that developed efficacy as well as skills. One of the challenging aspects of the programme was encouraging teachers who did not have the interest or confidence to fully engage. A whole-school approach helped to mitigate this, as did developing links to curriculum, and the Green-Schools staff providing support and conducting school visits.

While the GCFBT is a welcome addition to the environmental and food education landscape in Ireland, it is conducted over a two-year cycle, after which a school moves on to the next Green-Schools theme. Government policy needs to be adapted to facilitate a more embedded and sustained approach to food education; an approach that provides students with the ability to lead a life where both they, and the natural world flourish.

Chapter 7 documents a workshop which was organised to gather feedback on the findings from the GCFBT data and puts CFE into context in relation to the research.

Chapter 7. Research Findings Feedback Workshop

7.1 Introduction

This chapter presents the findings from a research findings feedback workshop (RFFW) which was held in June 2022. The participants included experienced teachers, student teachers, principals, as well as staff from teacher training colleges, and policy makers from the National Council for Curriculum and Assessment (NCCA). A warmup session was followed by two feedback sessions which were conducted over a period of two and a half hours. During each of the two feedback sessions there were breakaway sessions where the group was divided in two, and this was followed by a group session, making four sessions in total. These were recorded on the day and transcribed by the researcher in the days which followed. The use of an action research (AR) model, see Chapter 4, section 4.7, enabled rich data to be gathered

For the first breakaway session the two participatory groups mapped what was already taking place in classrooms in terms of food educations. This was followed by the researcher presenting an outline of circular food education (CFE). The participants came together to critique CFE and placed it in relation to the conversation from the breakaway session. The second feedback session started with the participatory groups examining how to interest more teachers in food education, and what supports might be required. A group discussion followed to expand on the ideas presented.

A deductive thematic analysis of this data led to a further exploration of the themes generated in the scoping consultation with key stakeholders (SCKS). Those themes were:

1. changing policy
2. facets and content of food education
3. confidence and agency

4. health discourse

5. age of engagement

6. family engagement

Two new themes were also developed from the research findings feedback workshop (RFFW) data, notably:

7. conviviality

8. building on what is already happening' in schools, in relation to food education.

These themes are discussed in the section which follows, after which an analysis of the data are presented.

7.2 Findings from the Research Findings Feedback Workshop

The findings from the research findings feedback workshop (RFFW) thematic analysis are very much in line with previous research findings; there was a focus on a whole-school approach, on increased government support and increased teacher training. Barriers to implementation were also outlined and there was significant discussion on the subject of teachers' confidence and agency in relation to food education, particularly with regard to improving or building on existing food skills. Cooking skills classes were described as being extremely challenging by teachers at the workshop. The dereliction of kitchen spaces and the lack of investment in cooking equipment in schools were listed as some of the practical concerns affecting them, while the challenge of hosting food skills classes without proper facilities was also said to affect teaching confidence. Lack of adequate facilities was just one of the barriers however; the size of classes and the pupil to teacher ratio were also cited. If food education was given increased priority, and these barriers addressed, the comments below show that this in turn could boost confidence.

"If it [food education] is incorporated in the school plan then it suddenly is important, then to get that included in the school plan and with the board supports, then you can, as a practitioner say well this is how it is, it's a statement then that I [as a teacher] feel empowered to engage" [T GS 1].

"If there's a decision made at government level that this is important, that food education was important, and circular food education was important, then principals take that on board and then teachers feel that they have the space and the time and the support of their principal and higher up. Then I think every teacher will have a different take on how you can implement all of this in the classroom and it's really about almost giving teachers the permission to do it and say absolutely run with it" [T GS 2].

The lack of policy in the area has a detrimental effect on teachers' confidence as well as agency. Implicit within these statements is the belief that support is needed to help teachers to embark on more food related activities within schools.

"We need to educate our children but also the policy makers. It has to come from the top down" [T GS 1].

"It's important that the people in the Department say that this is good, this is important" [T GS 2].

"I think it all comes down to the principle prioritising it so like management prioritising it and that kind of links back to the department prioritising it" [T BAS 2B].

Policy change can be slow to take place, so a focus on building this into the present teacher training and expanding teacher's agency was prevalent throughout the data … "Looking at what we already have, and what we're doing, and building on it" [T BAS 2A]. "We are already doing a lot and to build on those. And when you look at all of this, it can seem a long way away, but it has to be small steps and incremental" [T GS 2]. It was noted that this participant felt that an incremental approach was needed when increasing food education, particularly when many of the discussions centred on creating big changes or instigating change from the top-down. The overarching theme highlighted the need to examine what was already taking place and to build on it and make it more focused. One workshop participant noted that some of the lessons that teachers already conduct are "not seen as food education, simply things that the children enjoy doing" [T GS 1]. She continued to state that teachers can bring these things

together to focus in a sustained manner on food. It was seen throughout the data that children generally enjoyed the aspects of food education that were currently taking place in schools. As other participant mentioned: "schools are really doing a lot already but maybe not intentionally or consciously with food education in mind" [T GS 2].

Climate awareness, biodiversity, how far food travels, where food comes from, and other aspects of sustainability education were prevalent in the data. This focus on increasing sustainability education aligns with international trends (Koskela and Paloniemi, 2023; Green and Somerville, 2015; Smith and Sobel, 2010; Sterling, 2003), however including a sustainability discourse within food education is less common (Jones *et al.*, 2012). Using the school garden for learning about sustainability was cited by the participants. There was also a focus on the garden as a site of conviviality. In fact, the findings in relation to the use of edible school gardens focused more on creating links with the community and getting children outdoors, than building hands on skills.

Family engagement featured largely in the findings. One participant went as far as to state "I think schools who operate separate to families won't be successful" [T GS 1]. Successful was in reference to counteracting the "propaganda" around food that children face every day and instilling the ability to instigate more nutritious choices as standard. There were many examples throughout the data of ways in which schools are engaging with families in relation to food, and particularly food culture. Some of these are highlighted in the upcoming Table 6.4. The language around food in the media was also said to affect teachers' confidence. According to the data, many teachers were not comfortable discussing food ways or diets, due to mixed messages about food in the media. This messaging not only effects children, but adults too,

with 43% of adults surveyed by the British Nutrition Foundation (2018) saying they found it difficult to find reliable information on healthy diets.

Food education, according to the data gathered at the workshop, can also be used to provoke curiosity and awareness of difference across cultures. Intercultural days in schools were described, and how they were an opportunity to engage families and to create open spaces for exchange. Tackling hunger was of particular importance to one participant and they were of the mind that the quality of the food can be compromised if the end game is to feed a child, saying "I don't care what sort of sandwich it is, you give them some nutrition, some water, some flakes in the morning time and a banana and then they are ready for their work and that's where my motivation comes from" [T BAS 2B]. In this person's school 15 to 20% of children relied on a free school meal for sustenance. The Irish free school meals scheme provides vital aid for families who are in a low socioeconomic bracket (Darmody, 2021) and is discussed in Chapter 2, section 2.5.

Some of the schools represented reported healthy eating policies in place, however, it was also evident that others did not, as the following conversation attests;

> SP 1 "most encounters with food is really to do with rewards and like, you know having treats and stuff for like student of the week or whatever".
> SP 2 "Yea I do that as well. Rewards. Like obviously it is not always healthy food, it is like treats." …..
> SP 3 "In my school we have a healthy eating policy, and we are not allowed to give treats to the children" [T BAS 1B].

The fact that some of the schools did not have healthy eating policies in place mirrors the research cited previously which showed that 40-59% of primary and post primary schools did not adhere to healthy eating guidelines (Educational Training Boards Ireland, 2019; Department of Education and Skills, 2016). During a further conversation about school healthy

eating policies, a workshop participant commented on the implementation of their school's policies. She noted that while her school encouraged a healthy lunchbox, they would not criticise a child who brought in an item considered to be unhealthy, because "maybe it is all that they can make. So, you are turning around and telling these children that that is not good for you, you should not eat that, but maybe their parents cannot make anything, or they could be working" [T GS 1].

Earl (2020) argues that there is a transposing of middle-class tastes in primary education. Using Bourdieu's notion of distinction, she argues that privilege is produced through food experiences in schools. This surfaces in the data in a reference to "children's backgrounds" [T GS 1]. A participant mentioned children need to be taught "how to make better choices" [T BA 2A]. This relates back to Earl (2020) on the topic of who decides what 'better' means? An interesting comment within the conversation, that prompted strong verbal agreement from other participants, was "in my experience the healthy eating policy never extended to the staff room" [T BAS 1]. This would suggest that a whole-school approach was not in place, even in those schools where a healthy eating policy was in place with regard to what children ate.

Age of engagement was only lightly prevalent in the data. There was reference made to the fact that it is challenging to teach cooking skills to younger classes. This was not only due to age but also space and facilities. In Breakaway Session 2A, the importance of teaching children skills from a very young age arose.

Ways of overcoming barriers to learning, such as inadequate facilities and pupil to teacher ratio, were suggested. Using video and online teaching platforms to engage parents and family in the task was suggested. According to the participants, a cooking skill and a recipe could be described or demonstrated in class and instruction given to complete it at home. The fine motor

skills gained in cooking and the links to procedural writing were noted. Simple food preparation tasks, that do not require ovens or hobs, were also suggested as alternatives to cooking skills classes, such as making a sandwich. Discursive food classes were also proposed. In a discursive class a teacher might bring in a bag of maize for example and look at a map to see where it comes from, then talk about the foods you can prepare from it, or how far it has travelled [T GS 1].

Two new themes that developed strongly were 'conviviality' and 'building on what is already happening'. Conviviality included factors such as how the child enjoys a meal in the school, if that child has the time and space to share the mealtime with friends or has the ability to take pleasure in the social aspects of food. The idea of conviviality in this sense arose many times and was linked to making better use of the existing breaktime, the time when children eat in school. There was a strong feeling that eating is rushed in Irish schools. This was echoed in the SCKS. In France for example, where social eating situations are seen as beneficial to the development of children's eating behaviours (Marty, Chambaron and Monnery-Patris, 2018), the meal break is at least 30 minutes long, excluding waiting times for the meal (European Commission, 2016). Whereas in Ireland, ten minutes a day are allocated to meal breaks (thirty minutes a day are allocated to recreation, which includes yard time) (National Council for Curriculum and Assessment, 2020b). The workshop data showed that breaktimes could be developed and used in an educational manner, as a focal point for increased food education. "You need to have a stronger culture where it is more organised. About the cultural practice that takes place at mealtimes" [T BAS 1A]. The pedagogical lunch is a term used to describe such a phenomenon (McGowan, 2021a; Berggren *et al.*, 2020; Berggren *et al.*, 2021; Schoubye Anderson, Baarts and Holm, 2017), this can be both formal and informal (Berggren *et al.,* 2020; Berggren *et al.*, 2021; Andersen, Baarts and Holm, 2017; Benn and Carlsson, 2014; Lalli,

2017). Workshop participants felt that children needed to be given time to, not only converse, but to sit and savour what they were eating. One suggestion was that children of all ages should be encouraged to sit together for a school meal such as the 'family style' one described by the participant [T GS 1] where children pass around the food and tidy up after themselves. In Japan school children have the communal duty of serving and tidying up after a shared meal each day (Ministry of Education [Japan], 2011).

Using break time as a lesson was one aspect cited throughout the data, other ideas included using food in science and geography, as well as in art. "There are so many SPHE, and wellbeing targets you could hit, and language targets" [T BA 1B]. Participants delved further into the possibilities of using food to meet learning outcomes. It arose in the data that SPHE was the place where food appeared on the curriculum, but participants felt that even within SPHE there was not enough time given to food. "We have an SPHE programme and there is a module on nutrition and after that module that is it until the next one [T GS 1]. Expansion on this was noted "we're not doing enough in schools to prepare children for meals throughout the day" [T BAS 2A].

7.3 Analysis of the Findings from the Research Findings Feedback Workshop

7.3.1 Changing Policy

According to the RFFW data, participants thought it was important to incorporate more food education into the classroom, yet teachers do not feel they have "permission" [T GS 2] to include food education throughout the school day. If policies around food in schools and food education were in place, teacher confidence might improve, as teachers would then feel that they have that "permission" [T GS 2]. Support is needed from the whole-school, and government entities such as the NCCA and the DES. As described a "whole-school approach

with the backing of government, where everyone agrees this is important" [T GS 1] was suggested by one participant as the optimum situation. Schools for Health in Europe (2020) and HSE (2017) both have guidelines in place that encourage whole-school cooperation. Incorporating a whole-school approach can also influence the hidden curriculum with teachers leading by example and a particular mindset being made prevalent throughout the school. Browne *et al.* (2017) demonstrate that the school food environment is a modifiable factor that can be addressed through state and local policies. Government, preferably cross-government, support is also needed to increase and expand food education in Irish primary schools. A cross-government forum that encompasses all facets of CFE would be the most appropriate action. 'A Food in Schools' forum was set up by Healthy Ireland in 2021 (James, 2021), however, to be inclusive of all the facets mentioned in the RFFW, the facets that make up CFE, a cross government forum that includes the Department of Education and Skills (DES), as suggested by the SCKS, should be prioritised. On meeting the Minister for Education and Skills, there was a distinct agreement that food education was of importance and should be moved further to the fore of DES policy.

Embedding food education, and resources and support from the NCCA would enable the building of confidence, and not leave matters to individual teachers to grapple with or be reliant on outside organisations or food education programmes. Support would provide scaffolding within the classroom and consistency in messaging. The following two quotes outline how teachers could benefit from guidance.

> "The biggest problem about getting that going (food education) in a schools would be that teachers would not have the information to go about doing it" [T BAS 1].

> "teachers have such different ways of looking at these…based on their own experiences of food" [T GS 2].

Another benefit of a more joined up approach would be the creation of targeted classes and learning outcomes in line with a child's learning journey (Dean *et al.*, 2020).

While the GCFBT provided a model of what food education based on sustainability, experiential learning and pleasure could look like, the findings from the RFFW demonstrated that teachers need support to implement aspects of it, particularly in relation to experiential learning. There was evidence of an acceptance that hands-on education was hindered by the barriers in place. For example, discursive food classes were cited and a focus on the convivial aspects of the garden rather than teaching skills. The barriers outlined in relation to hands on classes were not just down to teacher confidence, but to lack of facilities and student teacher ratio. This is a systemic problem in Irish primary schools, although class sizes are falling, they are still above the EU average (Organisation for Economic Co-operation and Development, 2022). As well as large class size, the lack of facilities was seen as a barrier to progression. The Hunger Prevention in Schools Strategy Group calls for two spaces to be created within Irish schools; one for cooking and the other for eating. Providing these "two distinct spaces" (Educational Disadvantage Center, 2020, url) would not only provide facilities to host classes but help to replicate the commensality a shared meal provides. This would require that every new school build includes a kitchen, as it currently does a sports hall, and retrofitting could be extended nationwide. Yet simply providing facilities without further teaching support is not sufficient.

7.3.2 Teacher Confidence and Agency

The NCCA consider teachers to be agentic, to be curriculum developers and co-constructors rather than those who simply implement what they are given (National Council for Curriculum and Assessment, 2020b; National Council for Curriculum and Assessment, 2012). In this sense, there should be leeway within a classroom to fulfil learning outcomes in a manner that interests the teacher. This was echoed by a primary teacher participating in a focus group as part of a

colleague's Master's research. She felt that if a teacher is passionate about a topic there is room within the curriculum to integrate that subject throughout the learning day and even year.

> MO'D (primary school teacher): I would agree with that definitely, the curriculum is so overloaded, but there's so much that you can put in so for example, if a teacher is interested in something, like anything at all, they can always bring that into the curriculum. For example, I'm interested in GAA (Gaelic Athletic Association), and I can do that in history, geography, science, if I want to because I have knowledge on it. But if I opened the curriculum right now, there's nothing about GAA for the history curriculum for junior infants but my class will come out knowing about the history of GAA, or the history of anything. So, I believe if teachers were given ideas, because not everyone is educated on food and can make informed choices. So, if teachers were given ideas of okay, well, you might integrate this in science by teaching this or teaching that, it might be a great idea. (Food Education Focus Group 1 Tuesday 5th final- Transcript, 2022).

However, the data shows that teachers currently do not feel supported by policy to conduct food education, particularly the hands-on aspects such as teaching cooking skills. Yet there is also evidence that teachers are, against the odds, conducting elements of hands-on food education in their classrooms. The future inclusion of food education in the syllabus of teacher training colleges, and within NCCA resources was of importance to the participants and could help build on what is already taking place. Continued professional development for teachers in relation to food is recommended (Healthy Ireland, 2018; Health Promotion Agency for Northern Ireland, 2012; Genannt Bonsmann *et al.,* 2014) and research also shows that enhancing teacher training will aid the implementation of food and sustainability education (Schröder, Wals and van Koppen, 2020; Zala-Mezo e*t al.,* 2020; Kalsoom, Khanam and Qureshi, 2022; Hart and Page, 2020; Charlton e*t al.*, 2021; Healthy Ireland, 2018; Health Promotion Agency for Northern Ireland, 2012; Genannt Bonsmann e*t al.,* 2014; Jones e*t al.,* 2012). Providing this increased training will not only allow teachers expand on what they are already doing but give them ideas for how they might use food to meet learning outcomes in the manner described by the GAA reference above. Increased training in colleges and through continuous professional development (CPD) days would build teachers' confidence and

knowledge, and to show what is possible, but also provide teachers with the language to discuss food with their students. Teachers have shown that they want ideas and action plans for how the integration of food education might occur. Creating a database of existing programmes is one option, so that schools could easily link into what is already available, comparable to the heritage in school's website (The Heritage Council, 2022).

Two other suggestions from the data for how the NCCA could help teachers increase confidence around food education were suggested. Firstly, to create an app for teachers – a place to share stories and learn from each other. The second suggestion was to make successful examples of food education visible, and display these on the NCCA website, in the same way they do with outdoor learning (2020a). According to participants in the RFFW this visibility has given teachers the confidence to put outdoor education into practice. This too reverts back to the comments about support "from the top down" [T GS 1]. Additionally, if more outdoor learning is being suggested by the National Council for Curriculum and Assessment (2020a), an edible school garden can provide an excellent setting for this as well as being a pedagogical space for food education.

7.3.3 Facets and Content of Food Education Classes

Climate Action and Sustainable Development is being introduced to Irish leaving certificate prospectus as a new subject, from 2024 (National Council for Curriculum and Assessment, 2022). There is an opportunity to link sustainability education with food, as both are intrinsically connected (Willet *et al.,* 2019; Mason and Lang, 2017; Harvard School of Public Health, 2022). Food is an accessible and relatable way to have a conversation about climate change, one where actions and steps can be taken, this accessibility may help mitigate against climate anxiety (Thompson, 2021). Children's environmental attitude and behaviour can be

measured reliable from the age of 7 (Otto *et al.,* 2019). More research would be needed in this area, but the data suggests that teachers and schools rely on family engagement to support existing sustainability education, and both latent and explicit messages suggest that this community is of vital importance to schools. The promotion of healthy eating is a public health priority for Healthy Ireland and the HSE (Healthy Ireland, 2020), broadening the conversation around food education to include sustainability as well as conviviality, pleasure, and cooking skills can boost the nutrition education being provided within the curriculum (Karpouzis *et al.*, 2021; Hersch *et al.*, 2014; Muzaffar, Metcalfe and Fiese, 2018). Creating a healthier, and at the same time more sustainable diet is in line with targets set by the European Commission Cordis (2022).

Thinking critically about food, deciphering the propaganda around food, examining the decisions that farmers have to make, questioning the food system, were all brought up by workshop participants. One participant was concerned that while it was favourable to be discussing the premise of thinking critically "if you are going to think critically you have to have something to think about". The participant went on to say "to me what was missing [from the conversation about food education] was children's new knowledge and understanding" [T GS 1]. Time would be well invested creating content in conjunction with teachers and children in this area to ensure that there is new knowledge and understanding.

Food is often a strong link to a person's culture it is a "form of social exchange and is imbued with meanings" (Rozin, 1996, p. 235). Culture being mental programming which begins in childhood and helps define us as distinct from others (Hofstede, Hofstede and Minkov, 2010). Building an awareness and appreciation of other cultures from a young age is of importance, and it links to building the capability of world citizenship. One of the aims listed in the NCCA's

introduction to Intercultural Education is to "facilitate schools and teachers in creating an inclusive culture and environment" (National Council for Curriculum and Assessment, 2005, p. 5). They also mention "growing cultural and ethnic diversity in a way that will maximise and enrich learning for all children" (National Council for Curriculum and Assessment, 2005, p. 5). Empathy is engendered through the sharing of food and cultural traditions. Empathy allows for separation of self from other, it is the knowledge that others are different, but it is also the desire to understand the other person's unique experience (Wispé, 1986). According to Berardi *et al.* (2020), research indicates that active empathy can lead to fewer externalising behaviours and greater social competence (Caprara *et al.,* 2000; Kokko and Pulkkinen, 2000; Saarni, 1990). Active empathy involves not only seeing and understanding someone else's experience but completing an action that will help to improve that experience (Dolan, Boylan, and Berardi, 2017). This is the type of empathy that builds strong compassionate communities (Berardi *et al.,* 2020).

7.3.5 Conviviality

Links can also be drawn between imaginative understanding of others as outlined by Nussbaum and conviviality as both have a foundation in empathy. Nussbaum (2006) has conceptually and empirically identified imaginative understanding of others as one of three core capabilities which can be advanced through education (Biggeri, Arciprete and Karkara, 2019; Walker and Loots, 2018). Conviviality can be developed in the school environment similar to imaginative understanding of others (Nussbaum, 2006), or empathy (Dolan, Boylan, and Berardi, 2017). Providing a space where children sit and serve food together within a school aids its development. One participant described how in their school, a meal was served to the students each Christmas, 'family style'. Children poured glasses of water for each other, passed out plates, waited for everyone to get food before beginning to eat. The participant noted that staff

members felt that valuable skills were gained. When describing children sitting together in school to eat a hot meal, two Irish school principals quoted in McBride (2022) said that there were "unexpected positive developments in the realm of social interactions. 'It's basic table manners and the social skills that come from a conversation, you know, chatting to your friends beside you over a hot meal'. Socially, it's having a massive impact" (2022, url). The other principal describes the mealtime routine as offering opportunities to develop oral language in an informal and organic way. "It's developing a culture of sitting down together and having a meal . . . it's lovely, they actually sit down and converse, because they're sitting down over their meal" (2022, url).

For Ivan Illich, conviviality becomes a tool that encourages not only social engagement but also thinking for oneself. "Convivial tools are those which give each person who uses them the greatest opportunity to enrich the environment with the fruits of his or her vision. Industrial tools deny this possibility to those who use them, and they allow their designers to determine the meaning and expectations of others" (Illich, 2021, p. 29). On reading Illich's description of the advancement of mechanical production and its detrimental effect on the daily lives of humans (2021), in the context of this research it is difficult not to supplant it with a description of the modern food system, a system wholly reliant on mechanical production to develop and distribute food around the globe. The detriment that Illich describes is one where the free use of people's abilities is curtailed due to increased mechanisation, their capacity to connect with themselves and others is blighted. He uses the term conviviality, firstly for its cognate origins in Spanish, French and English (2021) but also as a description of a tool to put systems to better use, a way to better care for ones needs. People, he believes need to participate in making things that shape their lives to become in greater alignment with, to borrow Sen's phrase, what they have reason to value. lllich builds on the interdependence of conviviality, at its heart is consideration for others, he sees it as "an autonomous and creative intercourse among persons,

and the intercourse of the persons with their environment" (2021, p.18). Conviviality in this sense can help build on the imaginative understanding of others, but also on the critical ability to navigate the food system. It can provide a balance between what people can do for themselves and the mechanised production that leads to a lack of ownership over knowledge production. "People need not only to obtain things, they need above all the freedom to make things among which they can live, to give shape to them according to their own tastes, and to put them to use in caring for and about others" (Illich, 2021, p. 17). The RFFW put conviviality to the fore citing the importance of children's ability to interact with each other, and for "socio-cultural settings" (Pollard, 2004) within schools or through approaches to learning. Conviviality links to the overall premise of instigating pleasure and enjoyment in food. One participant stated that "I think schools miss out on a huge opportunity" [T BAS 1B]. There is an opportunity to use the school meal or breaktime as a place for fostering enjoyment in food. Literature suggests a growing international interest in pleasure as a motivating force for well-being and a positive stimulus for creating an enjoyable approach to nutritious food choices.

7.3.6 Building on what is already Happening

The subtheme entitled 'linking to existing food education' differs from 'building on what is happening' as it is related to specific food education initiatives which already exist, these are on an extracurricular basis and generally organised by outside parties who come to the school to deliver a programme. The participants in the SCKS thought it worth mapping these initiatives to build a picture of what was available to schools around the country. Whereas harnessing what is already taking place within the classroom, linking elements together to form a more structured approach builds on what is already happening. It was suggested that providing CPD in this area would not only extend what is already happening but also help to

bolster confidence. However, teachers listed ways that they can increase food education even before these shifts happen (Table 7.1).

Sample suggestions for building on what was already happening
Cook a pot of porridge and talk about its importance in Irish breakfasts, follow this with a conversation about what breakfasts people eat in other parts of the world.
Have a group of children, preferable of mixed ages, sitting down at a table together to eat. No one is to start eating until all have sat, serve water to each other from jugs, say an appreciation for the food before they begin to eat.
Cooking skills discussed in the classroom, then children asked to do them at home with their parents and video themselves
Bring in a bag of maize and use a world map, talk about where it comes from, what can be cooked from it, look at air miles, sustainability
Intercultural days, students and parents bring food from their culture and share and talk about it
Use local sports icons to help counteract food marketing – football bread
Use recipes as procedural writing exercises
Making a sandwich in class with groups of children
Students make different cultural dishes at home and share images on file sharing apps, showing the spices used to cook the dish for example
Where the food comes from, why one culture uses rice rather than potatoes
Show something about the farmer who has to make a decision
What percentage is this? Do a maths lesson based on a recipe of cooking class
Children having breaktime together, chatting or bringing in some food to share with each other

Table 7.1 Participants suggestions for how to increase food education in classrooms

7.4 Limitations

The use of a facilitator to help with the running of a workshop can be a limitation in research, because it requires time for the researcher to familiarise the facilitator with the researcher goals, the context, participants, and stakeholders. In this instance the benefits were worth the investment in time because the use of a facilitator allowed the researcher a more objective view of the workshop, while the facilitator coordinated events on the day the researcher could listen more intently to the conversations and take notes.

Another limitation of the RFFW was the small sample size. While the participants held a diversity of roles within education there were eleven participants in attendance. There was unified support within the group for the concept of circular food education, however there was a divergence in opinion about the ability of teachers to facilitate skills classes within existing classroom set ups. The unified support may also be a factor of researcher asking participants to reflect in-action (Farrell, 2020), with

favourable bias shown because the researcher was present. The use of an outside facilitator was deemed to partially mitigate this.

7.5 Conclusion

This chapter presented the findings from a research findings feedback workshop (RFFW) and analysis of those findings. Participants in the RFFW included teachers, student teachers, principals as well as staff from teacher training colleges and the NCCA. It was hosted in June 2022, and the new ideas and themes that were generated from the data were analysed in the chapter. They included the six themes which had emerged from the earlier scoping consultation with key stakeholders (SCKS);1. changing policy; 2. facets and content of food education; 3. confidence and agency; 4. health discourse; 5. age of engagement; and 6. family engagement. However, two further themes emerged from the RFFW; 1. conviviality; and 2. building on what was already taking place.

While the literature in chapter 3 and the context presented in chapter 2 provided a rationale for changing the current approach to food education in Irish schools, the RFFW shows that it is not as simple as inserting more skills-based classes. The larger size of classes in Irish primary schools compared to the European average was identified as a barrier. It was found that supporting of teaching staff was essential. Equally, support from government and the whole-school was considered to aid implementing food education in primary classrooms. Increased facilities would allow for cooking skills classes, but also provide spaces where students could eat together, fulfilling the important conviviality theme which emerged. However, simply providing facilities alone would not be sufficient. Outside engagement with programmes such as Green-Schools or GIY could provide a solution to teacher support, but an embedded full-time approach would provide structure and scaffolding as well as joined up thinking on the

subject. The limited two-year cycle of the GCFBT was highlighted as a weakness in an otherwise progressive programme. The second new theme to emerge from the RFFW was to build on the good practices that were already in place. Through brainstorming and discussions, a number of innovative suggestions for including food education within the classroom were identified (Table 7.1). Although an agentic teacher may be able to put food education into practice, the findings suggested that the pathways needed to be defined. In conclusion, government support through the Department of Education and Science and the National Council for Curriculum and Assessment would not only build teachers confidence but give clearer picture of how to proceed with food education and allow food to become a tool to teach skills that would allow students to flourish. Having an embedded and sustained approach with clear guidance would also provide teachers with a language and confidence to approach the more critical aspects of the subject matter.

The next chapter will synthesis the findings from the RFFW, as well as those from the previous two pieces of fieldwork, and will present recommendations for a changed approach to food education in Irish primary schools.

Chapter 8 Conclusion

8.1 Introduction

The key purpose of this research was to establish a need for an expanded approach to food education in Irish primary schools, and to explore what that expanded approach would look like. Circular food education (CFE) which is a pedagogy based on sustainability, experiential learning and pleasure was developed as the research progressed. The impetus for this study arose from a desire to provoke a change in Irish food education, and from a belief that education can be a tool for addressing some of the challenges arising from the modern food system. There is a dearth of research on food education in Ireland (Darmody, 2023; Darmody, 2021; Darmody, 2022; McGowan, 2021a; McGowan, 2021b) although there is a growing interest in the subject internationally (Hersch *et al.*, 2014 Andersen, Baarts and Holm, 2017; Sandell *et al.*, 2016; Olsen, 2019; DeCosta, 2017; Muzaffar, Metcalfe and Fiese, 2018; Lichtenstein and Ludwig, 2010; Nelson, Corbin and Nickols-Richardson, 2013). Existing education about food in Irish primary schools tends to be diet-based (National Council for Curriculum and Assessment, 2017; National Council for Curriculum and Assessment, 1999a). The literature showed that where health has been the only impetus for food education, it has not been successful (Velardo and Drummond, 2019; Maher *et al.*, 2019; Karpouzis *et al.*, 2021; Jones, *et al.*, 2012).

The research design followed three steps: (1) Diagnose and Plan; (2) Act and Observe; and (3) Evaluate. Given that a person's relationship with food is dynamic and ever-changing, a multi-method action research methodology was chosen allowing for the collection of qualitive data that provided a unique insight into the lived experience of participants. This was accomplished through two pieces of fieldwork, namely a scoping consultation with key stakeholders (SCKS)

and the development and piloting of the Global Citizenship Food and Biodiversity Theme (GCFBT). Participatory action research and reflective note taking were conducted during the GCFBT (see Chapter 4, section 4.14). A workshop was subsequently organised by the researcher to gather feedback on the findings. The following section of this chapter describes how the data and insights generated from the three steps of the research design helped to answer the major research question (MRQ) and the four research sub-questions (RSQs). A list of eight recommendations for a new approach to food education in Irish primary schools are presented. The recommendations are then synthesised in relation to the research questions, and there is an overview of how this research project contributes to new knowledge in the field. The chapter concludes with the key enablers and barriers to achieving these recommendations.

The term circular food education (CFE) was coined during the research project to describe a hands-on approach to food education that focuses on enjoyment and pleasure and addresses the effect food has on the environment. It is an educational solution to tackling an array of social issues, by building knowledge about climate change, biodiversity loss and food waste, as well as tackling a lack of food skills and instilling an ability to become an active citizen who can critically reflect on how food impacts the world. CFE has the potential to enrich the primary school curriculum and it provides a concrete model for food education (see Chapter 1, section 1.6) which at present is missing in the literature (Smith, Wells and Hawkes, 2022).

8.2 How the Research Questions were Answered

Four RSQs were established to answer the major research question (Figure 1.1) and are presented below.

RSQ 1. What does the literature and stakeholder opinion reveal about food education in Ireland and elsewhere?

The first research sub-question was addressed by reviewing national and international literature on the topic (Chapter 3). Government reports and policy documentation were also used to examine the topic (Chapter 2). An evaluation of the Irish primary education system was undertaken and the place of food within it was explored (Chapter 2, section 2.8). The scoping consultation with key stakeholder (SCKS) was arranged to assess prevailing stakeholder opinion on the topic. It brought together a large group of stakeholders to explore if there was a need for a changed approach to food education in Irish primary schools (Chapter 4, section 4.13 and Chapter 5). The group was composed of representatives from four government departments, as well as forty-two representatives from other organisations including *Bord Bia* and the Health Service Executive.

RSQ 2. What is the rationale for changing the approach to food education in Irish primary schools?

Both the SCKS data and the literature confirmed a deficient model of food education in Irish primary schools. The rationale for a changed approach to food education was refined when reviewing the literature and government documentation which outlined effects of the modern food system (Willett *et al.*, 2019; Afshin *et al.*, 2019). Ill health as a consequence of food was described as posing a greater risk to morbidity than unsafe sex, alcohol, drug, and tobacco use, combined (Willett *et al.*, 2019). Early intervention is often regarded as more effective in facilitating improved lifelong health trajectories than corrective efforts in later life (Lichtenstein and Ludwig, 2010; Department of Health, 2016) and this was echoed in the SCKS data (Chapter 5, section 5.2). The environmental impact of food production (Global Panel on

Agriculture and Food Systems for Nutrition, 2020; Environmental Protection Agency, 2022a; Environmental Protection Agency, 2022b) (see also Chapter 3, section 3.3.3) provides the reasoning for expanding food education to encompass aspects of sustainability education (Darmody, 2022; Sandri, 2022; Karpouzis *et al*., 2021; Jones *et al.*, 2012). A mapping exercise helped to ascertain what food education was already available, on an extracurricular basis, to Irish teachers (see Chapter 4 section 4.13.4). The merits of including food education within the curriculum or having it positioned outside the curriculum are discussed in Chapter 2, section 2.12.

RSQ 3. What could a model of food education based on sustainability, experiential learning and pleasure look like?

Researching international models of food education was of key importance in answering RSQ 3. Models of best practice, some of which included elements of sustainability education, the teaching of hands-on skills, or programmes with a focus on pleasure within food education were examined (see Chapter 2. section 2.11 and Chapter 3, section 3.2.8). A research visit to Australia to observe the pleasurable food education programme created by the Stephanie Alexander Kitchen Garden Foundation took place in 2019 (Chapter 2, section 2.11).

The development and piloting of the Global Citizenship Food and Biodiversity Theme (GCFBT) allowed for the testing of a broad approach to food education within eight schools. It focused on environmental outcomes in line with the term circular food education (CFE). The GCFBT was developed to incorporate experiential learning and instilling pleasure in food and the food making process. Freirean theories (2017; 1984) of expanding agency through experiential learning and active participation were used to develop a critical ability within the learner to question the complex food system and to tackle issues that arise in sustainability

discourse. Education offers the opportunity to enlarge students' space of activity and participation by providing a means to express their agency (Biggeri and Santi, 2012; Lipman, 2003). A pedagogy which addresses the food system, and sustainability requires that issues of politics and power be addressed, and that collective action and experiential learning be incorporated (Mann, 2018). Through the engagement of experiential learning, Freire's concept of pedagogy (2017 [1972]), where teachers were not the single source of knowledge but were engaged in helping students move from passive recipients to active creators of ideas, was realised.

RSQ 4. What would be the benefit of developing and implementing such a model within the Irish primary school system?

Explicit references to starting food education at a young age were found throughout the SCKS data (see Chapter 5, section 5.2) which influenced to the decision to focus on primary education. The literature elucidated the complexities of the Irish primary education system (Chapter 2, sections 2.7, 2.8 and 2.9) and showed that there is a lack on food education on the present curriculum.

An exploration of the literature on experiential learning in Chapter 3 bolstered the rationale for its inclusion as an element of CFE and is in line with current developments in Irish primary education which emphasise a return to constructivist and child-centred approaches, and the formulation of curricula in terms of competences and capacities (Walsh, 2018; Ring *et al.*, 2018; National Council for Curriculum and Assessment, 2020b). Sustainability education is also becoming more prevalent (Dolan, 2022; Brennan *et al.*, 2021; Ardoin *et al.,* 2018; Eco-Schools, 2017; Monroe, 2019; National Council for Curriculum and Assessment, 2022). While there is agreement that the food system has an impact on climate change (Global Panel on

Agriculture and Food Systems for Nutrition, 2020; Willett *et al*., 2019; Springmann *et al*.,
2018) there is a lack of education programmes that link food with sustainability (Darmody,
2022). Linking sustainable practices with food education and providing a critical reflection on
the food system are key elements of CFE. The benefits of using pleasure within food education
are explored in Chapter 3, section 3.4.2. The development, piloting and subsequent evaluation
of the GCFBT further helped to answer RSQ 4. The capability approach (Sen, 1993; Nussbaum,
2007) was used as an evaluative framework of the GCFBT programme. The evaluation showed
benefits to the participating students and to the school environment (see Chapter 6, section 6.7).
Findings from the research findings feedback workshop (RFFW) also outlined further benefits
as seen in Chapter 7, section 7.3.5.

MRQ Could the development of a food pedagogy, based on sustainability, experiential
learning and pleasure, improve the capabilities of Irish primary school children?

A food pedagogy is both a method and a practice of teaching about food and the food system.
It is the 'how' and 'why' an educator influences the learning (Sandri, 2022). By outlining CFE,
and clearly defining a model for food education, it supports the educator in constructing a
philosophy about their own practice (Trigwell, Prosser, and Waterhouse, 1999). CFE drew on
sustainability education (Chapter 3, section 3.3) as well as Freire and Bandura's theories of
agency. These were used in the context of expanding agency through experiential learning and
developing critical thinking, which according to Dewey is the "active, persistent and careful
consideration of any belief or supposed form of knowledge in the light of the grounds that
support it, and the further conclusions to which it tends" (1910, p. 6). It was found that the
capabilities of global citizenship, critical thinking and imaginative understanding of others

were increased in the students who partook in the GCFBT pilot (see Chapter 6, sections 6.7.2, 6.7.3 and 6.7.4).

8.3 Recommendations

A set of eight recommendations were drawn up in light of the data gathered throughout the research project.

1. Setting up a cross governmental Food in Schools Forum.

2. Government to act on changing school food environments to support what is being taught in classrooms, such as curbing access to ultra-processed foods and its marketing to children in and near schools, examining procurement processes to ensure free school meals consist of fresh and nutritious ingredients.

3. Funding to be made available for cooking and eating spaces within primary schools.

4. Department of Education and Skills (DES) and the National Council for Curriculum and Assessment (NCCA) to prioritise food within the curriculum – and linking it with existing subjects.

5. A national, well-funded campaign is required to increase continuous professional development (CPD) in relation to food education. Increased CPD in the area would inform best practice.

6. Support from the NCCA in the same manner that they currently support outdoor education which would include visibility of food education on the NCCA website, alongside resources and ideas for action.

7. Building a database website of the food education initiatives currently in existence and available to schools, making this a resource for teachers to connect with projects, or people in their area such as beekeepers, farmers, chefs (similar to Heritage in Schools). Staffing and support for such a programme would need to be discussed.

8. Creating a model for a School Food Plan to replace of Healthy Eating Guidelines for schools. A plan that incorporates five pillars that are in line with CFE; sustainable food practices, cultural diversity, conviviality, community, and provision of nutritious food (Table 6.5.). Audit and self-assessment protocols provided for schools to establish their scores regarding each pillar. Students, staff, Board of Management, and the wider school community to decide where improvements can be made and implement a whole-school approach.

8.4 Linking the Findings and Recommendations to the Research Questions

Stakeholder opinion revealed that there was an appetite for increased food education, as well as an appetite for an expanded approach (Chapter 5, section 5.2). A cross-governmental forum was considered to be the first step in achieving this, by stakeholders at the SCKS, they noted that change was needed at the highest level in order to create lasting or embedded developments in food education. The recommendation from the SCKS determined that such a forum would look at the whole-school environment in relation to food, noting that school environments needed to support the education that is happening within the classroom (Chapter 6, section 6.7.6). Biesta provided an understanding of why a whole-school approach is important; "students not only learn from what we say but also – and often more so – from how we say it and from what we do" (Biesta, 2010, p. 7). Apple defines this hidden learning – or hidden curriculum - as "the tacit teaching ... of norms, values, and dispositions that goes on simply by their living in and coping with the institutional expectations and routines of schools" (Apple, 2004, p. 13). Stakeholder opinion from the scoping consultation with key stakeholders reinforced the literature in relation to the importance of a whole-school approach, so too did the findings from the research findings feedback workshop, while teachers participating in the

GCFBT pilot also indicated that getting engagement by the whole-school was important (Chapter 6, section 6.7.6).

School meals provide much needed support for Irish families in vulnerable positions (Darmody, 2021). This is an area where procurement and a change in approach to the school environment could help schools address sustainability by utilising fresh and local produce and using the school meal as a pedagogical meal (Berggren *et al.*, 2020; McGowan, 2021a). Procurement models, which differ from a for-profit, market-driven approach, are worthy of consideration in relation to the school meals budget as they can add value to local markets. For example, the EU Public Procurement Directive advocates for good practices in socially responsible public procurement and for buying for social impact (Caimi, Daniele and Martignetti, 2019). A not-for-profit model could ensure that children get the best value from the funds allocated, where meals are provided "at a charge no more than the cost of the food" (Earl, 2018, p. 31). For example, Food for Thought in Merseyside, UK, calls itself a unique not-for-profit healthy school meals provider (Manzoori-Stamford, 2011). The company is owned and managed by its seventeen partner schools with any surplus created being re-invested back into the schools. Furthermore, the data from the research findings feedback workshop suggested that opportunities should be taken to use the school meal as a place for fostering enjoyment in food, for socialisation, conviviality and to build links to food education. A model that increased the fresh food served in free school lunches would require increases in funding, but benefits from a changed model, such as creating local employment and food procurement from within communities, may help alleviate some of the additional cost.

When researching the rationale for a changed approach, the fact that schools had difficulty implementing Health Service Executive healthy eating policies (2018) arose (Educational

Training Boards Ireland, 2019); this was confirmed during the research findings feedback workshop (Chapter 7, section 7.2). An expanded approach to not just education but to food policy and environments led to the recommendation for a School Food Plan. It incorporates five pillars that are in line with CFE; sustainable food practices, cultural diversity, conviviality, community and provision of nutritious food (Table 7.1). While there are models available which address healthy eating guidelines and a whole-school approach to healthy eating (Health Service Executive, 2018; Health Promotion Agency for Northern Ireland, 2012), creating a School Food Plan, as seen in Table 7.1, would be a step towards connecting the conversation around sustainability, conviviality and food.

sustainable food practices	How does a school combat food waste? Is there a focus on supporting local food? Does the school help biodiversity to flourish on its grounds? Is there an edible school garden?
cultural diversity	Are many cultures represented in the food offering in the school? Are intercultural days held to allow students and families to showcase foods from their culture?
conviviality	Are there designated eating spaces for students in the school? Does the school prioritise time to eat? Are children encouraged to sit and talk and help each other when eating?
community	Are families invited in to see how the school approaches food? Are local food producers/chefs encouraged to visit and share their knowledge? Are students encouraged to explore what foods are being grown or created in their community?
provision of nutritious food	The healthy eating policy tool kit already provided by the HSE can be used as a guide. What nutritious food is available to students? Is there a space within the school to learn how to make nutritious meals?

Table 7.1 Framework for a School Food Plan

The benefit of providing cooking and eating spaces within primary schools would be numerous. With additional support (as outlined in Recommendations 4,5,6,7) providing these spaces would allow for the development of hands-on cooking classes. The benefits of implementing

increased experiential learning skills-based food education are documented (Lavelle *et al*., 2016; Oireachtas Joint Committee on Education and Skills, 2018; Hersch *et al.*, 2014; Muzaffar, Metcalfe and Fiese, 2018; Lichtenstein and Ludwig, 2010; Nelson, Corbin and Nickols-Richardson, 2013). The research findings feedback workshop (RFFW) provided an opportunity to assess the practicalities of increased hands-on cooking skills with those who work within schools using existing facilities. It was noted that such classes posed a challenge at present (Chapter 7, section 7.2) which is in line with research (McCoy, Smyth and Banks, 2012). The recommendations point to not only providing funding for cooking and eating spaces, but also support to boost teachers' confidence and agency. As well as being pedagogical spaces for teaching classes, having kitchens within schools would allow for school lunches to be prepared on-site (Darmody, 2021); eating areas would also provide space for conviviality (Chapter 7, section 7.3.5). According to Illich (2021), conviviality becomes a tool that encourages social engagement and thinking for oneself.

Analysing data to answer RSQ 3 led to the understanding that while a cross governmental forum, as advocated for by stakeholders, would be of benefit, there were more immediate ways to increase food education (Chapter 7, section 7.3), through teacher training and developing teacher agency, rather than an awaiting change in government policy. By the NCCA and Department of Education and Skills supporting food education and creating an agreed upon definition, succinct resources and training could be provided to teachers. This would ensure coherence throughout the primary sector in relation to food education, which is not the case at present. Outside agencies, who devise their own form of food education (as documented in the mapping exercise Chapter 4, section 4.13.4) could be registered on a database. Creating a database would be a practical strategy to help connect schools with the food education programmes which are already available. It would also be a means of ensuring quality.

Providing curriculum links for teachers during the piloting of the GCFBT helped build teachers' confidence, as did bringing outside experts such as chefs into the classroom (Chapter 4, section 4.14.8 and Chapter 6, section 6.2). The findings from the RFFW also revealed that teaching resources and NCCA support provide agency. By taking a multi-method action research approach, creating change was at the core of the project. Change can be slow but interventions to create change within the Irish school system have taken place before, with science, technology, engineering and maths (STEM) subjects having been bolstered by Irish government funding and EU legislation (Lynch, 2022). In the case of STEM subjects, support can be attributed to the employment prospects arising from STEM education (Department of Education and Science, 2023). When certain subjects or topics are prioritised by the National Council for Curriculum and Assessment and the Department of Education and Science, school management and teachers feel more confident about implementing them in the classrooms (Chapter 7, section 7.3.2). CFE provides a template that could enrich the existing curriculum particularly in line with recent updates (2020b) and could provide a consensus about the form food education would take.

8.5 Significance of the Outcomes

As a result of this research project, thousands of Irish primary school children will participate in the GCFBT food education programme each year. It will eventually be available to students in the 93% of Irish schools affiliated with the Green-Schools programme. As well as the development and piloting of the GCFBT, the findings from the research project also provide a cogent contribution to the literature about food education in Ireland; the utility lies not only in the programme that was developed, but in the in-depth examination of stakeholder opinion on food education in Irish primary schools.

An additional aim of the research was to encourage continued conversation between researchers, educators and government officials on issues associated with embedding food education in Irish schools. Bringing together important stakeholders for a scoping consultation helped shape the debate and foster introductions. In the intervening years, Healthy Ireland, a cross government body with a focus on health, has created a Food in Schools Forum (Chapter 5, section 5.3.1). Furthermore, the National Council for Curriculum and Assessment have engaged with the research and a submission was made to the Draft Primary Curriculum Framework. Two National Council for Curriculum and Assessment staff members attended the RFFW. The research also led to a meeting with the Minister of Education and Skills after a report detailing the SCKS was sent to him (see Appendix E). The research has moved the academic discourse about food education forward, in an Irish context, through the publication of two peer-reviewed articles, conference presentations, as well as national media and radio appearances (see Appendix K). Articles in national newspapers resulted in an Irish Food Writing Award for writing about sustainability. The GCFBT also won the Irish Food Writers Guild Community Food Award in 2021.

Elements of CFE which were prevalent in the GCFBT were found to aid schools in achieving their SDG targets (Chapter 6, section 6.3). This is significant given the Irish government's implementation plan to meet the targets set out in the SDGs to which schools are asked to adhere.

8.6 New Contributions to Knowledge

A new model of food education was developed throughout the research project. A model that takes Dewey's ideas, builds on them with Freirean theory, and moulds a pedagogy that is

informed by the literature and themes raised in the data. Circular food education (CFE) is a theoretical model of food education for the present, it provides a model for food education which at present is not clearly outlined in the literature (Smith, Wells and Hawkes, 2022), "there is no standardised approach to primary school food education policy, no consensus in primary food education nomenclature or what curriculums constitute" (2022, url). CFE helps to address this and can help to mitigate an uncoordinated approach to cooking skills (Caraher and Seeley, 2010).

The GCFBT programme that was developed incorporates the many ways that food impacts a student's life but also tackles ways to address climate change. Students involved in the pilot programme were equipped with the increased capabilities of global citizenship, critical thinking and imaginative understanding of others (see Chapter 6, section 6.7.2, 6.7.3 and 6.7.4). The research also provides applied knowledge with a replicable two-year programme. The theoretical underpinning of the capability approach (Sen, 1993) was successfully employed as a framework, but it was also useful as a lens with which to examine the research findings. It complements the multi-method action research methodology given its central aim, to create better lives and outcomes.

'Conviviality' was one of the themes generated from the research findings feedback workshop data, it was also evident in the SCKS findings. Although the concept of commensality has been explored widely, studies on conviviality are almost non-existent (Phull, Wills and Dickinson, 2015). There is scant evidence in relation to Irish school environments, nor does it arise in relation to a skill or capability that can be developed, nurtured or taught. Illich (2021) uses the term conviviality to describe a tool that encourages thinking for oneself and social engagement, he chose the term as he considers it to mean individual freedom as opposed to industrial

productivity. It is the building of skills or personal control to navigate the industrial food system, as well as to work together with others to share and enjoy the food eaten. Links can also be drawn between conviviality and Nussbaum's conception of imaginative understanding of others, as both have a foundation in empathy. Providing a space where children sit and serve food together within a school aids its development. Developing conviviality is in line with theories Dewey developed in his Lab School (1997) and can be seen in the concept of the pedagogical or commensal meal (McGowan, 2021a; Berggren *et al.*, 2020; Schoubye Anderson, Baarts and Holm, 2017; Lalli, 2017).

Desk research showed that there is a complex interplay between the set curriculum and individual schools' ethos, and this was confirmed through the fieldwork. Not only are teachers agentic within their classrooms, school boards and principals are agentic within their school, and can choose to teach the curriculum through their own philosophical lens. This gives scope for a gentle approach to creating change in the food education landscape. If teachers and schools are presented with ideas, strategies and suggestions for how to use food as a tool to teach, they can implement these and use them to meet curriculum goals and prescribed learning outcomes. There are barriers to this however, the main one arising in the data was in relation to teacher's lack of confidence. Many teachers were not confident in their ability to deliver food education, conflicting messages in the media were cited, as was lack of their own cooking or food growing knowledge.

8.8 Limitations of the study

The qualitative nature of the study, while providing rich data, also makes the project difficult to replicate and reduces the generalisability of the findings. The sample size for the GCFBT pilot, being eight schools is small in size.

COVID-19 school closures necessitated a shift in the evaluation of the GCFBT pilot data. Evaluation was conducted from teachers' evaluation sheets rather than the survey conducted at the start (and planned end) of the research. The base survey was used to inform the content creation of the workshops, but the lack of a follow up meant that a comparison of this data before and after the project was unattainable. The research design included further youth participatory action research sessions which were curtailed(Chapter 4, section 4.8). These had been incorporated into the design to include the subjective experiences of the students in knowledge construction (Wallerstein *et al*., 2017). Had COVID-19 not led to the school closures, additional participatory action workshops, with consideration of Alderson and Morrow (2011), were to be conducted with a group of students from each participating school. The planned workshop intended to involve children in the evaluation of the data, and analysis of findings, as well as dissemination of these findings through project work displayed to the whole school. This would have strengthened the evaluation and reinforced the display of increased capabilities.

Bias must be considered as the research design necessitated the researcher having a large amount of input into the data collection and evaluation. There was a need to act sensitively towards any bias, as noted by Creswell and Clark (2007) and to acknowledge my position as a middle-class woman with a deep interest in food (Earl, 2018). Throughout the research I was mindful of my assumptions and the use of triangulation, and the multiple areas of data collection helped to minimise this. Sen noted that education is an unqualified good for human life (Walker and Unterhalter, 2007). A similar stance was taken throughout this research project seeing education as a good in and of itself, and there was also a recognition of the dignity of the human being and their right to flourish (Sen, 1999).

The importance of parental involvement arose in the data (Chapter 5, section 5.2, Chapter 7, section 7.2). It was beyond the scope of the research project to assess the impact of the GCFBT on the wider family. However, research has shown that food education projects based in a school can have an impact on the home setting (Maher *et al*., 2019; Green and Somerville, 2015; O'Mahony and Fitzgerald, 2001).

8.9 Barriers and strategies

Barriers and strategies in relation to the recommendations are presented in Table 7.2.

	Barriers	Strategies
Cross governmental forum	Government working together	Pressure from stakeholders
Prioritise food education	Government will DES under increased pressure due to such things as COVID-19 and influx of Ukrainian school age children	Pressure from stakeholders particularly parents Disseminating information about the benefits and links to other areas in society such as sustainability
Changing school food environments	Lack of government will, due to market led neoliberal policies Powerful food companies	Tightening laws on advertising of ultra-processed food to children Examining school food procurement No fry areas around schools Citizen and media pressure
Kitchen facilities in schools	Funding resources Difficulty retro fitting old buildings	All new school builds should include a cooking and eating space
Increase CPD	Lack of resources	National funding campaign
Support from the NCCA	Prioritising other subjects	Visibility on NCCA website Resources and ideas available to teachers Links to curriculum and existing learning outcomes
Database website	Who funds and implements the database	Linking with Heritage in Schools Linking with the NCCA
School food plan		Further study

Table 7.2 Barriers and Strategies

8.10 Recommendations for Further Study

These are critical foundations to further work in this field and bringing circular food education from the classroom and into the home is a potential area for future research. Creating links with parents and schools was deemed to be of value by those participating in the scoping consultation with key stakeholders (SCKS) and the final research findings feedback workshop (RFFW).

The research has raised questions in relation how schools can better teach about food. Further study into the benefits of circular food education throughout a child's school life would be of benefit. Food education was deemed necessary from the early years' childhood curriculum framework: *Aistear* upwards according to participants in the SCKS, with the participants saying there should be phased outcomes at each level. These phases could be developed and researched.

Testing the proposed idea for a School Food Plan, which would replace a school's healthy eating plan, as outlined in Section 8.4, would also be an avenue for further study.

As mentioned previously, there is no literature in relation to conviviality in Irish school environments and it is an area worth investigating. Building conviviality in the vein of imaginative understanding of others, working together as a group, showing empathy for those around you, or closer to Illich's definition by having the tools or ability to circumvent mechanical production and enjoy a level of personal freedom are interesting prospects which are all linked and are all of interest. Changes in the Irish school day could help to increase convivial situations and provide a space to increase prosocial behaviours.

8.11 Conclusion

Circular food education provides a model for food education where there is currently a lack of consensus (Smith, Wells and Hawkes, 2022). The research findings have shown that stakeholders agree that an expanded approach to food education is necessary in Irish schools and that providing this at a young age is key. The development of the GCFBT tested strategies for a new approach – this included outside support to facilitate experiential learning classes, group projects and engagement sessions that were student led to facilitate social learning through group projects, and peer learning opportunities. These teaching resources have been developed and are available in Appendix A. Lack of facilities and lack of teacher agency were hurdles to implementing skills based hands-on classes at present.

The findings also show that a whole-school approach to food is key and keeping food environments in line with what is taught in classrooms. Schools have difficulty implementing the healthy eating guidelines that are provided (see Chapter 5, section 5.3.1). This would suggest a new approach for food guidelines could be developed (Table 7.1) in line with a new approach to food education within the classroom. Not only did schools have difficulty establishing healthy eating guidelines to food, but the lack of teacher training was a barrier. Many teachers were not confident in their ability to deliver food education. This was not only due to the lack of their own cooking or food growing knowledge but also from the complicated nature of conflicting messages about food in the media. Ultimately, advocating for government change and embedding of food education within the curriculum is of the upmost importance and the desired outcome for this research project. However, there are other, more immediate, steps that can be taken to increase teachers' confidence and agency and encourage the use of

food as a tool to teach, such as increased continuous professional development and NCCA support.

This research is unique in that this is the first time that these themes are explored in such depth in an Irish context. Bringing together high-ranking stakeholders for the scoping consultation with key stakeholders helped to further debate in the area and to form the basis for further study. The GCFBT which was developed is a welcome addition to the environmental education landscape in Ireland and is currently being rolled out nationally to the 93% of Irish schools, where Green-Schools programmes are established. However, government policy needs to be adapted to facilitate a more embedded and sustained approach to food education; an approach that provides students with the ability to lead a life where both they, and the natural world flourish.

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Appendices

Appendix A GCFBT information booklet and resources for schools

Codicil

The PhD research was used as a pilot for the national rollout of the Global Citizenship Food and Biodiversity Theme (GCFBT). Appendix A presents the finished teachers' resource booklet that was used for the national rollout. This was developed subsequent to the research period documented in this thesis.

The researcher initiated the idea of creating a new Green-Schools programme, based on food and sustainability, with Michael John O'Mahony, the director of *An Taisce*'s Environmental Educational Unit in 2018. Following a successful meeting, the researcher proposed to pilot a programme focusing on Food and Biodiversity. Green-Schools Biodiversity Officer Dr. Meabh Boylan was assigned to the pilot, to liaise with researcher and the schools. Green-Schools aims for the GCFBT were presented to the researcher by Dr. Boylan and are outlined in Section 4.14.3. The researcher adhered to and integrated the aims when carrying out desk research into content and best practice for food education programmes internationally, and on a field visit to the Stephanie Alexander Kitchen Garden Foundation in Australia. Green-Schools staff offered support in creating the structure of the two-year GCFBT pilot (section 4.14.2) which was influenced by previous Green-Schools themes. Workshops were designed and facilitated within eight schools by the researcher based on the desk research and were then developed through research in action and reflection-on-action (Farrell, 2020). Due to Boylan taking maternity leave, Clare Patten took over this liaison role at the end of 2019.
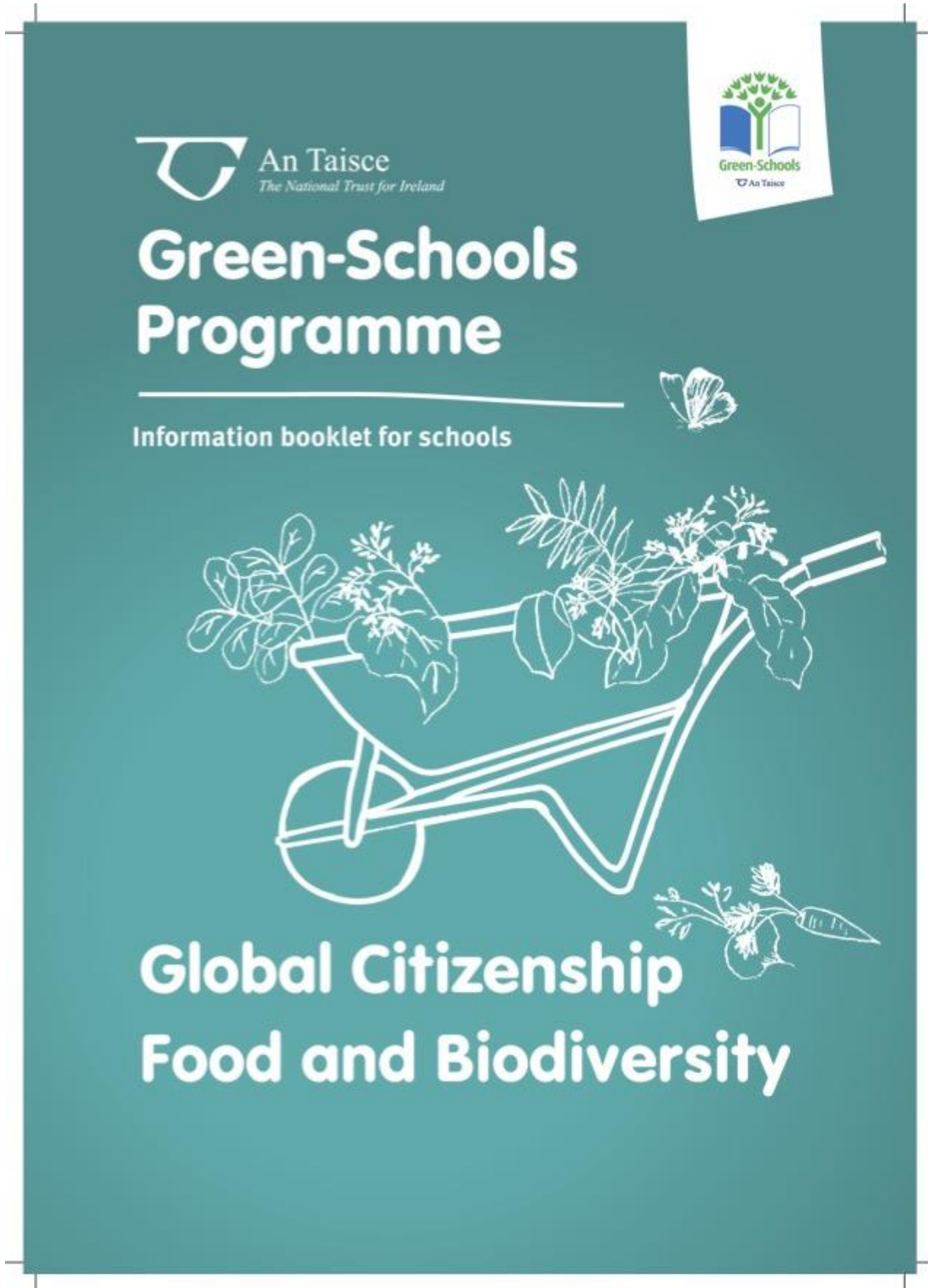
The researcher facilitated each workshop with either Dr. Boylan or Patten observing, and at times photographing, the delivery of the workshops. After each workshop, the researcher and the Green-Schools staff member evaluated each session, and the researcher recorded notes and reflections from these conversations. The researcher was solely responsible for gathering and evaluating the research data derived from the pilot (which consisted of data from all eight schools). Analysis of findings was the sole responsibility of the doctoral candidate. Evaluation of the initial workshops provided an opportunity to integrate the feedback into the design and future delivery of workshops over the course of the two years. Due to COVID-19, some workshops were cancelled and further workshops pivoted to online delivery. Initial research design, which included two control schools, had to be adapted following the COVID-19 pandemic. Once all of the workshops were completed (see Table A) and evaluated using the capabilities approach as a framework, the researcher developed the content for the resource booklet. The key food and biodiversity information, text, diagrams and images, were sent to Green-Schools staff via an online-shared document software, Dropbox. These resources were amalgamated with generic Green-Schools guidelines to complete the design of the teachers' resource booklet. The content of the teachers' resource booklet was informed entirely from the information provided by the researcher in the shared Dropbox files. An inhouse graphic designer in Green-Schools assembled the booklet. The researcher from An Taisce received no payment, and this PhD was fully funded by a TU Dublin College of Arts and Tourism (COAT) scholarship. All costs and distribution of the booklet were covered and organised by Green-Schools.

school	School visit	Garden	Seed	Kitchen	Tasting	Habitat mapping	Soil
NO	○	○	○	○			○ (orange)
BH	○					○ (orange)	
VI	○	○		○	○	○	○
MA	○	○		○ (orange)			
OL	○	○		○			
ED	○		○	●			
CA	○		○	○			○ (orange)
LO	○	○		○	○	●	●

2019 = ○

2020 = ●

Workshops immediately cancelled due to COVID19 = ○ (orange)

Other tasting, habitat mapping, one kitchen and soil workshops were in the pipeline but not yet timetabled. These did not happen due to COVID19

Table A Matrix of school visits and workshops throughout the GCFBT pilot

Timeline of GCFBT pilot

2018	Meeting with Director of An Taisce Education Department who runs Green-Schools. The researcher proposed to him that a new theme be developed for Green-Schools to educate about food systems and sustainability and a pilot be developed as part of PhD research project. No payment was requested by the researcher who was funded solely by COAT scholarship.
	Dr. Meabh Boylan who was assigned by the Director of An Taisce Education Department to work with the researcher on the project. She outlined Green-Schools aims for theme. The researcher outlined the plan for the pilot and drew up a timeline of when this would be conducted.
	8 schools were shortlisted from Green-Schools database to incorporate a wide demographic of schools who had completed previous Green-Schools themes. A consultation was facilitated by the researcher with the teachers from each school to explain the planned research and to discern what facilities were available on each school premiss (Details on all schools involved available in Table 4.14)
2019	GCFBT Survey was conducted within 8 pilot schools and 2 control schools using Survey Monkey software. The survey was developed and administered by the researcher
	GCFBT Workshops were held in the 8 pilot schools. They were developed and facilitated by the researcher (Details on workshops dates available in Table 4.16 and 4.17). Ongoing evaluation of the workshops was conducted using the evaluation tools outlined in section 4.3
	Evaluation sheets collected from Green-Schools staff and teachers.
2020	GCFBT Workshops in the 8 pilot schools facilitated by the researcher. The content for the workshops is detailed in section 4.14.8. COVID-19 school closures led to the cancellation of planned workshops
	Planed Participatory Action Research cycles with students cancelled due to COVID -19
	Evaluation sheets were collected via email from Green-Schools staff and teachers.
2021	Online work to connect chefs to schools and created cooking workshops were conducted online due to school closures
	Evaluation of pilot using the capabilities approach as an framework

An Taisce – The National Trust for Ireland is the foremost environmental organisation in Ireland. Its range of interests extends from the natural heritage of land, air, water, flora and fauna, to the heritage of buildings and gardens. Through its local, national and international networks, it seeks to educate, inform and lead public opinion on the environment and influence policy and development. Strategies to achieve these aims include awareness and education projects, for example:

Environmental Education Unit programmes:

Green-Schools www.greenschoolsireland.org

Neat Streets www.neatstreets.org

Young Reporters for the Environment www.yreireland.org

Green Campus www.greencampus.org

Climate Ambassador www.climateambassador.ie

Green Coast Award www.beachawards.ie

Blue Flag www.beachawards.ie

Green Flag for Parks www.greenflagaward.org

Clean Coasts www.cleancoasts.org

Globe www.globe.gov/web/ireland

Learning About Forests www.learningaboutforestsireland.org

Green Home www.greenhome.ie

FEE (The Foundation for Environmental Education) seeks to promote environmental education by carrying out campaigns and improving awareness of the importance of environmental education. It is composed of a network of organizations which undertake individual projects in their own countries and participate in international efforts. An Taisce as the Irish member of FEE co-ordinates these campaigns in Ireland.

Local Authorities

An Taisce operates Green-Schools in Ireland in partnership with **Local Authorities**. Local Authorities not only provide funding for the programme but also provide an excellent on the ground support network for schools through their Environmental Education and Awareness Officers. The partnership is seen as the key to the success of the Green-Schools programme in Ireland.

Green-Schools Programme

Global Citizenship Food and Biodiversity

This booklet is designed as a resource for teachers and students aiming to inform and guide the successful implementation of the Green-Schools programme in relation to the theme of Global Citizenship Food and Biodiversity.

In order to successfully implement the Green-Schools Programme, on any given theme, there are seven essential steps to follow. These are: (1) Committee, (2) Environmental Review, (3) Action Plan, (4) Monitoring and Evaluation, (5) Curriculum Work, (6) Informing and Involving and (7) Green-Code.

You will be expected to establish the 'Seven Steps' to make progress in reaching the targets you set yourselves for the theme of Global Citizenship Food and Biodiversity. Details for each step are provided, in sequence over the coming pages.

The Green-Schools programme covers many different aspects of the environment. The current theme was chosen as an important and appropriate topic to work on because:

- The subjects relate easily to many elements of the primary and secondary school national curriculum.
- The subjects reinforce learning on all previous Green-Schools environmental themes.
- The school garden offers huge opportunities for improving the learning environment; it helps to facilitate outdoor play, teamwork, self-directed learning and so much more.
- The subjects introduce healthy habits for life, including; physical activity, spending time outdoors (linked to positive mental health), and healthy diets.
- Growing, harvesting and preparing food provides great opportunities to develop invaluable life-skills, and to increased life-long environmental awareness.
- Growing food is exciting for students and it opens a whole area of learning around food literacy, thus building a strong foundation for life-long nutritious eating habits and ethical consumption choices.
- Ireland has a fantastic climate for growing fruit and vegetables, yet we import the majority of our fruit and vegetables, which has negative environmental impacts; schools growing some of their own food will reduce these impacts.

As with the other Global Citizenships themes, the Global Citizenship Food and Biodiversity theme will enable you to discover how your local work on the Green-Schools programme overall has a positive impact, and will continue to positively impact, people and their local environments worldwide. On each Green-Schools theme, there are essential actions, embedded across the Seven Steps, that all participating schools must take. The essential actions for the Global Citizenship Food and Biodiversity theme are outlined in the box below.

1

The essential actions for this theme are:

- Conduct the 'Food and Biodiversity Awareness Survey' ('before' and 'after' doing your Action Plan)
- Create a 'Food Habitat Map' of the school and grounds ('before' and 'after' your Action Plan)
- Grow, harvest and eat a range of crops, across the whole school, using the Crop Cards and Harvest Recipes provided.
- Pick one 'Global Topic' to study in your whole school, from the list provided.

Focusing your work on the actions listed above, and using the guidance in this handbook, will ensure successful implementation of the Global Citizenship Food and Biodiversity Theme over the two academic years.

Green-Schools Programme

The two top tips

1. See our Seasonal Planner below! Nature moves on and changes with the seasons, so aim to commence work as early in the Autumn as possible, and to focus on just doing a little and often throughout the year. Soil preparation, seed planting and crop harvesting follow the seasons; the Seasonal Planner will help to keep you on track.

2. Join us for the Green-Schools' Teachers' Autumn Seminars for a full introduction to the theme and to have your questions answered; contact your Local Authority for details on the Global Citizenship Food and Biodiversity seminar in your area.

Biodiversity means "the diversity of living things". It is important that we work to maintain a high level of diversity of living things on planet earth.

High levels of diversity are associated with higher levels of resilience and stability within ecosystems.

This is important for long term ecosystem function, and for the provision of natural services that we are reliant on, such as: clean air, fertile soils, clean water, pollinators and food.

The Green-Schools programme covers many different aspects of the environment. In previous themes your school will have explored core environmental issues such as Waste, Energy, Water, Travel and Biodiversity. Most of these core themes relate to issues in or near your school. The Global Citizenship elements that have been completed more recently in your school have already helped you to look at these core themes, from an international and citizenship perspective.

This theme on Food and Biodiversity will also take a joint approach. Firstly, there will be a focus on local actions, including growing and preparing food, using organic methods and wildlife-friendly means, on your school grounds. Then secondly, the focus will turn to global impacts, where we will investigate the positive impact that your local food-growing actions can have by interrupting current global food production systems e.g. by reducing food miles and food waste.

2 Growing and Preparing Food at Your School

Your school does not need to have a large garden area. If there is not enough space for vegetable patches or raised beds, then window boxes, flowerpots and similar alternatives will be perfect!

Likewise, your school does not need to have access to a kitchen for food preparation and cooking. We will provide a range of suggested simple recipes for each of the crops, ranging from no cook, to oven or hob cook. Each class teacher can select the one(s) that make most sense to their setting.

The Green-Schools programme is flexible and adaptable to local circumstances. Every school will have different hurdles and assets in terms of rolling out all elements of this theme. Focus on your assets and build your programme around them.

Green-Schools Programme

Food and Biodiversity Through the Seasons

Fruits and vegetables ripen, ready for eating.
Seeds of wild fruits and nuts, enjoyed by birds and mammals, are spread
as leaves fall from deciduous trees

autumn

Worms, insects, fungi and other microbes break down fallen leaves
returning nutrients to the soil.
Seeds shelter under ground and plants rest, awaiting spring again.
Some animals hibernate, but garden birds will appreciate
bird feeders during frost, when other food is in short supply.

winter

Seeds begin to germinate as new plants emerge.
Flowers begin to bud on trees and plants,
while bees emerge from hibernation
to visit flowers where pollination occurs.

spring

Pollinated flowers begin to grow seeds,
some of these seeds are hidden inside developing fruits.
Fruits and vegetables ripen and are ready to be eaten

summer

Rationale for Food and Biodiversity

What are potential benefits of eating foods from all over the World?

- A more varied diet provides a diversity of flavours.
- A more varied diet provides a diversity of nutrients.
- A more varied food supply enables us to cook foods typical of other parts of the World that we wouldn't normally find growing in Ireland, e.g. spices to make a curry, or pepperoni for pizza.
- Certain foods are naturally produced in abundance at certain times of the year, outdoors in other countries; buying this foreign produce may in fact have a lower environmental impact, than trying to buy the exact same crop grown locally with heated glasshouses.

· ·

What are potential negative impacts of eating foods from all over the World?

There are some negative impacts that can arise from consuming foods or ingredients that have been produced in other parts of the World. Here are some examples:

- Food Miles: The fuel required to ship foods across the World increases emissions of greenhouse gases and contributes to climate change.
- Packaging: Energy, water and raw materials are required to create packaging that is needed to keep the produce bruise-free and in optimal condition during transit.
- Additional Energy Requirements: Refrigeration keeps produce from rotting.
- Additional Resources: Chemicals are often required and are commonly used to preserve fruits and vegetables. For example: sodium propionate is used as an additive to inhibit the growth of moulds and yeasts on foods and; carbon dioxide in liquid and solid form, is an important refrigerant, employed during the transportation and storage of food.
- Habitat Destruction: Precious habitats such as rainforests are currently being cleared in order to grow certain ingredients in vast quantities e.g. soy, palm oil and for beef farming; arguably these are ingredients and/or quantities that are not a necessity.

· ·

Steps to ensure a positive impact on the environment, include:

- Growing food, yourself.
- Avoiding the use of chemicals in and around your garden (including insecticides, herbicides and rodenticides).
- Checking labels on foods that you buy, so that you can choose to:
  » Avoid certain ingredients, e.g. palm oil.
  » Avoid buying foods from far away (especially if they grow naturally in Ireland).
- Consuming less meals with meat.
- Avoiding heavily processed foods.
- Getting to know when fruits and vegetables are in season.
- Avoiding foods with excess packaging.
- Growing lots of 'pollinator-friendly' plants to provide food for the bees and butterflies.

4

Did you know?

Achieving food security and nutrition for all depends on biodiversity, which generates multiple livelihood benefits. Biodiversity and ecosystem services are essential for sustainable agriculture, forestry, aquaculture and fisheries. They enable sustainable production in the agricultural sectors.
Food and Agriculture Organization of the United Nations Rome, 2020 www.fao.org

In the year 2018, Ireland was a net importer of fruit and vegetables; we imported €1,334 million worth, whilst exporting €321 million worth.
www.cso.ie

The difference between Food loss and Food waste: The idea of food being lost or wasted sounds simple, but in practice there is no commonly agreed definition. Essentially, food loss and waste is the decrease in quantity or quality of food along the food supply chain. Food loss occurs along the food supply chain from harvest up to, but not including the retail level. Food waste occurs at the retail and consumption levels."
The State of Food and Agriculture Report, 2019 www.fao.org

Biodiversity provides regulating and supporting ecosystem services including nutrient cycling, soil formation and rehabilitation, carbon sequestration, water storage and filtration, habitat provision for wild species, biological pest control and pollination. Biodiversity makes production systems and livelihoods more resilient to economic, social and environmental shocks and stresses, including the effects of climate change. The impacts of climate change to biodiversity are a concern to food security and nutrition.
Food and Agriculture Organization of the United Nations Rome, 2020 www.fao.org

In Ireland 4,500 ha of vegetables with a farm gate value of €73m are grown annually. We supply well over half our requirements [...] the remainder is imported. The main period for imports is from April to June.
www.teagasc.ie

By 2050 with the same planet, we will have to feed three times more people than a century before. The choices we make regarding food production and consumption already have direct or indirect consequences on the climate, on the use of resources like water and land and on people's ability to feed themselves and live decent lives here and abroad.
www.eatresponsibly.eu

5

Green-Schools Programme

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The Green-Schools Programme

The Green-Schools programme is based on Seven Steps. These steps are outlined below:

7 step programme

Green-Schools Committee

Environmental Review

Action Plan

Monitoring and Evaluation

Curriculum Work

Informing and Involving

Green Code

Green-Schools
An Taisce

Green-Schools Programme

1 Green-Schools Committee

The Green-Schools Committee aims to be the driving force of the Green-Schools programme on the ground, in your school. It should ensure that all 7 steps of the programme are carried out.

Composition and Selection

As you have been working on the Green-Schools programme for many years, by now you will understand that establishing an effective committee is one of the most important aspects of the Green-Schools programme. It is essential that you include pupils, teaching and non-teaching staff; and remember that it is important that the committee is mainly student led. When you are establishing your committee for the Food and Biodiversity theme, you should keep in mind that you are also required to maintain and develop the work carried out for all previous themes

Whether you want to create a committee dealing with all aspects of the programme; or a separate committee for each of themes is entirely up to you. However, it will be beneficial to allocate different jobs to different committee members so that the tasks are not too overwhelming.

7

TOP TIP

Why not hold an election campaign to select your committee members for the Global Citizenship Food and Biodiversity theme?

Green-Schools Programme

2 Environmental Review

Aim

The Environmental Review aims to assess your starting point as a school.

The two key elements of this review are

(a) Collecting information about awareness levels amongst the staff and students about food and its links to environmental sustainability, and (b) collecting information about the food environment in the school, from herb beds to vending machines.

The following activities must be included in your Environmental Review:
A.   A 'Food and Biodiversity Awareness Survey'
B.   A 'Food Habitat Map' of the school and grounds.

Food and Biodiversity Awareness Survey

Surveys are used to examine the level of awareness around food. Using the following questions, survey as many students and staff as possible to get a clear picture of the starting awareness levels in your school. This initial survey should be done as early in the school year as possible.

The questions are listed in the table below. You will return to the same list of questions towards the end of your time working on this theme, as part of the Monitoring and Evaluating step, to see if levels of awareness have improved over the two (school) year period. Be sure to publicise the results on your Green-Schools notice board.

Download the full survey file from: www.greenschoolsireland.org. It consists of a survey page designed for the individual student, a page for each class teacher to compile the individual results and a final page for the coordinator, to compile the whole school's results (the latter is also found opposite, here). A similar survey could be brought home by the students.

TOP TIP

Don't worry if you discover there is a low level of awareness of food and biodiversity issues after your first survey, this theme will give your students the opportunity to learn more!

Green-Schools Programme

Food and Biodiversity Survey			
Date:		Number	Percentage
Total number of people who took the survey (this should be results from whole school combined)			100%
1. How many people have grown their own food before?			
2. How many people have eaten food that they have grown?			
3. How many people have enjoyed cooking food that they have grown?			
4 a. (In response to the original question: "Which of these fruits and vegetables can grow outdoors in Ireland?") What number of people picked the following answers?	Potatoes		
	Strawberries		
	Carrots		
	Lettuce		
	Peas		
	None of these		
4 b. How many people selected all five of the fruit and veg options?			
5. How many people have read all of the ingredients in a packet of biscuits?			
6. How many people can name two ways that we need biodiversity to help us grow our food?			
7. How many people can name two ways that our food choices could harm biodiversity?			

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Food Habitat Map

This map should:

- Show all the areas in the school where food and drinks are grown, sold, stored, prepared, eaten and disposed of.
- Show how many areas in the school are related to food and any potential issues related to access, disposal of food etc.
- Determine where crops may be grown during the programme.
- Show any areas where wild animals are feeding (naturally or with human help) and how this may impact on any food crops the school is currently or will be growing during this theme (e.g. hedgehogs visiting the school may help control the slug population, whereas woodpigeons visiting the grounds, may pick off young cabbage plants).

You should draw up a map before you take any actions, as early as possible in the first school year of the two-year programme. It will give you a good indication of your starting point, and will help you to plan the most appropriate actions for your school.

We have developed specific guidelines to help you to create your Food Habitat Map. Please see the 'Food Habitat Mapping Pack' containing a classroom presentation, sample checklist and lesson plan. The pack can be found at www.greenschoolsireland.org under the Food and Biodiversity theme page.

. . . .

Optional Review Activities

Before you begin planting you could investigate the soil you will be using. Explore what kind of soil you have, its properties and discover what lives in it. This can give a deeper understanding of what plants need to grow and is a great opportunity to try some experiments. Our 'Soil Investigation Guidelines' is available on the Green-Schools website www.greenschoolsireland.org under the Food and Biodiversity theme page. It includes a presentation, experiment guide and recording sheet to support you.

If your garden hasn't been used much in the past, or if you are not sure how good the soil is, you could carry out a more detailed soil test. Information and small kits are readily available online, and will give you the basic information, such as composition and nutrient content of your soil. It may be worth doing, especially if the garden hasn't been given much attention in the past. You will then know whether you need to invest in a few bags of compost or other nutrient additives.

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Assess your Wild Garden Biodiversity

Take some basic observations of relevant plants and animals on your campus.

- By checking for wild edible plants like nettles, crab-apple trees and blackberry bushes etc. you will build up a greater idea of what food and plant diversity is on your campus. See our 'Guide to Common Edible Plants in Schools' on the Green-Schools website www.greenschoolsireland.org under the Food and Biodiversity theme page.
- Keeping a picture record or notebook tally of honey-bees, bumblebees, butterflies and other wildlife in your garden may also help you to detect changes that are occurring throughout the seasons, and changes that are occurring in relation to the actions you are taking on the ground.

Green-Schools Programme

3 Action Plan

The action plan aims to identify goals and provide a structured timetable for the improvement of the results identified in the environmental review.

The action plan is the core of the Green-Schools Programme. It is a time tabled series of specific goals for improvement over a fixed time scale. Quantifiable targets should be set where possible e.g. "increase proportion of individuals who have grown and eaten their own food by 40%".

The action plan, if possible, should be linked to curriculum work and have realistic and achievable targets. These goals should be specific and quantifiable where possible with proposed completion dates that show real success. Success increases confidence and builds enthusiasm for setting subsequent targets.

It is crucial that you work out how you will monitor and measure your progress, and this should be integrated into your action plan. Try to involve all the committee members in the development of the action plan, and as much of the school as possible in its implementation.

The action plan is not a review of the work that has already been carried out, but a list of future targets and goals of your programme and a detailed description of the actions to be implemented (and by whom) within specific time frames in order to achieve those goals and targets.

In summary, your action plan should:

- Be developed from the results of your Environmental Review;
- Contain realistic and quantifiable goals and targets with timeframes, where possible.
- These goals should be displayed at the top of the action plan;
- Be in table format (see sample below), identifying action, person or group responsible, and the timeframe for completion;
- Be displayed on your Green-Schools notice board.

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Specifically, for this theme, your Action Plan should:

- Identify which Crops will be grown by whom,
- Identify which Global Topic will be investigated by the school overall
- Identify when different class groups will celebrate their harvests

Green-Schools Programme

Grow a Local Crop

Schools must grow crops in both years of their work on the Food and Biodiversity theme. Each class group should gain experience in growing at least one crop in that period.

We have developed **Crop Cards** which contain instructions on how to grow different crops. Ideally each crop would be tackled by a different class group, so that most crop options on the list would be grown across a whole primary school each year. We would hope that at least five different crops would be produced in a secondary school, each year. The Green-Schools coordinator can take the lead in helping decide or in assigning which year-group grows which crop.

To assist in the Primary School setting, where students' ability to read, follow instructions and dexterity levels will range greatly, we have placed some of the crops into three distinct groups. Each group is connected to different aspects of the curriculum and will lead into different potential harvesting workshops and activities at the end of the year. Details are in **Appendix 1** on page 27.

Green-Schools Programme

We have not provided the same level of prescriptive intervention for Secondary Schools, as students should be able to grow the crops with relative ease, once the Crop Card and seed-packet instructions are followed. However, Secondary Schools need to be aware of their very short growing season available to them, on account of the earlier summer holidays. Therefore, certain crop choices will be better than others; and even at that, your chosen crops should be planted at the earliest appropriate opportunity. Crops suitable for the Secondary School setting are listed in **Appendix 2** on page 27.

Crops should be planted in Spring of both years (this may mean that soils, beds and planting areas, need some attention in the preceding Autumn and Winter months).

Please note, we have designed **Harvest Recipe Cards** which include the crops being grown in a range of different recipes. These recipe ideas may help inform your decision on which crops you would most like to grow.

Of course, additional crops, herbs or fruit trees and bushes can also be grown and harvested if desired and if time and space allow. Autumn-ripening produce is also encouraged, but for the sake of the Green-Schools work, a summer harvest is preferred on account of the care-taking limitations over the holiday period.

Investigate a Global Impact

Each school undertaking the Global Citizenship Food and Biodiversity theme is required to explore one* Global Topic in depth from the list below. Each of the topics considers the far-reaching impacts of the current food production system. We recommend that you commence this more 'research-focused' element of the programme in the autumn of the second year of work on the theme, when things are quiet in the garden.

Carry out a detailed exploration of your selected topic using diverse approaches across the school, for example through poetry, art, science projects, school trips, live performance, debate, or any other methods that the school community deems appropriate.

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Global Topics Cards' have been developed to provide further information on these key issues, and are available on the Global Citizenship Food and Biodiversity theme page on our website www. greenschoolsireland.org

*You can explore more than one of these topics if you feel you have the capacity at your school

Global Topics

Our Diet and our Rainforests

Deforestation is having a huge detrimental impact on our rainforests; as they are cleared to grow 'cash crops', raise livestock and grow oil palm, amongst others. Did you know that palm oil is an ingredient in around half of all packaged products available in Irish supermarkets!? Explore this topic to uncover the links between your food labels and orangutan populations.

Pesticides and Wildlife

Pesticides are substances that are meant to control pests, including unwanted plants (weeds). However over 98% of sprayed insecticides and 95% of herbicides reach a destination other than their target species, including air, water, soil and non-target species. Explore this topic to see how organic growing can protect your bees, hedgehogs and barn owls.

Our Diet our Climate

Our climate has always been changing in natural patterns, from ice-ages to interglacial periods, like today. However, humans are causing increased global warming by burning lots of fossil fuels, cutting down trees, and clearing land to raise livestock which release methane. Every food choice we make has consequences on our climate; what we eat, how much we waste, how it was produced and where it has travelled from. Explore this topic to see how to reduce your food's carbon footprint.

Protecting Pollinators

To make a seed, flowering plants must receive pollen into their flowers; this pollen typically comes from another flower of the same type of plant. Without pollen transfer or 'pollination', seeds and thus new plants, will not form. Many plants rely on animals to transfer the pollen; these animals are considered to be pollinators. In Ireland many of our pollinators are threatened with extinction. Explore this topic to learn how you can make small changes in your garden that will help the bees!

Food Waste

Food waste refers to the discarding (or alternative, non-food use) of food that is safe and nutritious for human consumption. It is wasted in many ways from leftovers at home and in school to expired 'best before dates' by retailers and consumers or removed from the supply chain during sorting operations. Explore this topic to see how you can reduce food waste at school and at home.

Food Miles

Nowadays food is routinely transported very long distances from producers to end consumers; these distances are called 'food miles'. In Ireland, most of our 'fresh' produce has been transported over great distances, for many days if not weeks! A major environmental fall out of this is fossil fuel use, and therefore climate change. Explore this topic to see where your food is coming from and to identify ways to reduce food miles.

Green-Schools Programme

Who is your farmer?

As we rarely, if ever, know the farm from which our food has come, how can we know if farmers receive a fair price for their produce? Can we know that the farm workers are fairly treated, in terms of pay and conditions on the ground? Do we know how the animals, the landscape, or the produce are treated? Explore this topic to find answers to some of these very important questions and to learn the difference between whole-foods and processed foods.

Crop Diversity

Agrobiodiversity is the term used to describe the variety within plants and animals that are used in food production either directly (by eating) or indirectly (needed to help grow or produce food to be eaten). More industrialised, large scale farming and the need to produce food on a limited budget has led to a decrease in crop diversity. Thousands of species of food crops which are no longer being grown are going extinct every year. This could leave us over-reliant on certain crops, and vulnerable to scenarios akin to the 'Irish Potato Famine'. Explore this topic to learn about crop diversity, a global seed-bank and how your school could become hero seed-savers!

Day of Action – Harvest Feast

It is important to celebrate your work and the results on your journey through each Green-Schools' theme. For previous themes the 'Day of Action' was often a whole school affair, however for the Global Citizenship Food and Biodiversity theme, this is not necessary as crops will come ripe in their own time, and that is the ideal time for celebration.

For this theme, the 'Day of Action' will more likely take the form of a series of 'mini-harvest feasts', and be spread over a few weeks, across the school. This can be done in groups (grouping together classes with simultaneously ripening produce) or by class, in the summer months of both years. It is important that students get the chance to prepare and taste their produce. For celebrating the harvest, class teachers can use the following online resources:

- The Harvest Recipe Cards; to prepare the food in class, and to feast!
- The Tasting Workshop; this can be used in the run up to, and during, the Day of Action.
- The Harvest Recipe Cards; to hone cooking skills in the run up to, the Day of Action
- Invite a Local Chef into the classroom to do a cooking demonstration with the harvest.
- Have a 'World Kitchen' event: incorporating the school's harvested crops, invite the parents to help their children create traditional dishes from all around the world.

The **Harvest Recipe Cards**, and the workshops and lesson plans referenced above are on the Green-Schools website www.greenschoolsireland.org, under the Food and Biodiversity theme page.

Share the recipes with the class teachers. Each class should harvest what they have grown and use the relevant recipe(s) to prepare a snack or meal at school where possible.

Green-Schools Programme

School Actions Through the Seasons

Each season holds different and exciting opportunities for your school to engage with the Global Citizenship Food and Biodiversity theme. Follow this checklist of seasonal actions for the year ahead

autumn

Set up Green-schools Committee ☐

Meet and create an Action Plan for the year ahead ☐

Identify areas for growing crops ☐

Yr 2 only - Choose a Global Topic for the whole school to investigate ☐

spring

Each class should plant their seeds and care for the seedlings according to Crop Card instructions ☐

Use the online lesson plans to learn about soil, seeds or wild plants on your school grounds ☐

Yr 2 only - The school overall should continue to learn about their Global Topic ☐

Yr 2 only - Submit your Application for a Green-Flag ☐

winter

Prepare areas for growing (e.g. weed and cover raised beds, and get plant pots) ☐

Decide which class will grow which crop (see the Crop Cards) ☐

Order the seeds needed for Spring ☐

Yr 2 only - Investigate your Global Topic ☐

summer

Continue to care for the plants according to individual instructions ☐

Choose a recipe for each of the crops, from the Harvest Recipe Cards ☐

Use the online lesson plans to practice some cooking skills in class ☐

Harvest your crops when they are ready and prepare Harvest Feasts ☐

Sample Action Plan

Action	Person Responsible	Target Date
Establish a committee for (Year 1 of) the new theme	GS Coordinator	September 28th
Conduct the Food and Bio Awareness Survey	Committee	October 15th
Create a 'Food Habitat Map' of the school	Committee	Last week of November
Finalise what crops will be grown by each class	GS Coordinator	December 11th
Decide what parts of the school grounds can and will be used by each class for growing food	Coordinator, Caretaker and all staff (at staff meeting)	January 15th
Prepare all growing spaces for growing	Class teachers and caretaker	January to February inclusive (deadline Feb 26th)
Source seeds, pots, containers, compost and any other materials required for growing	All classes	December to February inclusive (deadline Feb 26th)
Plant seeds, care for crops indoors, etc	All classes	February - April
Move plants outside as necessary	All classes	March - May
Care for and harvest crops as necessary	All classes	May – June
Have harvest celebrations - share Harvest Recipe Cards, and talk to all staff about what they are planning to cook/prepare	All classes together or separately	May - June (as crops are ripe and ready)
Summer Break		
Establish a committee (for 'Year 2')	GS Coordinator	September 24th
Pick at least one 'Global Topic' for the school to focus on and inform all teachers	New Green-Schools Committee	September (Year 2)
Projects, Artwork, Drama, School trips, guest-speakers etc to explore the Global Topic(s)	Class Teachers	October – December (Year 2)
Plan Growing year ahead, with adjustments following on from last year's results... Decide what crops will be grown by whom etc	Green-Schools Committee and Class Teachers	December

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Green-Schools Programme

4 Monitoring and Evaluation

Aim

Monitoring your Green-Schools programme will ensure that progress towards targets is checked, amendments made where necessary and success celebrated.

As part of the monitoring and evaluation step of the programme schools are encouraged to have regular meetings to make sure all actions are working effectively.

In addition to the Initial Food and Biodiversity Awareness Survey and Food Habitat Map, you could consider sending an awareness survey home for parents to fill out and publicise the results on your notice board.

In the Spring of your 'Year 2' on the programme, the Main Food and Biodiversity Awareness Survey and the School's Food Habitat Map (see above) should be repeated just before you are applying for your Green Flag.

How do these results compare to the first time the survey was carried out? Have you reached the targets set in your action plan?

Secondary schools or older students could explore in greater depth, the changes taking place in the school, and find out things like:

- Are students and staff aware that their habits and actions may have a positive or negative impact on the environment?
- What products are students and staff most environmentally conscientious about when buying products?
- What products are taken for granted in relation to the chain reaction and whether purchasing a particular product may have an adverse effect on the environment or not?
- Do teachers use FairTrade tea/coffee in the staff room?
- Are FairTrade options available in the canteen or vending machines?

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TOP TIP

In Spring, send around a 'How does your garden grow?' survey to each student group or class teacher, to monitor how they are getting on with their growing tasks. This could include questions about what they have planted, what proportion of seeds germinated, what proportion of seedlings survived, when will crops need to be planted outside, when are crops expected to ripen, and when is their harvest day likely to be?

Green-Schools Programme

Curriculum Work

Aim The focus on Curriculum Work aims to link the theme of Global Citizenship Food and Biodiversity to the curriculum already being covered in your school. The links are very varied, some examples are provided below.

SPHE
- My school community: develop a sense of personal and social responsibility for your environment and for the creatures that help us make food – bees, chickens, fish
- Learn about a healthy balanced diet and the importance of fruit and vegetables, can you identify each food group
- Learn about taste and enjoyment of foods – what certain foods smell like, how would you describe them
- Hygiene – wash hands after garden, wash vegetables, storing foods
- Media Education: encourage media awareness, submit an article to the local press about a particular issue related to food grown, farmed or made in your area.
- Media education – understand food advertising

Geography
- Develop a critical understanding of environmental issues relating to food growing at local and global level. Look at land use and waterways in the area
- Weather Watchers: how the change in climate may affect biodiversity both nationally and internationally
- Study of humans and their impact of their food on the natural environment: pollution, greenhouse gas emissions, climate change, the built environment, sustainable management of biodiversity etc.
- Explore food miles, where food comes from, how far it travels
- Types of food grown locally and abroad
- People at work – the people who produce and supply food to us
- Identify and help to implement simple strategies for protecting, conserving and enhancing the environment by developing the school garden

Visual Art
- Creation of posters, murals to aid the awareness of the importance of growing a variety of food plants
- Create bird feeders from old milk cartoons, used wood
- Use nature as a subject and inspiration for artwork
- What colours can you see?
- Looking and responding to old paintings depicting food throughout history

Maths
- Provide real life situations for mathematical analysis. For example, the number of plants in the garden, the distance between seeds as they are planted, measuring for recipes
  - Use of charts and graphs
    - Learning about ratios - scaling up recipes
      - Weighing vegetables and fruits
        - Conduct surveys about favourite foods
          - Create a calendar and chart for the garden, seasons, plant timings, harvest times

Languages
- Source of topics for essays, poetry, etc.
- Learn the names of various plants in Gaeilge or any other language that is being taught in your school
- Promote communication skills, public speaking, debates related to the topics learned.
- Potential for many activities involving speaking and writing
- Language to describe food – sweet, sour, bitter, salty, tasty

Global Citizenship Food and Biodiversity

PE
- Recognise the importance of energy for physical activity
- What you eat can affect your energy

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History
- Local history: asking parents, grandparents and older members of the community about how the local farming areas have changed
- Explore different cultures throughout history and how they developed different diets and ways of eating
- Focus on the history of a food made in your area
- The origins of foods and how they shaped history - how salt effects food – how it allowed food to be preserved and then people could travel, the potato and the famine

Science
- Study of changes through the seasons
- Learning through observation: watching how plants grow and change through the seasons
- Learn about food chains and how easily they can be disrupted
- Develop a scientific approach to problem solving
- Encourage responsibility for the environment and promote sustainable development – school garden, food packaging and waste, leftovers
- Food: where it comes from
- Learning to measure, reading recipes
- Learning about how different liquids interact when making a salad dressing for example
- Learn how plants grow – over ground, on trees, along the ground etc.
- Learn what parts of the vegetable you can eat
- Effects of heating and cooling on food
- Composting waste for the garden
- Sort and group living things into sets - flowers, leaves, trees, birds, fruit and vegetables

Green-Schools Programme

6 Informing and Involving

Aim

To spread the Green-School message throughout the whole school and the wider community through ongoing publicity and a 'Day of Action'.

There are many opportunities to capture and share the information about the great work that you are doing. Here are some key actions that may help to inform and involve the wider community:

Maintain your Green-Schools noticeboard and:
- Include graphs and charts to show the levels of awareness from your surveys
- Display your Food Habitat Map
- Display your current Action Plan
- Display project work

Get online and share your work, consider:
- The school's website
- Blogs, social media and online campaigns
- Online newsletters
- Publishing articles in local press

Use the school's other means of communicating, such as:
- The school intercom
- School assemblies
- Letters, texts and emails home to parents
- Posters and banners on the school grounds
- Labelling the flowerbeds and planting areas for parents to see

Day of Action - Harvest Feasts

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As during all Green-Schools themes, participating schools are expected to choose one day in the year where the whole school celebrates their Green-Schools work in whatever way they deem appropriate. For this current theme however, the celebration will likely have to be staggered over May and June, in order to accommodate the different ripening times of the various crops. (This is explained in more detail in the Action Plan section).

The culmination of your efforts of planting seeds, tending seedlings, transplanting crops, and ongoing care, should be a big celebration in which the school community get to reap the rewards of the labour. Namely, to prepare and eat the food that you have grown.
Harvest Recipe Cards, will be emailed to you, and are also available on the Green-Schools website www.greenschoolsireland.org, under the Global Citizenship Food and Biodiversity section.
Share your stories and celebrations with photos and videos, project work, via your school's website, or using blogs and other social media. Please share with us at Green-Schools @GreenSchoolsIre

7   Green Code

The Green Code aims to succinctly state the objectives that your school has towards achieving environmentally friendly action.

As with all the previous themes, your Green Code should be a statement of the school's commitment to environmentally friendly actions, in this case on a global scale. It should be negotiated by as many of the pupils and staff as possible and it should relate to your action plan and curriculum work. It is important that pupils feel they were involved in developing this code, otherwise they will ignore it.

Personal and social education periods offer a good place for discussing the values underlying a common Green-Code and may also provide an opportunity to extend the discussion to personal codes and values. Alternatively, this could take place in tutor time, or in class. A school-wide competition is also a good way to ensure everyone is involved. Make sure you display your Green Code on your notice board. You could also publicise it in the local press and send information to parents.

Green code example:

"
Growing food at school,

Is really very cool,

It is healthy, fresh and green,

Which will keep our planet

super clean!
"

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TOP TIP

Instead of a slogan you could write an environmental policy for the school to be printed in the homework journal. This will educate everyone about the importance of policies. To find out more about EU environmental policies see www.greenschoolsireland.org

Sustainable Development Goals

For this Global Citizenship Food and Biodiversity theme, we have chosen seven SDGs which are the most relevant to the theme

The Global Citizenship Food and Biodiversity theme is strongly linked to many of the Goals which have been set in "The Global Goals for Sustainable Development". During this theme you will have to opportunity to connect your work to the Global Goals. The most strongly linked are:

- SDG 2: Zero Hunger.
- SDG 3: Good Health and Well-Being
- SDG 8: Decent Work and Economic Growth
- SDG 11: Sustainable Cities and Communities
- SDG 12: Responsible Consumption and Production
- SDG 13: Climate Action
- SDG 15: Life on Land

You may also find other connections to additional goals as you go along depending on which of the eight 'Global Topics' you choose to work on. As food is a fundamental part to all life it may have been expected that it would be linked to many of the goals, but the variety and number of links may be surprising. As we look more closely at the growth, production, processing and transport of food we discover just how closely linked food production is to not just farming but many other industries, local communities, the natural environment and our health. In short, food and biodiversity come into almost every area of life and are at the core of building a sustainable future.

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Mind Map Activity for Coordinators

Mind mapping was developed as an easy way for generating ideas by association. In order to create a mind map, you usually start in the middle of the page with the central theme and from that point you work outward in all directions to create a growing diagram composed of keywords, phrases, concepts, facts and figures.

The way in which we propose you use the mind map idea to help you in your work on the Green Schools programme is by tapping into what your colleagues are already doing in their classroom that might be related to the theme you are currently working on.

During a staff meeting you should give a brief outline of the Green Schools theme, hand out post it notes so that your colleagues can write what they plan to work on throughout the year in their class that could tie in with the theme. These can be stuck up around the theme explanation – this creates a very simple and quick mind map that will ensure whole school participation, make everyone in the school aware what theme you're addressing this year, it will tie in with what is happening already and may provide a platform for other classes to show off the work they are doing in the classroom.

This activity might give you enough of an idea as to how you can tie in with what is happening in the school already but it can also be a start to an expanded mind map that you can develop with your Green-Schools Committee and display on your notice board.
Creating an expanded version of your initial mind map with your Green-Schools Committee:

Creating an expanded version of your initial mind map with your Green-Schools Committee:

- Place the theme in the centre of a page, overhead projector or whiteboard. You may find it easier to place your page on the side, in landscape orientation, which is easier for drawing purposes.
- Use lines, arrows, speech bubbles, branches and different colours as ways of showing the connection between the theme and what your colleagues are doing with their classes already
- This should be a quick activity and you should write and/or draw quickly without too many pauses. You want the children's minds to flow easily and chances are the first ideas you come up with are probably the best. It is important in the initial stages of mind mapping to consider every possibility, even those you may not use or seem too ambitious.
- Choose different colours to symbolise different things e.g. you may choose green for something you must incorporate in your Green-Schools work, blue for other good ideas, and red for the things you need to research, check with your colleagues or principal or simply think they might be too ambitious. Often mind maps can be beautiful to look at as well as being very informative so you might even consider putting the 'finished' product on your notice board, it is bound to attract loads of attention which is exactly what you are after!
- Leave some space on your page. The reason for this is that you, or better still, other pupils and teachers in the school, can continue to add to your diagram over a period of time. If A4 sized paper is too small, you may like to use A3.

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Green-Schools Programme

Mind Map Example - Secondary

First Year Geography class will be asked to make a food habitat map of the school and campus which will then be displayed for everyone to see

Woodwork classes could be asked to assist with making potting benches, window boxes, bird feeding stations and raised beds

5th Year Irish could explore vocabulary relating to food and crops, and they could learn old farming words that have lent themselves to place names over the years

How much waste does our school generate based on the foods we eat?

Get a chance to try different foods

Discover how wildlife and food effect each other

Find out more about how our food is packaged

Spend more time outside working on the garden

Differences within food crops and how this effects food security

Food and Biodiversity

Learn about the food we eat

Learn to grow our own food

IT students could record and develop online materials, to communicate the seasonal changes and actions taken in the garden by the committee and/or classes to the whole school community

Junior Cert Science could explore 'Environmental Factors', by growing a selection of crops under a range of controlled conditions

Home Economics could support the Harvest Feast Days by using crops grown in the school to create salads, baked goods and other snacks or meals

Transition Years could incorporate the school garden into a range of units; explore these opportunities with staff and students across the school

Mind Map Example - Primary

Fifth Class during Geography will make a food habitat map of the school and grounds which will then be displayed for the rest of the year groups to see.

Sixth Class as part of their History work will do a project on the Irish Famine and food biodiversity. They will learn about how the lack of diversity in food crops being grown contributed to the famine...

How much waste does our school generate based on the foods we eat?

Get a chance to try different foods

Spend more time outside working on the garden

Differences within food crops and how this effects food security

Learn the Irish words for different types of foods

Discover how wildlife and food effect each other

Food and Biodiversity

Find out more about how our food is packaged

Learn about the food we eat

Learn to grow our own food

During SESE Second Class will learn about pollinators and discover how they help some food crops to grow. During Art they could do drawing or painting showing the bumble bee lifecycle

Senior Infants during Irish will learn the Irish names for some of the crops planted in the school and make signs to go in the raised beds for the rest of the school to see

Fourth Class will conduct a survey on the food in their lunch boxes, the packaging and waste produced by each lunch and the most popular and unpopular food choices

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ACTION PLAN

Green-Schools Programme

Application Process

Before your school can apply for the renewal of its Green-Schools flag the following criteria must be completed:

- You are currently in at least your 2nd school year of working on your current theme;
- You have maintained the work for the previous themes;
- You have completed all 7 steps of the Green-Schools programme;
- You have completed an Environmental Review;
- You have a current Action Plan, with future targets;
- You have had at least one renewal visit.

All the above criteria must be completed before you apply for the renewal of your Green Flag. The Green-Schools renewal application form is available on the Green-Schools website www.greenschoolsireland.org

On the home page please select the 'Apply' tab, from here you will be able to locate the application form for your current theme. The forms must be submitted by the end of March, application forms received after this date will be processed the following school year.

Renewal Visit

To renew your flag, you will need to arrange a renewal visit at some point during the second year that you are working on your renewal theme. The visit can take place at any time before you submit your renewal application form by the end of March. The purpose of the visit is to allow An Taisce to see that you have an active Green-Schools programme in operation. You do not need to have completed every step before the renewal visit, however this will need to be achieved prior to submitting your application. During the renewal visit you will have the opportunity to show the assessor any documentation such as folders, newsletters, posters, photos etc. of work and achievements over the past two years.

To arrange your renewal visit, contact the Green-Schools Office or your Local Authority Environment section.

If you are successful with your application your school will receive:

- An invitation to attend a Green-Schools Award ceremony, where your school will be presented with a Green Flag and a certificate.

If you are not successful:

- Your school will be sent a letter which will provide details of the reasons for not awarding the flag on this occasion.

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Appendix 1 – Suggested Crops for Primary School Year Groups

	Junior	Middle	Senior
Clasess	Jr Infants-1st	2nd-4th	5th-6th
Crop Options	Potatoes, spring onions, peas	Carrots, radishes, strawberries	Lettuces, garlic
Harvest Workshop	Sorting workshop	Taste (Sapere)	Rice paper
Maths	Counting, sorting by size, adding and subtracting	Weighing, measuring	Making graphs/charts. Calculating distance needed between seeds. Using ratios to change recipes
SESE	How plants grow, what parts of the plant can we eat	Effects of weather, soil, pests on crop growth	Effects of weather, soil, pests on crop growth. how heat effects materials, how liquids interact with each other
Language	Increasing vocabulary with words for plant parts, making signage for garden	Learning and using different tasting and experiencing words. Recipe reading and following instructions	Deliver instructions/ presentations to younger classes on planting. Create and write out/ design their own recipes
Geography	Learning what parts of the world plants grow in	Creating Food Habitat Map, sketching, using scale	Food Habitat Mapping, using scale

For more information on how to work with these crops, see the 'Crop Cards', that will be emailed to you. You will also find the Crop Cards on the Green-Schools website, under the Global Citizenship Food and Biodiversity section. Decide which crops you will grow, then visit your local garden centre to get the seeds. There will be further information on how to grow and care for each of your chosen crops on the seed packets also.

Harvest Recipe Cards, will also be emailed to you, and are available on the Green-Schools website www. greenschoolsireland.org, under the Global Citizenship Food and Biodiversity section. These will show you ways that your selected crops can be made into a simple dish at school.

Appendix 2 – Suggested Crops for Secondary School Year Groups

The following crops are the ones that will fit into Secondary Schools' growing season, if started at the right time:

- Spring Onion
- Radish
- Rainbow and Swiss Chards
- All Lettuces and Salad Leaves
- Peas (for shoots only)
- Spinach

Crop Cards will be emailed to you, and are also available on the Green-Schools website, under the Global Citizenship Food and Biodiversity section. Decide which crops you will grow, then visit your local garden centre to get the seeds. There will be further information on how to grow and care for each of your chosen crops on the seed packets also.

Harvest Recipe Cards, will be emailed to you, and are available on the Green-Schools website www. greenschoolsireland.org, under the Global Citizenship Food and Biodiversity section. These will show you ways that your selected crops can be made into a simple dish at school.

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Green-Schools Programme

Green-Schools Planner: Year 1

	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1 Green School Committee	Elect new Green-Schools Committee	Continue to hold committee meetings throughout the school year. Meetings could be chaired by pupils and they can also keep the minutes								
2 Environmental Review		Complete Food and Biodiversity Awareness Survey	Complete Food Habitat Map							
3 Action Plan				Keep revising and updating your Action Plan during every meeting and change targets if necessary. Celebrate progress and successes!						
4 Monitoring and Evaluation						Complete Food and Biodiversity Awareness survey and Complete Food Habitat Map				
5 Curriculum Work					Prepare areas for growing crops	Plant seeds and care for crops indoors	Move crops outside as they are ready and care for outside			Harvest crops as they are ready. Prepare or cook harvest recipes
6 Informing and Involving	Update your Green-Schools Notice Board. Have a GC Food and Biodiversity Assembly to discuss the new theme			Publicise events and achievements in community or school newsletter and contact relevant media with good-news stories				Keep displaying your progress on the notice board. This motivates everybody to continue		
7 Green Code			Some schools run competitions amongst students to find the best Green Code; others develop slogans or songs to get their message across and ask each class to come up with a Green song							
Dates to Remember	International Awareness of Food Loss and Waste: September 29th	World Food Day: October 6th		World Soil Day: December 5th			World Wildlife Day: March 3rd		World Bee Day: May 20th. International Biodiversity Awareness Day: May 22nd	Sustainable Gastronomy Day: June 18th World Environment Day: June 5th

Green-Schools Programme

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Green-Schools Planner: Year 2

	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1 Green-School Committee	Re-elect the committee and restart meetings	Continue to hold committee meetings throughout the school year. Meetings could be chaired by students and they can also keep the minutes. (Rotate members and their roles throughout the year)								
2 Environmental Review										
3 Action Plan	Revisit your action plan. Do you need to add any new actions? Do targets need to be revised? Have any of your actions been completed?		Are you ready to renew the Flag? Organise a renewal visit & fill in the application form. www.greenschoolsireland.org/apply							
4 Monitoring and Evaluation					Complete second Food and Biodiversity Awareness survey and Complete second Food Habitat Map					
5 Curriculum Work		Investigate a Global Topic as a school, through project work, guest speakers, field trips etc			Prepare areas for growing crops	Plant seeds and care for crops indoors	Move crops outside as they are ready and care for outside		Harvest crops as they are ready. Prepare or cook harvest recipes	
6 Informing and Involving	Update your Green-Schools Notice Board. Have a GC Food and Biodiversity Assembly to discuss year 2 of the theme	Publicise events and achievements in community or school newsletter and contact relevant media with good-news stories					Keep displaying your progress on the notice board. This motivates everybody to continue			
7 Green Code	Raise awareness and publicise your Green-Code throughout the school								Flag-raising ceremony to celebrate the achievement of your GC Food and Biodiversity Green Flag!	
Dates to Remember	International Awareness of Food Loss and Waste: September 29th	World Food Day: October 6th	World Soil Day: December 5th				World Wildlife Day: March 3rd		World Bee Day: May 20th. International Biodiversity Awareness Day: May 22nd	Sustainable Gastronomy Day: June 18th World Environment Day: June 5th

The assessment visit can be at any time, submit the application before end of March

The final deadline for a renewal visit and submission of application forms is end of March, book your renewal visit early

Appendix A.2 Links to further GCFBT resources

Information and resources link
- https://greenschoolsireland.org/global-citizenship-food-and-biodiversity/#:~:text=The%20overall%20aim%20of%20the,food%20choices%2C%20that%20promote%20biodiversity
Teaching resources link - https://greenschoolsireland.org/resources/theme_category/global-citizenship-food-biodiversity/
Food and Biodiversity Week link - https://greenschoolsireland.org/food-and-biodiversity-week-2023/
Cooking skills videos link Global Citizenship Food and Biodiversity

Appendix B Consent Forms

Appendix B.1 Parent/Guardian Consent Form GCFBT

Dear Parent or Guardian,

Green-Schools is beginning a new flag initiative and this time we are focusing on food. The theme will explore how to grow, harvest and prepare your own food using organic means, whilst also investigating the impacts of the current food production system on the environment. Students will be assigned edible plants to grow, harvest, and eat, as well as exploring a range of topics such as: food waste, climate change. Schools will be guided and supported through this theme, which we hope will then go nationwide in future years. Successful implementation of the new theme will, as usual, result in the school receiving a Green Flag.

As part of the initiative and to help roll it out in the future Michelle Darmody, a student in TU Dublin, is doing research to see what impact the new Green Flag has on the students and the school. This is a letter asking you to participate by filling in an on-line update from the garden each week.

Thank you

- I…………………………………… voluntarily agree to allow my child ……………………………to participate in this research study.
- I understand that even if I agree that they can participate now, I can withdraw at any time or refuse to answer any question without any consequences of any kind.
- I have had the purpose and nature of the study explained to me in writing and I have had the opportunity to ask questions about the study.
- I understand that participation involves questionnaires, focus groups and workshops hosted within my child's school.
- I understand that I will not benefit directly from participating in this research.
- As legal guidelines require the researcher has been Garda vetted and has also participated in Child Protection Training.
- I understand that all information gained through this study will be treated confidentially.
- I understand that in any report on the results of this research my identity or my child's identity will remain anonymous. This will be done by changing names and disguising any details which may reveal your identity or the identity of people they speak about.
- I understand that anonymised answers given may be quoted in the researcher's final PhD thesis or in papers for academic conferences which may result from the research.
- I understand that if a child informs a researcher that I or someone else is at risk of harm it may have to be reported to the relevant authorities.
- I understand that signed consent forms will be retained in a locked filing cabinet in the research supervisor's office in TU Dublin and will be retained until the exam board confirms the results of the PhD dissertation.
- The research will continue until May 2022 and information provided might be used in a future arm of the research, I may be asked to consent again for these aspects.
- I understand that under freedom of information legalisation I am entitled to access the information I have provided at any time while it is in storage as specified above.
- I understand that I am free to contact any of the people involved in the research to seek further clarification and information.

--- Signature of parent/guardian

Date

I believe the participant is giving informed consent to participate in this study

--- Signature of researcher

Date

Name: Michelle Darmody | Contact: D17128783@mydit.ie | Supervisor: Máirtín Mac Con Iomaire

My name is Michelle Darmody. I have worked in bakeries and restaurants and taught cooking classes. I also write about food every week for a newspaper.

At the moment I am studying to see if we should have more food education in Irish schools. A research study is a way to learn more about people. I want to carry out research to see if students learn about food and nature when they are doing projects for the new Green Flag. I will be asking you a list of questions. These questions will be, among other things, about food, your diet and what foods you like and do not like. We will also be doing food activities during class like growing vegetables and cooking.

What the result be?

I think the benefits of the study will be getting more education about food in schools. The study will hopefully benefit future school children. When I am finished with this study, I will write a report about what I have learned. This report will not include your name or that you were in the study. Your parents know about the study. You do not have to be in this study if you do not want to be and if you decide to stop after we begin, that's okay too.

If you decide you want to be in this study, please tick the box.

Consent form for expert focus group January 22ⁿᵈ 2019

Why we are here – Today is a day of action that brings together people and organisations that want to put sustained, ongoing food education on the school curriculum. The group meeting is being conducted as part of a PhD. by Michelle Darmody. This research is exploring what we mean by 'putting food on the curriculum' and what this might entail.

- I.. voluntarily agree to participate in today's group meeting.
- I understand that even if I agree to participate I can withdraw my consent at any time without consequences of any kind.
- I have had the purpose and nature of the study explained to me and I have had the opportunity to ask questions about the study.
- I understand that participation involves a number of round table discussions.
- I am aware that aspects of the day will be recorded.
- I understand that extracts from my participation may be used anonymously in the researcher's final PhD thesis or in papers for academic conferences which may result from the research.
- All aspects of the research data will be stored on a password protected hard drive.
- I understand that under freedom of information legalisation I am entitled to access the information I have provided at any time while it is in storage as specified above.
- I understand that I am free to contact the researcher to seek further clarification and information.

-- Signature of expert

Date 22.01.19

I believe the participant is giving informed consent to participate in this study

-- Signature of researcher

Date 22.01.19

Researcher: Michelle Darmody Email: d17128783@mydit.ie Supervisor: Dr. Mairtin Mac Con Iomaire

Dear Participant,

   Thank you for taking the time to attend today's workshop. It is part of an overall PhD research

project which looks at ways of increasing food education in Irish primary school classrooms. The aim

of the workshop is to learn if developing and implementing aspects of food education would be

beneficial to students.

   A further part of the PhD research project involved the creation of a two-year educational

programme, entitled Green-Schools Food and Biodiversity Theme. The programme was designed in

direct consultation with the children and teachers in eight pilot schools. It presents a broad food-

based subject that combines growing, tasting, eating and critical thinking about the global food

system, as well as skills-based classes. Circular food education is the term used throughout the

research for this expansive approach to food.

   This workshop will explore ways in which teachers can be agentic within their own classrooms and

use food as a tool to deliver the existing curriculum and to meet learning outcomes. Creating an

interactive workshop, that will lead to new perceptions, considerations and ideas, will allow both the

researcher and educators to understand how the implementation of food education might happen,

and to see what support is needed from the whole-school, and wider government entities to allow

food to become a tool for teaching.

Thank you

Michelle Darmody
PhD researcher
Technological University Dublin
D17128783@mytudublin.ie

Supervisor: Dr. Máirtín Mac Con Iomaire

- I.. voluntarily agree to participate in this research study.
- I understand that even if I agree that they can participate now, I can withdraw at any time or refuse to answer any question without any consequences of any kind.
- I have had the purpose and nature of the study explained to me in writing and I have had the opportunity to ask questions about the study.
- I understand that participation involves participation in a three-hour workshop which will be audio recorded.
- I understand that I will not benefit directly from participating in this research.
- As legal guidelines require the researcher has been Garda vetted.
- I understand that all information gained through this study will be treated confidentially.
- I understand that in any report on the results of this research my identity will remain anonymous. This will be done by changing names and disguising any details which may reveal your identity or the identity of people you speak about.
- I understand that anonymised answers given may be quoted in the researcher's final PhD thesis or in papers for academic conferences which may result from the research.
- I understand that if I inform a researcher that I or someone else is at risk of harm it may have to be reported to the relevant authorities.
- I understand that signed consent forms will be scanned and emailed to the research supervisor in TU Dublin where they will be kept in a password protected folder and will be retained until the exam board confirms the results of the PhD dissertation.
- The research will continue until December 2022 and information provided might be used in a future arm of the research, I may be asked to consent again for these aspects.
- I understand that under freedom of information legalisation I am entitled to access the information I have provided at any time while it is in storage as specified above.
- I understand that I am free to contact any of the people involved in the research to seek further clarification and information.

-- Signature of participant

Date

I believe the participant is giving informed consent to participate in this study

-- Signature of researcher

Date

Michelle Darmody

D17128783@mytudublin.ie

Appendix C Examples of Worksheets from the SCKS

Appendix C.1 Examples of Worksheets Session 1

Appendix C.4 Examples of End of Day Worksheets

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policy change

policy/ standard guidelines/ clearer messaging/ contradicting policies/ mixed messaging/ marketing targeting children/ inconsistent policies / lack of structure and guidance / access to government departments/ contradictions in schools / access to food / marketing/ approach a minister and lobby / cross department / multi stake holder forum / compile report/ long game / forum/ school meals/ what role has each Department / changing governments/ cross agency engagement and responsibility/ set up forum/ forum, lobby group/ change mindset and views/ education system/ copy creative Ireland/ simple manifesto/ votes, public good/ consolidating purpose/ engage partners and define roles, politicians, NGO'S, private business, academia, media, public/ fragmented approach

link with existing food education

link with existing curriculum/ working with the system/ scope within SPHE and wellbeing/ cooking home ec made mandatory/ integration across the curriculum/ look at PE as a model / food opportunities in 2nd level HE, SPHE, Science / link with short courses JC optional short/ sport/ promote uptake of 'Healthy Food Made Easy' / look at existing examples of successful implementation / other jurisdictions / repository of resources / not enough emphasis within the curriculum/ many different projects/ feed into existing NCCA changes / map all existing courses where food and diet are involved / find influence in NCCA

teacher training

teacher agency/teacher confidence/ make it easy for teachers/ better resources/ initial support/ funding teachers / time available to teachers/ resources and facilities/ lack of structure and guidance/ teachers too bound by text/ teacher's knowledge, enthusiasm, time a barrier/ build knowledge and skills/ lack of skills/ teachable moment/ teacher training/ teachers unions / teacher support and by-in/ engaging teachers/ teacher training and support/ CPD priority pilot system/ funding needed for substitute teachers, attend training

whole school

across the school/ mindset change/ curriculum change not enough/ continuation of learning/ cross curricular/ can't be optional/ use food as a tool to teach not a topic/ whole school approach/ made a priority - valued/ change culture/ school environments not supportive of healthy eating options / food education embedded / cultural / broad curriculum / health literacy low on the agenda / holistic view of food / develop a food centric culture/ integration across the curriculum / across the curriculum / school leaders/ not enough emphasis within the curriculum / school provide the learning experience / food on the curriculum/ cross curricular from early childhood to 3rd level/ principals / change mindset and views/ fragmented approach/ school reflecting society/ long term learning/ cross cultural learning/ giving children control over what they eat

content

how it is thought is important / need to experience food production/ need for practical education and skills/ food is good/ enjoyable/ our food culture / difficult to understand marketing - labelling/ life skills/ ability to know what stage each skill / skills competency/ mult sensory/ new experiences/ learning outdoors / link to physical activities/ mental health benefits / enable children make good choices (understand what a good choice is) / see through marketing decoding marketing/ address all of the ke skills, choice, higher order learning, critic thinking / develop confidence and patience/ interactive tactile / wider care respect environment/ food system/ human rights / not enough support for skills development / enjoy food / health relationship with food / respect produce / make interesting/ awareness of 'big business' hijack/ waste/ environment/ growing, cooking, processing, eating/ agriculture/ develop a passion for food/ create intent

school environment

no time to eat / across the school/ mindset change/ not enough time allocated to eating/ no time for eating in the school day / marketing targeting children/ schools need kitchens/ infrastructure/ resources and facilities / limited facilities for practical resources / space and money effects resources /outdoor classrooms needed/ move away from poor food habits / school environment and community / school meals

home

link with home / home environment / balance of home and school/ home and society/ parents / parents' classes / home v school balance and responsibility/ family cultural barrier/ family education/ family budget/ generation gap/ connect education with home and real life/ extend to home / link parent, child, teacher/ family engagement/ parents and families

health discourse

binary view healthy -unhealthy/ more than a nutritional perspective/ move away from good food - bad food/ linking food, body, health/ focus too specific on nutrition/ healthy relationship with food/ health and wellbeing budget/ food and diet already highlighted/ effects on body/ decisions based on more than I like it, I don't like it/ health literacy low on the agenda

assessment

assessed/ markable/ exam focus/ exam based / look at PE as a model / credits for achievements, feeding, growing, learning / evaluation

age

pe school and primary/ start young/ develop taste from a young age/ more lightly to try new foods / preschool opportunities to learn and fail

other catagories

media partners / media/ social media / Darina Allen, Nevin McGuire/ celebrities

social norms reinforced/ socioeconomic status makes it not a priority

outcomes/ agree what the need is / identify outcomes and aims

academia/ lack of evidence

some love food, some ignore it (but are a least educated)

learning tool / missed opportunity to mak this a learning experience / increased sel esteem, pride, sense of achievement / positive opportunity/ food apathy/ food empathy/ lack of connection

Food in Schools

A day of creative action exploring how food education, environments and services in schools can be improved.

March 2019

Overview

A healthy **whole school** approach to food is critical in equipping children to make healthy, sustainable food choices throughout their lives. This will provide brighter futures and improve outcomes for children and young people from all societal groups in Ireland.

In February 2019 a **creative workshop** was held which brought together people and organisations who see a real need to improve the lives and health of children and want to see **sustained, ongoing food education** in schools in Ireland. This facilitated workshop engaged participants in individual and group exercises and focused the group on what they wanted to achieve, enabled them to explore and understand what's possible, and identified the next steps for action.

The priority action which emerged was the need to establish a whole-of-society initiative, led by government. This would comprise a cross department advisory group and a **multi-sector stakeholder forum** with the ultimate goal of improving food education, environments, and services in schools.

This document presents an overview of the **common purpose, priorities**, and **themes** which emerged from the group during the workshop, as well as the aims and objectives of the Forum.

2

Who We Are

This day of creative action was led by:

Michelle Darmody, a food journalist and food business owner, and a member of the Irish Food Writers Guild. Michelle is being funded by Technological University Dublin to research food literacy in Ireland.

Michael Kelly, the founder of GIY, a food writer and presenter of GROW COOK EAT on RTE 1.

They are both passionate about sustained food education and hosted this initial workshop which took place in TU Dublin in February.

Over 45 people attended and shared their views on food in schools. They included representatives from Government Departments and cross-governmental initiatives across health and educational spheres, and those with professional and personal interests in health, nutrition, education, environment, and in growing, cooking, and eating food.

3

Who We Are

The **organisations represented** at the workshop underpinned the whole-of-society approach required to create a healthy and sustainable approach to food in schools, and included:

- Department of Education and Skills
- Department of Health
- Department of Social Protection
- Department of Agriculture
- Healthy Ireland
- Creative Ireland
- HSE
- Teagasc
- An Taisce
- Bord Bia
- Safefood
- The Irish Nutrition & Dietetic Institute
- Irish Heart Foundation
- Fáilte Ireland (Food Champion Initiative)

- St. Angela's College
- Professional Development Services for Teachers
- Education's Lacking Let's Get Cracking
- School principals and teachers
- National Council for Curriculum Assessment
- Technological University Dublin
- Queens University Belfast
- NUI Galway
- Daire Project
- GIY
- Warrenmount School Canteen
- Ballymaloe Cookery School
- Slow Food
- Chef Network
- Irish Food Writers Guild
- Food on the Edge
- egg and chicken
- Euro-toques
- Airfield Estate
- Agriaware
- Friends of the Earth
- Institute for Global Food Security

4

What is a healthy 'whole school' approach to food?

A whole school approach is taken to mean the provision of a **holistic food education** that equips children to make delicious and nutritious food choices throughout life. It involves an education that is **sustained** and that encompasses an appreciation for the value of food **culture**, food **growing** and **cooking,** and teaches life **skills**, as well as providing the **nutritional** knowledge about how food impacts bodies, health and wellbeing.

In addition to this, it also considers the cultivation of a **food environment** that takes into account waste, vending machines, healthy eating plans within schools and healthy options near schools (e.g. no fry zones), and the quality and provision of **food services** within schools through the procurement of sustainable and healthy meals.

Food in Schools

Education — Ideas / Public Engagement

School Environment — No Fry Zones, Vending, Food Waste

Procurement — DEIS lunch, Gov Funded Food Initiviatves
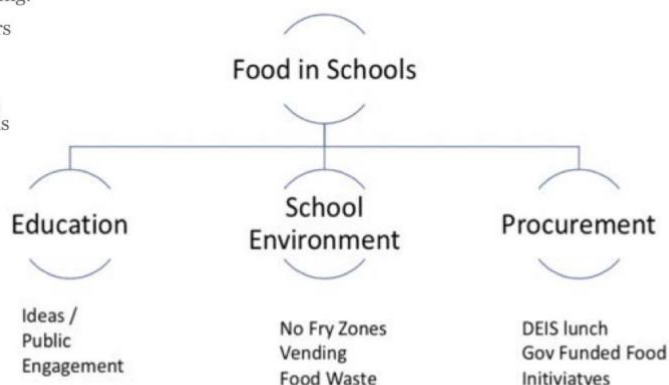
5

Aims

Following the creative workshop we are looking to engage a **Ministerial champion** and **lead Department** to help us create this whole school approach to providing holistic and healthy food within schools by:

1. Developing food education that equips children to make delicious and nutritious food choices throughout life.

2. Providing a healthy food environments in schools.

3. Leading the way on implementing sustainable food procurement and services in schools.

Specifically, we are interested in replicating the model being used by government for achieving the Sustainable Development Goals. i.e. a whole of government approach comprising an intergovernmental working group and multi-agency stakeholder forum.

*Work from the local Educate Together's 6th class was presented at the workshop*

6
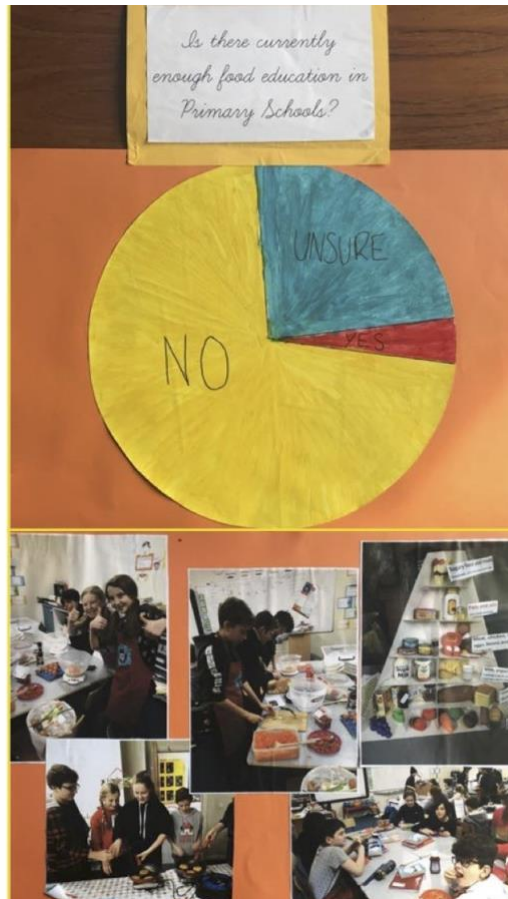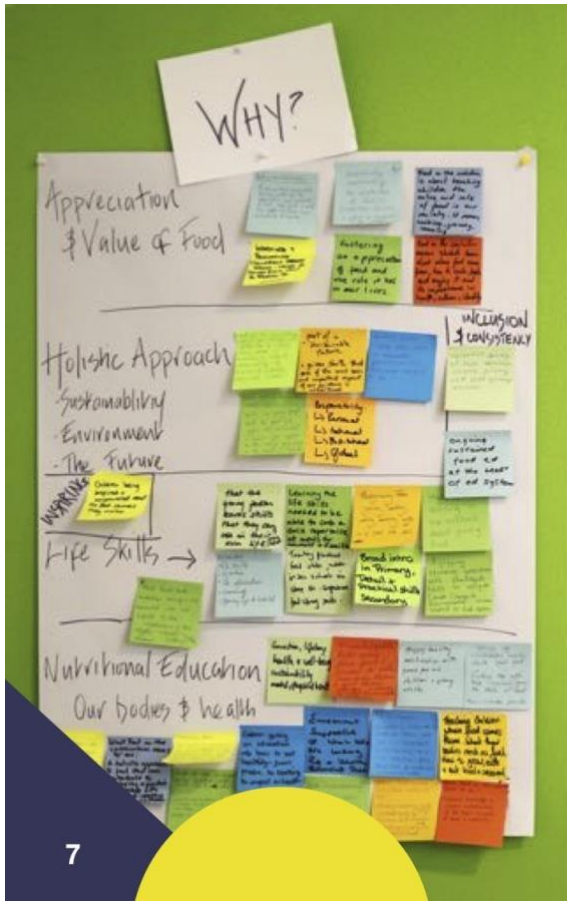
Forum Objectives

The Forum will be an **action-oriented, multi-stakeholder partnership** that would feed back to the an intergovernmental working group. Common priorities which emerged from the workshop included:

- Developing a **vision statement** for food in schools in Ireland.

- **Engaging with government** to help create the political will for change.

- Providing a mechanism for **key stakeholders** to engage on an ongoing basis in the national implementation of the vision.

- Creating a **list of recommendations** to hand over to inter Departmental working group.

- **Mapping the existing landscape** – identifying best practice projects for replication, scaling and inspiration.

- Creating **public awareness** and momentum to support the vision and engage with the work of the forum.

- Monitoring and **evaluating implementation** as well as supply strategic leadership and guidance schools.

7
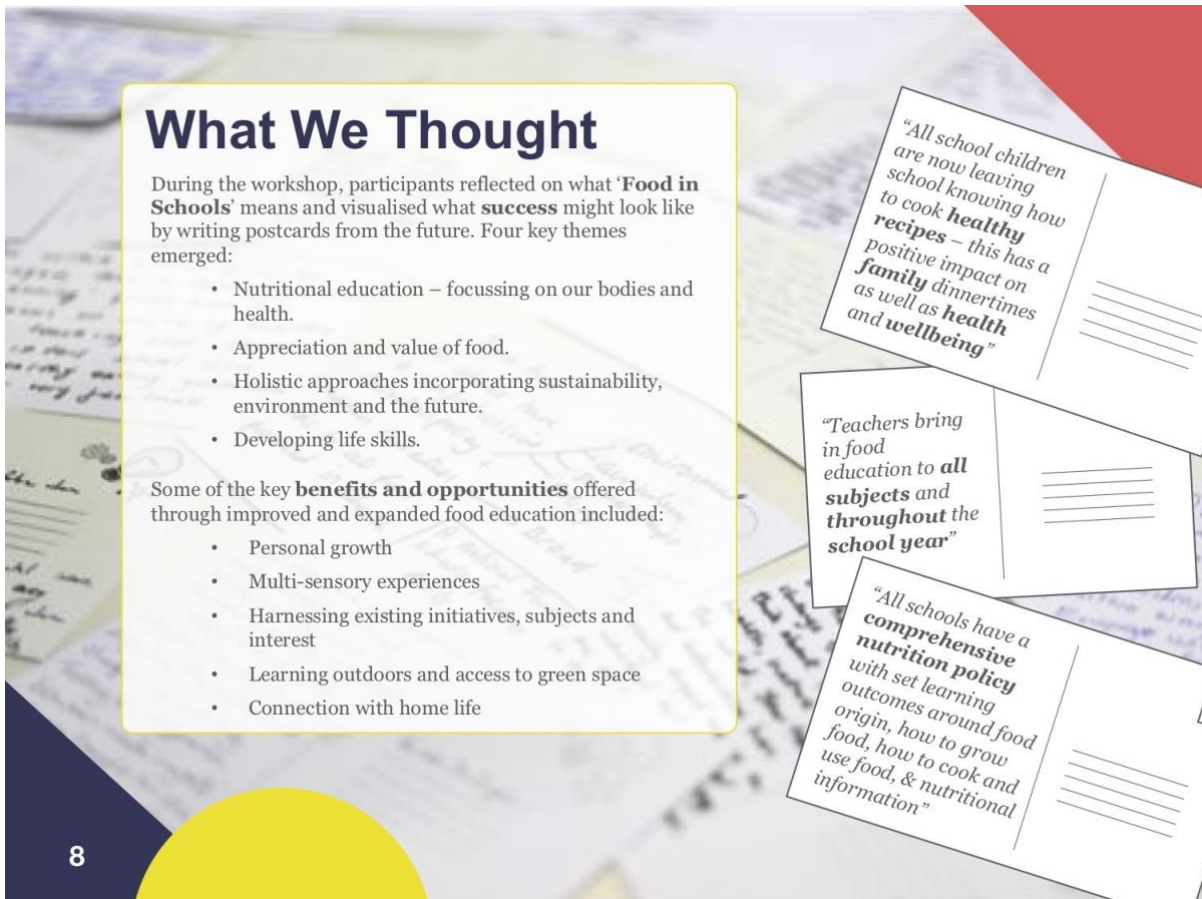
What We Thought

During the workshop, participants reflected on what '**Food in Schools**' means and visualised what **success** might look like by writing postcards from the future. Four key themes emerged:

- Nutritional education – focussing on our bodies and health.
- Appreciation and value of food.
- Holistic approaches incorporating sustainability, environment and the future.
- Developing life skills.

Some of the key **benefits and opportunities** offered through improved and expanded food education included:

- Personal growth
- Multi-sensory experiences
- Harnessing existing initiatives, subjects and interest
- Learning outdoors and access to green space
- Connection with home life

"All school children are now leaving school knowing how to cook healthy recipes – this has a positive impact on family dinnertimes as well as health and wellbeing"

"Teachers bring in food education to all subjects and throughout the school year"

"All schools have a comprehensive nutrition policy with set learning outcomes around food origin, how to grow food, how to cook and use food, & nutritional information"

8

Current school subjects should be expanded to incorporate food literacy and knowledge

DISAGREE AGREE

Participants used stickers to indicate where their opinion fell on a spectrum.

Putting food on the curriculum is the best way to improve the heal and wellbeing of Irish children

DISAGREE AGREE

Place stickers beside the 3 areas you feel are the most important:

A subject about food needs to contain an in-depth understanding of:

Environmental concerns
A healthy diet
Growing vegetables
Provenance of food & seasonality
Critical-thinking skills
Cooking skills
New tastes
Sharing food together at a table

They voted on the areas they felt were most important.

9

Next Steps

A number of priority steps for action were agreed upon at the workshop, including:

- Collating the feedback from the workshop into a summary document.

- Making an approach to appropriate Government Departments with a view to acting as lead Department and champion to implement the recommendations agreed.

- Identifying and building on the success of existing food education projects.

Participants began the process of harnessing school projects that work well around the country by mapping the projects they are involved with or know about. A **survey** has been created to collect further details of food projects and will be the first step in mapping the existing landscape. This will scale up the evidence base and feed into the development of a mission statement.

The survey can be completed here and anyone interested is urged to contribute information on projects they are involved with, working on, or know about. Once this is correlated it will be circulated back to the group.

Summarising the key conversation points and ideas for action

10
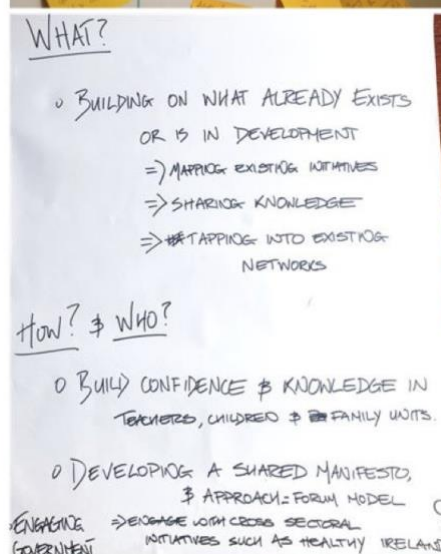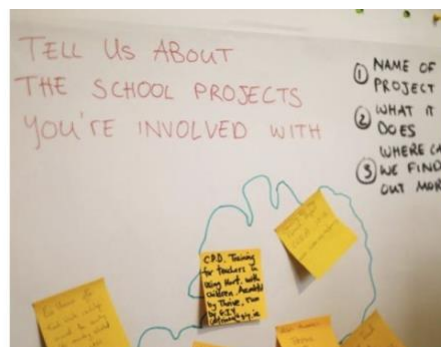
Attended By:

Minister for Education and Skills Joe McHugh T.D. Special Advisor to the Minister for Education and Skills Ed Carty and from the Department of Education and Skills curriculum development section Ronan Kielt, Michelle Darmody, Michael Kelly GIY and facilitated by Eve Anne Cullinan M.CO.

Purpose of Meeting:

To inform the Minister about the outcome of a scoping consultation with key stakeholders about food and the school curriculum.

Summary of minutes:

The Minister is supportive of the idea of an increased focus on food within Irish schools. The Ministerial group welcomed the call to action from the stakeholders.

Food literacy and education is a topical issue and has been a matter of discussion internally in the Department in the context of other developments such as in Physical Education and Well-being.

The Minister stated that he believes that embedding food education in schools is important and is the right thing to do for children to learn essential life skills and improve their well-being. He was open to facilitate the process of developing a shared understanding of why Food Education matters, and what it means in policy and practice in schools.

The Minister can see an opportunity for schoolchildren to be empowered to take positive action about climate change through new knowledge, skills and behaviours around food.

Some complexity in how a shared understanding and mechanism could be realised
The approach to devising a shared understanding and adoption of embedded food education in schools would need to be sensitive to the potential for initiative overload for teachers and potential complexity of 'weaving in food' and respect the pace of change.

A review of what already exists, and what the future looks like would be considered in consultation with all stakeholders, encourage use of resources and individualistic approach.

Next Steps

Minister is keen to take a leadership position on this with the stakeholders and in the public domain. The idea has synergy with Physical Education, Nutrition and Well-being current developments, and aligns well with the Sustainable Development Goals.

Minister will consider further the suggestion of a Stakeholder Forum to be convened by the Department to develop a shared understanding and action plan, and the logistics re timing whether this would be progressed in 2020.

Attendees to note key points of meeting and liaise directly with Ed Carty, the Minister's advisor on the next steps.

Appendix F Examples of Workshop planning for GCFBT

Appendix F.1 Planning of Seed Workshop

Workshop Outline		
Date		
School		
Class		
Class teacher		
Title **SEEDS**		
Prepare		
Collect a large variety of different seeds Small plant pots Compost Seeds		
Workshop order		
Visit to school garden - discussion with children, weeding, time of year observations, what food they are going to plant this year, how many varieties of plants and food on school grounds Return to classroom - Examine different seeds brought by researcher; eg. apple pips, avocado stone, tomato seeds in the jelly from inside the tomato – feedback from students on what they already know about seeds, links to the garden, links to foods that they eat Talk about the abundant variety of seeds and how they germinate and then spread; wind, animal, humans – feedback from students about what they already understand and know Students draw plan what they are going to grow throughout the coming year Demonstrate to students how to plant their chosen seed in the pot – ask X number of students to be peer instructors and to help others complete the task. Water and find a safe place for the seeds within school/classroom Discuss how to nurture and care for the seed until it needs replanting		
Participatory feedback from students	*asked what went well* *what enjoyed doing* *what could change*	
Observation notes taken and reflective journal after the workshop		
Images		

Workshop Outline	
Date	
School	
Class	
Class teacher	
Title **TASTING**	
Prepare	
Print out images of senses (see Appendix G copy in Recipe Booklet) Print out worksheet of tasting vocabulary for students Collect a variety of different vegetables and herbs from the school garden Some back-up vegetables of varying textures and tastes Discussion about any potential allergies with class teacher	
Workshop order	
Visit to school garden - discussion with children about what to pick, look around the garden and chat about the changes and the progress that has been made, and what they enjoy the most about the use of the garden Return to classroom - Children and researcher wash and prepare the foods for tasting Examine different the foods on display with their hands - children note down the feel of the food Examine different the foods on display with their eyes - children note down the colour and any other visual aspects of the food Examine different the foods on display with their ears - children note down if the food has a smell, when herbs are pressed between fingers for example, when a strawberry is rubbed ... Examine different the foods on display with their ears - children note down if the food makes a sound when popped or snaped Examine different the foods on display by taste - if the children are comfortable to do so they can taste the foods Children write a list of words to describe the foods and their experience, and these are displayed on the board and discussed – encouraging expanded vocabulary Participatory feedback session with children after the workshop	

Participatory feedback from students	*asked what went well* *what enjoyed doing* *what could change*	
Observation notes taken on children's participation and feedback and reflective journal after the workshop		
Images taken		

Workshop Outline	
Date	
School	
Class	
Class teacher	

Title **KITCHEN** (before chefs were engaged in the programme)	
Prepare	

Talk with the schools about what is available in the garden before the planned day

Ask the children to pick a recipe from the Green-Schools recipe booklet created for the GCFBT that works well with what they have grown

Note down what skills are needed for this – for example using a grater, peeler

Buy the ingredients necessary

Bring the necessary equipment (before cooking kits were provided)

Bring print outs of the recipe

Check with the teacher about allergies or any possible health and safety concerns

Workshop order	

Visit to school garden - discussion with children about what to pick for the cooking workshop

Researcher and children return to the classroom/cooking area wash and prepare the vegetables, salad or herbs from the garden

The researcher with added supervision from the class teacher, any SNAs in the class, and a Green-Schools staff member first demonstrates the skills and steps for the chosen recipe.

The class is broken into groups. The researcher further demonstrates to at least one student from each group. This student then shows their peers how to complete the skill and whatever tasks are involved in the preparation – under supervision from the researcher, the class teacher, any SNAs in the class, and a Green-Schools staff member

The recipe is completed, and children taste if they would like to and sit and eat before giving feedback.

Participatory feedback from students	*asked what went well* *what enjoyed doing* *what could change*	

Observation notes taken on children's participation and feedback and reflective journal after the workshop	
Images taken	

Workshop Outline	
Date	
School	
Class	
Class teacher	
Title **SOIL**	
Prepare	
Bring scientific soil testing kits Flat trays and small shovels Sticks for framing a small section of ground Printouts of soil health information Printout of the sheet children fill in about their own soil's health	
Workshop order	
Visit to school garden - discussion with children about location and the amount of light the garden gets, what vegetables and fruit will grow best Measure out a section of soil with sticks and ask the children to examine is closely, one child in the group noting down what is growing, what is crawling around, different types of stones etc Ask the children to scoop some soil onto the flat trays and count the worms and other insects with the soil Ask the groups to test the texture of soil by squeezing some moist (but not too wet) soil in the palm of your hand. If it holds its shape, it is sticky soil with a lot of clay. If it just falls apart in your hand it is grainy, sandy soil that water can run easily through. Use the scientific testing kit to see what Ph etc the soil is asking children to record all of the information. Ask the children to suggest ways to improve their soil from the information they have gathered	

Participatory feedback from students	*asked what went well* *what enjoyed doing* *what could change*	

Observation notes taken on children's participation and feedback and reflective journal after the workshop	
Images taken	

Workshop Outline	
Date	
School	
Class	
Class teacher	

Title HABITAT MAPPING

Prepare	

Ask school in advance for any maps of the school and grounds – fire maps are useful
Print out copies of the map
Print our worksheets (see Figure 4.20 and Figure 4.21)

Workshop order	

Explain the workshop to the students in the classroom and ask their feedback or suggestions before beginning

Walk around school grounds- children taking notes of the edible garden (if the school is still in the process of starting one – where the most suitable location would be)
What wild foods are on the school grounds
A note on biodiversity within the grounds, evidence of insects, different varieties of plants etc

Walk around the school interior and examine where food is served, where it is delivered too, if there is a place to buy food on the grounds, are their water fountains that students can access. Children take notes in their copy book and sketch anything of interest to them.

Return to the classroom and divide the students into groups. Each group fills in one of the blank maps provided – if no map is available students draw a map of their school. Students populate the map with what the found on their walk. Make drawings add notes to the map.

Follow on – the teacher asked the class to come together and make one big map combining the information and this is displayed to other students within the school.

Participatory feedback from students	*asked what went well* *what enjoyed doing* *what could change*	
Observation notes taken on children's participation and feedback and reflective journal after the workshop		
Images taken		

Cooking with Green Schools

Green-Schools
An Taisce

Cooking in Class: Try some of our specially designed recipes in your classroom or at home. Each recipe is linked with one of the crops from your school garden. Check out our skills section before you start cooking and learn the basics you will need to complete the recipes.

Table of Contents

Quantities and Equipment

Recipe Quantities: The quantities (amounts) given in our recipes are based on a group of 4-5 students cooking the recipe together as a group. There should be enough for each student in that group to have a substantial portion of the recipe they have prepared.

Cooking equipment: The recipes can all be carried out using equipment your school has been offered in our cooking kit. Note we have not included serving plates. Each student should bring their own along. They may also need to bring tea towels and aprons. See pages 23 and 24 for equipment list.

Adapting and Exceptions

Quantities: You do not need to adjust the recipe quantity if there are one or two fewer or greater students working per group. These amounts are also suitable for a student to use if they are taking the recipe home to try with their family.

Class Size: When preparing to cook a recipe with the class decide in advance how many groups you will have. Then scale up your recipe accordingly if the teacher is bringing in all ingredients. So if you will have 5 groups you will need 5 times the amount of each ingredient in the recipe.

Not working in groups: It is advised that you cook in groups unless you have a very small class or are in a secondary school AND have additional equipment. It is difficult to monitor students if they are all working independently. However if you wish to have each student prepare their own dish you can scale down the recipe by dividing each ingredient by 5

Exceptions: When carrying out work on the hob or in the oven it is generally easier to nominate one group or person to do this for the class and make one large batch that can be shared. Preparation steps can still be carried out in groups. This is explained further with regard to quantities in each recipe (see text in orange). Read hob based recipes closely in advance so you can plan group size and amounts needed before you begin.

Equipment use: You should have access to almost all equipment needed for these recipes via our cooking kit. Extra equipment needed is highlighted in orange text in each recipe. The quantities of equipment provided is based on a maximum of 6 groups working at once. There are a few items like the food blender, frying pan and pot which there is only one of. Advice is given in each recipe on working around this. Cross check your equipment, recipe and number of groups before you begin.

Cooking Skills

There are a few basic skills you will use in lots of different recipes. Before you begin cooking try and master these techniques so you can cook safely and well. Click the underlined names of the skills to be brought to a video demonstration. Don't worry if it is hard at first! Remember practice makes perfect!

Skill	Description	Picture
Bridge Hold Chopping	To chop vegetables into halves or quarters make a bridge with your fingers over the item. Place your thumb on one side and other fingers on the other. Chop through the middle of the "bridge".	
Claw Grip Chopping	To slice vegetables whilst keeping your fingers away from the knife. Use your weak hand to hold the vegetable steady as you chop. Place vegetable on flattest side. Make a "claw grip" as you hold with your fingers tucked in. Slide back as your continue to chop.	
Grating	Place your grater on a chopping board. Hold the top handle with your weak hand. Hold the food item in your strong hand and move the food item from top to bottom of the grater keeping your fingers away from the grater. Move slowly to avoid catching your fingers.	
Peeling	Hold the peeler in your strong hand. If peeling a long item like a carrot or parsnip hold the top half and peel the bottom half by moving the peeler downwards away from your hand. Then turn over and do the top half. If peeling a round item like an apple, place your thumb on one side and one finger on the other and rotate around as you peel.	
Sautéing	Turn the heat up to high on the hob. Add oil to the frying pan and allow to heat for about 15 mins. Add your vegetable and cook whilst stirring, Turn down the heat if it beings to stick or burn. Different vegetables will take different times to cook.	

Tasting Workshop

Give students a variety of fresh foods to explore using all of their senses following the steps below. Allow them to discuss the food based on each sense using descriptive words. Aim to build their vocabulary and avoid words like "nice" or "horrible". Note these words beside the corresponding sense on the activity sheet on the next page or on scrap paper.

This session is a great way to begin cooking in the classroom as it encourages students to try foods they may be unfamiliar with. It is also a good opportunity to try some basic skills like chopping or peeling before you being working on a recipe.

Take time to allow students to explore how each food item looks, feels, smells, tastes and sounds.

Foods to try: Onions, garlic, lemon, lime, strawberry, apple, carrots, mint, basil, coriander, thyme or any other herbs.

If possible have a selection of foods from the school garden. Supplement with fresh, shop bought produce if needed. Aim for foods which represent different flavours, textures etc.

Sight: Place the food items one at a time on each group's/student's table and allow them time to come up with and write down words to describe how it looks. Prompt language such as colour, shape, visible textures etc. Ask if they make any assumptions about how it tastes, feels etc.

Possible extension: Allow each student to choose one item to draw/paint etc.

Touch: Allow students to touch the object and describe how it feels. Write down words that come to mind. Does it feel as they expected?

Possible extension: Try it blindfolded. Can they identify the object? Does it change the descriptive words used?

Smell: Chop the food items into smaller chunks. Have the students smell each food item and discuss what they notice. Do any students connect the smell with a sense of taste?

Taste: Carefully chew and taste each different item. Describe how it tastes. Is it what was expected? What connections can be made with the previous senses discovered?

Possible extension: Try chewing carefully with your nose pinched for 15 seconds, then release your nose. Is there a difference in the flavours when your nose is blocked/unblocked?

Sound: Try another bite and this time focus on how it sounds when chewing or eating. Is it loud or quiet? How does this connect with the textures?

After you have completed each sense exploration put all the descriptive words from different student's sheets together on the board and discuss how they found the exercise, what foods surprised them etc.

Workshop Activity Sheet

Food Item:

Student Name(s):

Write in the words you would use to describe the food you are examining based on each of your senses beside the correct symbol

375

Radish Bruschetta

From the Garden:
Radishes & Herbs

Hob Needed?
No

Ingredients

2 Slices
Crusty Bread

2
Radishes

1
Tomato

1 tea spoon
Honey

1 clove
Garlic

1 handful
Parsley, thyme and chives

Pinch
Salt and Pepper

Instructions

1:
Cut the garlic in half and rub over each slice of bread.

2:
Wash your radishes and remove green leaves. Thinly slice the radishes. Roughly chop your herbs

3.
Cut up your tomatoes into small pieces using bridge hold chopping technique. Mix with radishes in bowl.

4.
Stir in the honey, salt and pepper and mix well.

5.
Spoon this mixture over the slices of bread and enjoy!

You will need

Chopping Board

Chopping Knife

Mixing Bowl

Teaspoon

Large or Wooden Spoon

Cooking Skills Needed

Steps 1&2: Claw Grip Chopping   Step 3: Bridge Hold

7

Strawberry Salad

From the Garden:
Strawberries,
Herbs and Lettuce

Hob Needed?
No

Ingredients

2 Handfuls
Strawberries

Sprig
Parsley, Oregano, Mint

1
Clove of garlic

1
Carrot

2
Spring Onions

Large Handful
Lettuce Leaves

Squeeze
Lemon juice

2 Dessert Spoons
Soya Sauce

2 Dessert Spoons
Sesame Oil

2 Dessert Spoons
Honey

Instructions

1:
Peel and remove skin of carrot. Peel carrot into strips
and place in large bowl.

2:
Wash the strawberries, herbs, spring onions and lettuce.
Chop the strawberries and spring onions thinly. Tear or
chop the herbs and lettuce into strips. Add to the bowl
with carrots and mix together.

3.
Cut the lemon in half and squeeze 2 Dessert Spoons of
the juice into a bowl or jug. Add the soy sauce, sesame
oil and honey. Mix together.

4.
Peel and crush or slice the garlic. Add to the sauce. Pour
mixture over salad and toss together. Enjoy!

You will need

Chopping Board

Chopping Knife

Peeler

1 large bowl and one small bowl or jug

Desert Spoon

Garlic Crusher

Serving container and fork per student

Cooking Skills Needed

Step 1: Peeling

Steps 2: Claw Grip Chopping

Step 3: Bridge Hold Chop

8

Rice Paper Rolls

From the Garden:
Lettuce
Carrots and Herbs

Hob Needed?
Yes or Kettle

Ingredients

50g
Thin, rice noodles

8
Lettuce Leaves

1 bunch
Mint

1 bunch
Coriander

2
Medium carrots

5
Rice paper rolls

2 Dessert Spoons
Soy sauce

3 tsp
Sesame Oil

1 tsp
Honey

1
Clove of garlic (optional)

Instructions

1:
Soak the rice noodles for 15 minutes in a pot of water that has been boiled using the hob or kettle. You do not need to keep the pot on the hob. Drain and set aside.

2.
Wash and chop the mint and coriander. Peel the carrots into strips (discard skin). Shred the lettuce into pieces.

3.
Heat water in a kettle or hob. Pour into bowl. Dip rice paper into water for 10-15 seconds moving it around until it is soft all over then place on a tea towel to dry.

4.
Place one roll on a chopping board and add some lettuce, carrots, mint, coriander and rice noodles.

5.
Lift one edge of the roll over the filling and press down, then roll up tight into a sausage shape!

5.
Mix the soy sauce, sesame oil, honey and crushed garlic in a small bowl or container. Dip your rolls in and enjoy!

Notes

- These quantities are based on working in groups however you could carry step 1 as a class.

- In addition to the cooking kit provided by Green Schools each group will also need a tea towel and an additional bowl or small container

You will need

Chopping Board and Chopping Knife

2 bowls

Pot and hob or kettle

Tea Towel

Mixing spoon, teaspoon and tablespoon

Garlic crusher (optional)

Cooking Skills Needed

Step 1: Hob Use (optional)

Step 2:Peeling and Claw grip chopping

Herb Dip for Carrots and Radish Pops

From the Garden: Carrots and Herbs

Hob Needed? No

Ingredients

2-3
Carrots

4 (one per student in group)
Radishes

Handful
Chives, Parsley and Mint

1
Small clove of garlic

300ml
Natural Yogurt

Zest of 1
Lemon

Pinch
Salt and Pepper

Instructions

1:
Wash, peel and chop the carrots into sticks.

2:
Wash the radishes and chop off green tops. Insert one cocktail stick into each radish.

3.
Wash and roughly chop your herbs. Peel and crush or thinly slice your garlic. Add to mixing bowl.

4.
Grate the zest of the lemon into the mixing bowl.

5.
Add the yogurt, salt and pepper to bowl and mix well.

6.
Dip your carrot sticks and radishes into the dip and enjoy!

You will need (per group)

Chopping Board

Chopping Knife

Mixing Bowl

Grater

Spoon

Cocktail Sticks (not included with kit)

Cooking Skills Needed

Step 1: Peeling and Claw Grip. Steps 2 & 3: Claw Grip
Step 4: Grating

10

379

Chard and Apple Salad

From the Garden: **Hob Needed?**
Chard   No
Spring Onions

Instructions

1:
Wash the chard leaves, spring onions and celery.

2:
Thinly slice the chard stalks, spring onions and celery.
Place in bowl. Tear the chard leaves into strips and add.

3.
Cut the apple and feta into small pieces and add. Mix
together.

5.
Mix the olive oil and honey together in a cup or small
bowl. Cut the lemon in half and squeeze in a little juice.

6.
Add the dressing and raisins/cranberries. Mix the salad
together.

You will need

Chopping Board

Chopping Knife

1 large bowl and one small bowl/jug or cup

2 Dessert Spoons

1 wooden or mixing spoon

Cooking Skills Needed

Step 2: Claw Grip Chopping

Step 3 and 5: Bridge Chopping

Ingredients

6-7
Chard Leaves

4
Spring Onions

2
Stalks of Celery

1
Apple

Handful
Raisins or cranberries

25g
Feta Cheese (optional)

3 Dessert Spoons
Olive OIl

1
Lemon

2 Dessert Spoons
Honey

Shakshuka

From the Garden:
Spinach
Spring Onions

Hob Needed?
Yes

Ingredients

2 large handfuls
Spinach

6
Spring Onions

1
Red and 1 Yellow Pepper

1 tin
Tomatoes

2 cloves
Garlic

1 bunch
Coriander (optional)

4
Eggs

2 Dessert Spoons
Olive Oil

Handful
Grated cheese (optional topping)

100ml
Natural yogurt (optional topping)

Instructions

1:
Wash the spring onions, spinach, peppers and coriander.

2.
Thinly slice the spring onions and peppers. Crush the garlic.

3.
Heat the oil in a frying pan. Add the peppers and spring onions and sauté for 2-3 minutes. Add the garlic, spinach and tin of tomatoes.

4.
Cook for about 10 minutes. Stir occasionally as the mixture bubbles.

5.
Make a little well in the mixture and crack an egg in. Repeat for each egg. Cook without stirring for 7-8 minutes. Rip up and add the coriander.

6.
Serve warm. You can top with cheese or natural yogurt.

You will need

Chopping Board

Chopping Knife

Frying pan

Wooden or large mixing spoon

Bowls and spoons or forks to serve

Grater (optional if adding cheese)

Notes

- These quantities are based on preparing enough for a tasting portion for each student in the class

- We would advise sharing the vegetables out amongst groups to prepare and then allowing groups or individual students to take turns carrying out steps 3 to 5 working with the hob.

Cooking Skills Needed

Step 2: Claw Grip chopping

Step 3: Hob use and sautéing. Step 6: Grating (optional)

12

Strawberry Jam

From the Garden: Strawberries

Hob Needed? Yes

Ingredients

250g
Strawberries

250g
Caster Sugar

1
Lemon

Instructions

1:
Wash the strawberries and then dry carefully with kitchen paper. Try not to use when still wet.

2:
Cut off the stems and cut any large strawberries in half. Mix in a bowl with the sugar so all the strawberries are covered.

3.
Cut the lemon in half and squeeze the juice from one half into a pan. Add the strawberries.

4.
Cook the strawberries on a low heat until all the sugar has dissolved and none can be felt when stirring. Turn the heat up to high and allow mixture to boil for 10 minutes.

5.
Check if the jam is ready by putting a teaspoon full on a cold plate. Wait 30 seconds and dip your finger in. If it makes a wrinkle and holds steady it is ready. If the jam fills in the hole your finger made return to heat and boil for 2 more minutes then test again.

Note

If you do not eat all the jam straight away then you will need a jar or other sealable container to store. This is not included with our cooking kit.

You will need

Chopping Board and Chopping Knife

Weighing Scales

Mixing Bowl

Pan

Plate or saucer

Cooking Skills Needed

Steps 2 and 3: Bridge Hold Chopping. Step 4: Hob Use

13

Egg Fried Rice with Carrots

From the Garden:
Carrots, Peas
Spring Onions

Hob Needed?
Yes

Ingredients

Note: These quantities are for a group of 4-6 to have a portion. You may wish to combine all groups ingredients together when cooking on hob.

1 large
Carrot

4
Spring Onions

200g
Basmati rice

1 clove
Garlic

1 bunch
Coriander (optional)

1
Egg

2 Dessert Spoons
Olive Oil

Pinch
Salt and Pepper

1-2 tsp (per student)
Soya sauce

Handful
Peas removed from their pods (optional)

Instructions

1:
Weigh out your rice. Boil water in a pan and add the rice. Turn down the heat and cook for 15 mins (or follow instructions on pack). Drain and set aside to cool.

2.
Wash the spring onions and carrots. Remove the peas from the pods.

3.
Thinly slice the spring onions. Peel the carrots and thinly slice or grate. Crush the garlic or thinly slide.

4.
Heat the oil on a frying pan. Add the spring onions, carrots, salt, pepper and garlic. Sauté gently for 4-5 mins.

5.
Add the cooked rice and peas to the pan and cook whilst mixing for 3-4 minutes. Add sprigs coriander (optional).

6.
Make a well or gap in the middle of the rice and veg and crack the egg in. Allow to cook for a minute then mix together and cook for another 3 minutes. Serve to students and add soya sauce to taste.

You will need

Chopping Board and Knife

Frying pan and pot

Wooden or large mixing spoon

Bowls and spoons or forks to serve

Weighing Scales

Grater and garlic crusher (optional)

Cooking Skills Needed

Step 2: Claw Grip Chopping and grating (optional)

Step 3: Hob use Step 4: Sautéing

14

Patatas Bravas

From the Garden:
Potatoes, Onion

Hob Needed?
Yes

Ingredients

4
Medium sized potatoes

1
Onion

2
Cloves of garlic

400g
Tin of tomatoes

4 Dessert Spoons
Olive Oil

1 tsp
Paprika

1 tsp
Paprika

Few sprigs
Thyme and Rosemary

Pinch
Salt and Pepper

Note: These quantities are for a class of 25-30 to have a tasting portion. If working in groups, divide ingredients up to prepare before bringing to hob. Give each group a chance cooking on hob if possible.

Instructions

1:
Wash and peel the potatoes. Place in a pot and cover with water. Bring to the boil and cook for 15 mins with lid on. Drain the water and set potatoes on kitchen paper to cool.

2.
Thinly slice the onion and the garlic (or crush).

3.
Heat 2 Dessert Spoons of olive oil in the pot. Add the chopped onions. Sauté for 5 minutes until onions turn translucent (see through). Then add the garlic, paprika, honey, thyme and salt. Cook for 1 minute. Add the tomatoes and simmer for 5-10 minutes while stirring on medium heat until it thickens. Take off hob but keep lid on pot to keep warm.

4.
Once the potatoes have cooled, chop into bite sized chunks. Heat 2 Dessert Spoons of olive oil on frying pan. Add the potatoes. Cook for about 5 minutes until golden brown. Add rosemary ,salt and pepper. Divide into serving dishes.

5.
Use hand blender to blitz sauce in the pot until it becomes smooth. Pour sauce over potatoes. Enjoy!

You will need

Chopping Board and Chopping Knife

Frying Pan and Pot with lid.

Garlic crusher

Wooden Spoon

Peeler

Hand blender

Cooking Skills Needed

Step 1: Peeling, Bridge Hold Chopping

15

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Boxty

From the Garden:
Potatoes
Spring Onions

Hob Needed?
Yes

Ingredients

2
Potatoes

100g
Self raising flour

50ml
Milk

2 Dessert Spoons
Olive Oil

Handful
Spring Onions

Pinch
Salt and Pepper

Note: These quantities are for a group of 4-6 to have a portion. The groups will need to take turns cooking their mixture on the hob (step 6) however you could boil all groups potatoes together in same pot (step 2).

Instructions

1:
Peel your potatoes. Grate half of them into a large bowl

2:
Place the other half in a pot of boiling water and simmer on hob for about 15 mins. Remove from heat and mash with fork or potato masher.

3.
Thinly slice the spring onions.

4.
Add the mashed potatoes, flour, spring onions, salt and pepper to the grated potatoes. Mix well.

5.
Slowly add the milk in stages and mix until it forms a thick batter.

6.
Add the batter in spoonfuls to a frying pan. Cook for about 3 mins. Flip and repeat on the other side. Enjoy!

You will need

Chopping Board

Chopping Knife, potato peeler, fork or masher

Mixing Bowl and large spoon

Grater

Spatula or fish slice

Frying pan and pot

Weighing scales (not included in cooking kit)

Cooking Skills Needed

Step 1: Peeling and Grating. Step 3: Bear Claw

Step 2 and 6: Hob Use

16

Tomato Sauce

From the Garden:
Parsley
Oregano

Hob Needed?
Yes

Ingredients

2 Dessert Spoons
Olive Oil

2 handfuls
Parsley and Oregano

2
Cloves of garlic

Two 400g
Tin of tomatoes

2 tablespoons
Tomato Puree

2 tablespoons
Honey

2
Onions

Pinch
Salt and Pepper

Note: This recipe is best prepared as a class to allow each student a tasting portion if using for pizza making or serving with pasta. If working in groups– give each group responsibility for completing one step.

Instructions

1:
Thinly slice the onions and crush garlic.

2:
Heat the oil in a frying pan. Add onion and sauté (stirring every now and then) until the onion begins to turn translucent (see through).

3.
Add the garlic to the pan and stir for one minute. Add the tomatoes, salt, pepper, puree and honey. Allow to bubble for 15 minutes on a low heat. Stir occasionally.

4.
Stir in the parsley and oregano. Take off heat.

5.
When cool place in blender and blitz until it is smooth. Use to make pizza (page 8) or serve with pasta

You will need

Chopping Board

Chopping Knife

Wooden Spoon

A blender or soup gun

A teaspoon

A frying pan/pot

Cooking Skills Needed

Step 1: Bear Claw

Step 2 and 3: Hob Use and Sautéing

17

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Pizza

From the Garden: Choose your own toppings!

Hob Needed? Oven optional

Ingredients

1 batch
Tomato sauce (see recipe on page 14)

450g
Flour

7g
Fast yeast

300ml
Warm water

2 Dessert Spoons
Olive Oil

100g
Cheese

Handful
Your choice of topping. Try radishes, spring onion, peppers and herbs

Instructions

1.
Place the flour, yeast and warm water in a bowl and mix well until it becomes a dough. Place on counter and knead into a smooth ball.

2.
Place dough into a lightly oiled bowl. Cover with tea towel and set aside in a warm spot to allow to rise. The longer you wait the better! Give it at least 30 mins.

3.
Knead again and this time roll into "pizza shape". Prick holes in it with a fork. Spread spoonful's of tomato sauce over.

4.
Thinly slice your choice of toppings and sprinkle over pizza along with grated cheese. Place directly in oven at 180 degrees. Cook for 15 minutes.

Alternative.
If you don't have an oven you can use wraps or even crusty bread as your pizza base. Simply cover with tomato sauce and toppings and enjoy!

You will need

Large bowl

Tablespoon and Wooden or Mixing spoon

Fork

Grater

Chopping Board

Chopping Knife

Weighing Scales

Cooking Skills Needed

Step 2 and 3: Kneading

Step 4: Bear Claw

18

French Bean Curry

From the Garden:
French Beans
Potatoes

Hob Needed?
Yes

Ingredients

300g
French Beans

600g
Potatoes

3 cloves
Garlic

1
Onion

2 Dessert Spoons
Curry Powder

2 tbs
Corn flour

500ml
Water

1 can (400ml)
Coconut milk

2 Dessert Spoons
Olive Oil

Note: These quantities are for a class of 25-30 to have a tasting portion. If working in groups, divide ingredients up to prepare before bringing to hob

Instructions

1:
Wash your French beans, potatoes and onion.

2:
Peel your potatoes and chop into small cubes. Thinly slice your onion.

3.
Heat the oil in a frying pan. Add the onion and sauté for about 5 minutes until translucent.

4.
Add the curry powder and garlic and cook on for a couple of minutes. Add the corn flour and water and mix together to remove lumps. Add potatoes and cook for about 10 minutes until potatoes are soft (test with fork).

5.
Slice the green beans into bite sized chunks. Add the green beans and coconut milk to the pan on low heat. Increase the heat to medium and cook for another 5-10 minute depending on how crunchy you want the French beans.

You will need

Chopping Board

Chopping Knife

1 large bowl

1 pan

2 Dessert Spoons and one wooden or mixing spoon

Cooking Skills Needed

Step 2: Hob use

Steps 3 and 4: Claw Grip Chopping

19

Chard Fajitas

From the Garden:
Chard
Spring Onions

Hob Needed?
Yes

Instructions

1:
Slice lime in half and squeeze all juice from one half into bowl. Add the honey, cumin and 2 Dessert Spoons of olive oil and mix well.

2:
Wash and thinly slice the peppers and spring onions.

3.
Heat 3 Dessert Spoons of olive oil in the frying pan. Add the peppers, spring onions, black beans, corn, salt and pepper and cook for about 5 minutes.

4.
Remove from heat and add to the mixing bowl with the dressing. Place a spoonful of the veggie mix onto each chard leaf.

5.
Add a sprinkle of grated cheese or natural yogurt if desired. Fold like a burrito and enjoy!

You will need

Chopping Board

Chopping Knife

1 large bowl

1 frying pan

2 Dessert Spoons

Wooden spoon

Grater (optional if grating cheese)

Ingredients

25-30 (1 per student)
Large Swiss or Rainbow Chard Leaves

1 tin of both (per class)
Black beans and corn

3-4
Spring Onions

1
Red or Yellow Pepper

2 Dessert Spoons
Juice from a lime

2 Dessert Spoons
Honey

1 tsp
Cumin

Pinch
Salt and Pepper

5 Dessert Spoons
Olive Oil

Sprinkle per student
Grated cheese (optional)

1 Dessert Spoon per student
Natural Yogurt (optionatl)

Note: These quantities are per group of 4 to 5 unless otherwise stated above. Combine all groups ingredients together when cooking on hob (step 3). You can then divide cooking mixture back between groups for steps 4 and 5.

Cooking Skills Needed

20

Step 2: Claw Grip Chopping

Step 3: Hob Use and Sautéing. Step 5: Grating (optional)

Peas, Mint and Feta

From the Garden: Peas and Herbs

Hob Needed? Yes

Ingredients

250g
Peas out of pods

Handful
Parsley and Mint

20ml
Olive Oil

30g
Feta

Juice of 1
Lemon

Pinch
Salt and Pepper

Note: These recipe is best prepared as a class. It will prepare enough for a tasting portion per student in a class of about 25. You can try to give several students an opportunity to help carry out different steps.

Instructions

1:
Pop your peas into a pot of boiling water for about 4 minutes then drain carefully. Place in mixing bowl.

2:
Cut the lemon in half and squeeze the juice into the hand blender container.

3.
Add the herbs, olive oil, salt and pepper to the container and blitz with blender.

4.
Pour the blended mixture in with the peas. Crumble over the feta. Mix together and enjoy!

You will need

Chopping Board

Chopping Knife

Mixing Bowl

Grater

Spoon

Pot with lid

Weighing Scales

Cooking Skills Needed

Step 1: Hob use

Step 2: Claw Grip Chopping

Step 3: Blending

21

Rainbow Wraps

From the Garden: Spinach/Lettuce Carrots

Hob Needed? No

Instructions

1:
Thinly slice the garlic or use a crusher. Grate the lemon zest and add to liquidizer.

2:
Drain the tin of chickpeas and add along with the tahini, salt and pepper to the liquidizer. Blend all ingredients together to make humus.

3.
Wash the spinach/lettuce, carrots and peppers. Shred the leaves.

4.
Peel the carrots and grate. Thinly slice the peppers.

5.
For each wrap— spread some humus over the wrap so it is completely covered.

6.
Add some spinach, peppers and carrots. Then sprinkle with crumbled feta. Roll up wrap and enjoy!

You will need

Chopping Board

Chopping Knife

Grater

Table Spoon

Hand blender

Ingredients

Large Handful
Spinach or Lettuce

2
Carrots

2
Yellow Peppers

30g
Feta

4-5
Wraps (1 per student or 1 between 2)

1 tin
Chickpeas

1
Lemon

2
Cloves of garlic

2 Dessert Spoons
Tahini

Pinch
Salt and Pepper

Note: These quantities are per group of about 5 students. However, the humus ingredients will make enough for about 10 students so you can combine groups for the steps 1 and 2 if you wish.

Cooking Skills Needed

Step 1: Claw Grip Chopping and Grating

Step 2: Using food blender

Step 4: Peeling, Grating and Claw Grip Chopping

22

Pea Shoot Salad

From the Garden:
Peas and Herbs

Hob Needed?
No

Ingredients

100g
Pea Shoots

2 handfuls
Peas removed from pods

Small bunch
Mint

50g
Mozzarella Cheese

4 Dessert Spoons
Olive Oil

5
Radishes

2 Dessert Spoons
Lemon juice

Pinch
Salt and Pepper

Instructions

1:
Wash the pea shoots and radishes. Remove the peas from the pods.

2:
Thinly slice the radishes and mozzarella. Add to a bowl with the peas and pea shoots.

3.
Crush the garlic and add to the bowl.

4.
Mix the lemon juice and olive oil together.

5.
Add the dressing, salt and pepper to the salad and mix together.

You will need

Chopping Board

Chopping Knife

Mixing Bowl

Garlic Crusher

Spoon

Cooking Skills Needed

Step 2: Claw Grip Chopping

23

Oven Roasted Vegetables

From the Garden:
Potatoes, Carrots and Herbs

Hob Needed?
No, but oven needed

Instructions

1:
Wash the potatoes, carrots and herbs. Preheat oven to 180 degrees.

2:
Chop the potatoes in half using Bridge Hold Technique and then slice into smaller wedges or chips.

3.
Peel the carrots, remove the top and tail (bottom part) and chop into wedge type shapes. They should be roughly the same size.

4.
Put carrots on one baking tray and potatoes (along with any other optional veg) on another. Add olive oil, pinch of salt and pepper and scatter herbs over each. Stir well.

5.
Cook carrots in oven for 35-40 mins (check with fork if sort) and potatoes for 25-30 mins. Remove from oven halfway through to stir.

You will need

Chopping Board

Chopping Knife

Baking Tray per group (not part of cooking kit)

Tablespoon and fork

Peeler

Cooking Skills Needed

Step 2: Bridge Hold and Claw Grip Chopping

Step 3: Peeling and Claw Grip Chopping

Ingredients

3
Potatoes

4
Carrots

Optional
Choose other veg like onions, tomatoes, leeks etc to add

Small bunch
Rosemary

Small bunch
Thyme

3 Dessert Spoons
Olive Oil

Pinch
Salt and Pepper

Note: These quantities are per group of about 5 students. However, you may wish to combine several groups vegetables on the same trays for steps 4 and 5

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Cooking Kit
The following items are included in our Green Schools Kit

Item	Quantity	Picture
Storage Box with lid	1	
Wooden Spoons	2	
Box Grater	6	
Potato Peelers	6	
Large Bowls	8	
Garlic Presses	6	
Chopping Boards	10	
Scissors	2	

Cooking Kit
The following items are included in our Green Schools Kit

Item	Quantity	Picture
Tea spoons, Dessert spoons and Forks	8	
Frying Pan	1	
Pot with lid	1	
Hot Plate	1	
Vegetable Knives	6	
Hand Blender with Measuring Cup (note this can be used for measuring liquids)	1	

The following items are not included in the kit but we recommend you bring in when cooking:

- Tea towel per group to place under chopping board to avoid slippage
- A serving plate/empty lunch box and fork or spoon for each student to eat a portion
- Clean up equipment and aprons if desired.
- There are one or two recipes which require an additional piece of equipment. These are highlighted in orange in the equipment list on the recipe.

Tips and Advice

We hope that as well as encouraging students to try the vegetables they have grown, that cooking in school will be an enjoyable experience for students and teachers which will increase student's confidence in their ability to prepare simple dishes. Read through our guidance below for some advice to help cooking sessions run smoothly.

Cooking in the Classroom

Ingredients: If possible, use vegetables you have grown in the garden. However, if the crop is not ready or there is not enough you can top up with shop bought ingredients. You can choose to add or substitute vegetables you do have in the garden, especially herbs. Consider keeping core ingredients like olive oil, salt and pepper to the kit box or somewhere accessible to all classes in the school.

Before the session: Read the recipe carefully a few days before to check if there is any extra equipment needed. Equipment not provided in cooking kit is highlighted in orange in recipes. Wait until just before the session to pick any vegetables or herbs you are using from the garden.

Group Work: It is advised that you cook in groups of 3-5. Consider assigning one student per group to carry out each step. Alternative after each step. This may be easier than giving each student a turn trying each step unless you have small groups or a very simple recipe. Decide this before you start.

Cooking Tips:

- When using a chopping board place a damp tea towel underneath. This will keep it steady.
- Students should always be closed supervised when using knives. Practice using knives and peelers before you attempt a recipe. Choose a safe place like a lunch box for students to put down knives and peelers when they are not using them. They should not be left on chopping boards.
- Students should always be supervised closely when using hob. There should only be a small group of people working with the hob at a time. Do not crowd around. Ensure everyone knows how to turn it on and off. When using frying pan, heat with oil on hight heat for about 10-15 seconds before adding vegetables. Turn down heat if food is sticking or burning.

Food Waste: Aim to produce as little waste as possible when cooking. Offer leftovers to another class, staff room or a student to bring home. Vegetable peelings, cores and seeds can be composted or put in brown bin.

Appendix H.1 Students' evaluation

Students after completing the two-year theme were asked to evaluate the project in three words.

The word-cloud below captures the information received.

Appendix H.2.a Teacher evaluation questions end of year one

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1. Do you have any advice on how whole-school integration of the programme could be enhanced?

2. What skills do you think the formation of the student committee enhanced?

3. Did you find that there was a positive a peer-to-peer learning aspect to the programme?

4. Did the students become more aware of biodiversity through participation in the programme?

5. Did the programme increase the student's awareness of environmental issues?

6. Do you feel the programme helped the school to achieve any of the UN SDGs?

7. Are curriculum links helpful for teachers? If so, how can they be improved?

Appendix H.2.b Example of teacher evaluation end of year one

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1. Do you have any advice on how whole-school integration of the programme could be enhanced?

-It would be helpful to try to do something with the other teachers in the school to reinvigorate them about Green-Schools, show its value and thank them for work so far. Eg a short presentation or video that could be shown during school assembly or Croke Park Hours.

-Certain crops were not ready by the end of the school year but survived during the school holidays and were ready to eat in September. Hopefully next year with the different timing of Easter and seeds will be arranged to arrive earlier

- Same crops next year (different source for the strawberry plants as it seems like none of them grew well), get the seeds out earlier. Recommend certain crops for each age groups, not a form where you choose a crop for each year group. Curriculum links for each crop

-Difficult to ensure that individual classes kept up with maintaining the plants after they were planted. It will not be possible for every class to give the same amount of time and effort to this project, some people have mentioned they had teams of kids watering, weeding etc all the beds and this was a good activity for students in different learning units to take charge of. After we do the soil tests, give more advice on how much watering etc will be needed and maybe come up with a maintenance plan.

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2. What skills do you think the formation of the student committee enhanced?

-Teamwork, communication and organisation, confidence.

Investigation, discovery

Organisational skills, social skills, interpersonal skills

Teamwork, Planning and Communication skills.

Communication, confidence and teamwork. Students are given opportunities to put forth their ideas and work with their peers. They also gain experience presenting information to their class groups informally and in settings like school assemblies.

Kids love to be on the committee

3. Did you find that there was a positive a peer-to-peer learning aspect to the programme?

- One of the most positive aspects of working on the programme was the feedback we got from our colleagues. The children on the Green School's Committee were commended for their work on teaching the biodiversity at each class level and the teachers said that the children were learning so much from their peers.

The children have realised the importance of working as part of a team. They have thoroughly enjoyed being part of a committee.

-The main highlight was the enthusiasm of the children. The committee are always eager to give their ideas and put these ideas into practice. The whole school are proud of their achievements and enjoy working towards new flags.

The children were very engaged with the program and enjoyed all of the activities that we undertook. We had multiple workshops and guest speakers that the whole school enjoyed participating in. Lots of scope for activities with the committee and whole school.

4. Did the students become more aware of biodiversity through participation in the programme?

-The children on the committee loved being involved. We have fantastic grounds, and this theme gave us a great opportunity to use the grounds. The children got to get out of the classroom, explore and go on nature walks. It provided the opportunity for them to really appreciate and enjoy their environment. This ties in with recommendations that we had from inspectorate at our last WSE.

5. Did the programme increase the student's awareness of environmental issues?

-Our committee gained insight and experience in working with land. We were able to bring awareness of biodiversity and our ecosystem to the whole school, who were very supportive of all that we have done/are doing.

6. Do you feel the programme helped the school to achieve any of the UN SDGs?

Life On Land – we made the school much more habitable for lots of species!

7. Are curriculum links helpful for teachers? If so, how can they be improved?

As mentioned above, it can be tricky to integrate it as the curriculum is lacking in the study of food. While it can be hard to integrate it in due to the lack of the topic of food on the curriculum, the links were very useful.

Appendix H.2.c Teacher and Green-Schools staff evaluation questions end of year two

1. How did you find student engagement with the theme of Food and Biodiversity?

2. What do you think were the most successful student outputs in relation to the theme?

3. Do you think students gained confidence or inquisitiveness in relation to discussing and exploring food topics after completing the programme?

4. What skills do you think the formation of the student committee enhanced?

5. How did the programme allow for increased outdoor activity?

6. How were students' abilities or skills enhanced by the tasting or cooking workshop?

7. Did the students become more aware of biodiversity on school grounds through the mapping exercise and working in the school garden?

8. Can you describe any impact on school attendance or behaviour in relation to the theme?

9. Where there any aspects of the programme that students took home to the family? If so, what were they?

10. Did the theme increase the student's awareness of environmental issues?

11. What food related skills were most enhanced through involvement in the theme?

12. Did you notice any changes in students eating patterns or lifestyle behaviours due to learning in the theme?

13. Were you happy with the whole-school participation rate?

14. Were the curriculum integration links useful, were they accurate?

15. Did the programme throw up any challenges to teaching the curriculum?

16. Would you have any recommendations as to where more food education could best fit into the school curriculum?

17. Were there any other changes of note on the school grounds in relation to the theme?

18. Do you feel the programme helped the school achieve any of the UN SDG's?

19. What were the barriers and enablers to the school community when implementing the seven steps of the Food and Biodiversity Theme?

20. Was the school able to reduce food packaging?

21. Did the school provide more spaces or habitats for pollinators through the implementation of the programme?

22. What were the biggest challenges to the operations of the Food and Biodiversity Theme?

Appendix H.2.d Notes on online evaluation session end of year two

- How did the students choose their Global Food Topic from the list provided?
  - Discussions with teachers.
  - VI teacher described mind maps created with student committee and had vote.
  - Some based on things the school was already interested in, had been working on- Pollination.
  - What they thought they had the most scope to work with
  - All schools were given a choice of 4. One school asked for a topic not in their assigned group which was allowed - Rainforests. Different projects per year group. Plan to present to each other
- How were classes allocated areas to investigate
  - Class teacher could decide
  - ED was very positive about the suggestions I sent her on growing topics by age group. Something to work on for other global topics.
- What did they do
  - Food miles: Map of World with pins and sting drawn to them.
    - Visit from a student's grandparent who has allotment and produces and sells veg locally
  - Pollinators: planting wildflower areas. Heritage in school expert visitors, beekeeper visits. Incentive given by keeper- would name a beehive after the school if they put in place all recommendations. This was very motivating
- Would they like set or recommended activities: Yes, potential for stay-at-home activities

 Soil Workshop and Food Habitat Workshop
- Would they want to do them without Green-Schools presence? Everyone had a positive response to these workshops. Definitely feel they are worthwhile and enjoyable. Important for food habitat map to have finished examples and both to have clear step by steps. Habitat mapping was seen as easier to follow without guidance from visitor. Maybe video for soil.

- Crops: easier to assign this year. All preferred system of crops being assigned to each year group rather than having to choose. Several teachers noted it was easier to get buy-in from other staff especially on planting in the second year. They had seen it was doable in year 1 so were less nervous in year 2

Harvest Festival- thoughts
– Worried about all the crops being ready at the same time, enough food for everyone to taste, space for parents
– One teacher suggested - maybe Garden Party instead. Prizes for best kept bed etc. Bit of flexibility on whether everything ready to eat.
– Could invite Chef, local producers, beekeeper etc. Other activities and games suggested for harvest fest

Timing of two-year programme
– Some felt they were rushing to get things done in spring and summer.
– Tendency to possibly relax more in autumn and winter.
– OL and ED were more confident working in garden during year.
– Our proposed programme seemed more doable.
– Key evaluation was to set out in clear way the timetable for the two years in a step-by-step seasonal way. Maybe a seasonal chart to go along with action plan to showed when steps in the garden should happen along with changes in wildlife.

Chefs engagement- thoughts.
– Very keen on this idea.
– Familiar with heritage in schools' structure and believe this would be easy for schools to use
– Key point is awareness of allergies
– School's differences in cooking equipment, spaces etc
– Would like input on workshop content. To be able to discuss with individual chef
– Interesting point: many teachers would be nervous to lead cooking session by themselves. Having an expert show them first may be very helpful. Safety of kids using knives, peelers etc
– Teachers may also be nervous of taking food and eating it from the garden. How can we alleviate this fear? They don't have the confidence to take responsibility for saying "this is safe"
– Use recipes that include veg they are growing

Handbook. What key points do they need in a handbook
– Timetable of work and activities. Checklist (action plan should help here)
– Show how different elements are linked together in a clear way.

Getting other teachers on board in schools
– Video for teachers in staff room
– Many schools found it easier in year 2 to get teachers involved. Once they had done it once it was easier.

Other Key points brought up:
- All these schools – except one - had existing gardening set up and some experience in gardening
- Some schools felt it was sometimes unclear to the students how all of the activities linked together. How for example the Global topic of pollinators were connected to growing in the garden. Maybe some kind of chart/infographic that shows how each step of food growing, production, transport etc fits together. Pull out content like GGs wheel.

- Have milestones or some sense of how they are moving in the right direction. After growing crops in year 1 how do this follow onto the same thing in year 2?
- Use of incentives, competitions would be helpful. Either within the school with big competition at the end of the year to link with Harvest Day on best kept bed, most produce etc. Or Green Schools competition on best garden of the year etc.
- Something to aim towards would keep the other teachers and students in the school motivated
- The more linked in with tidy towns, men's shed etc the better
- Would enjoy little video clips of gardening how-to's etc on social media or platform they can share with other teachers.

I live in a

Which animals give us these foods?
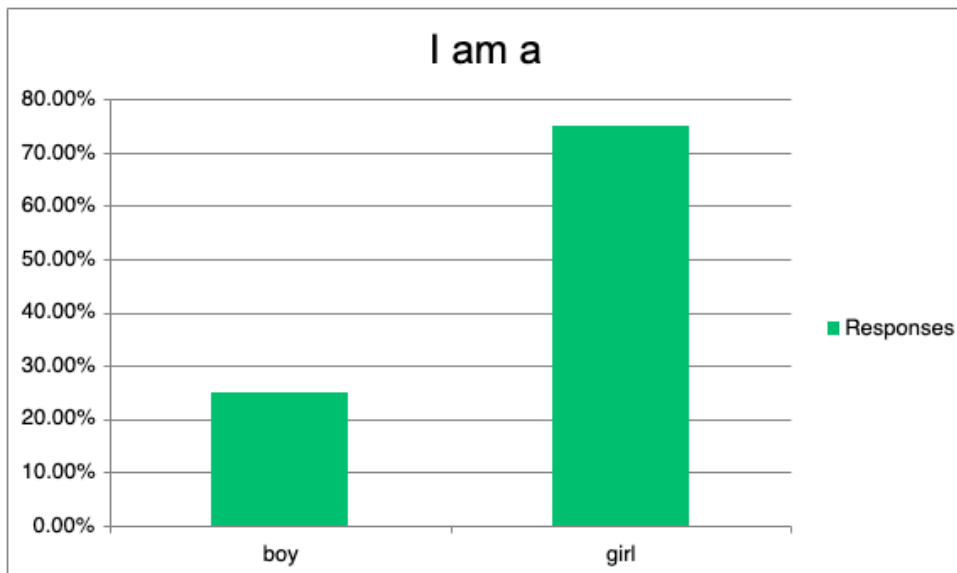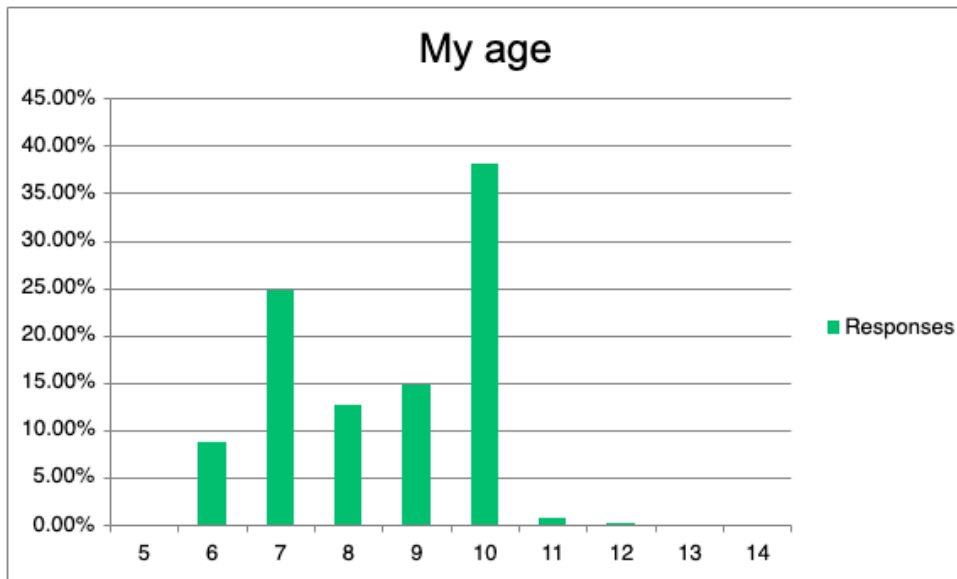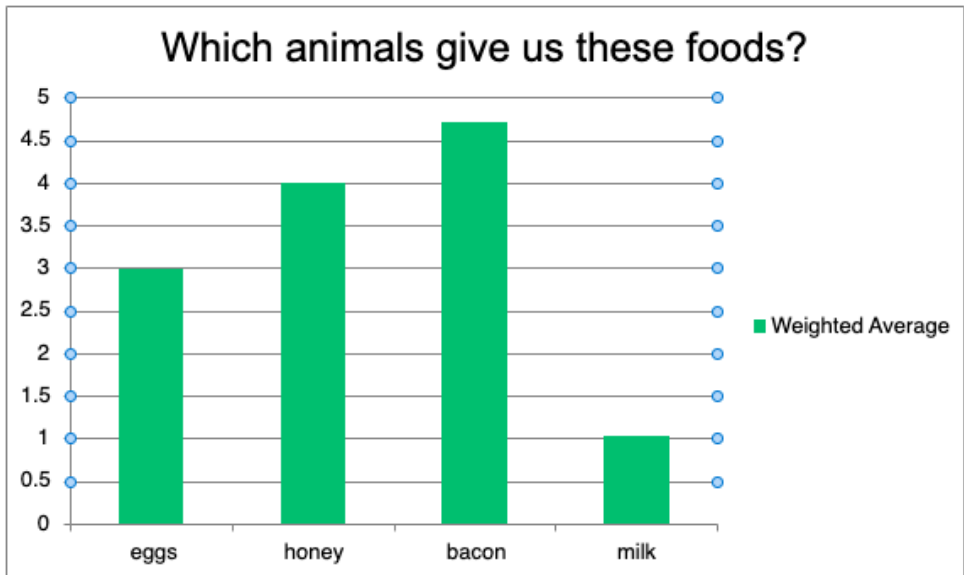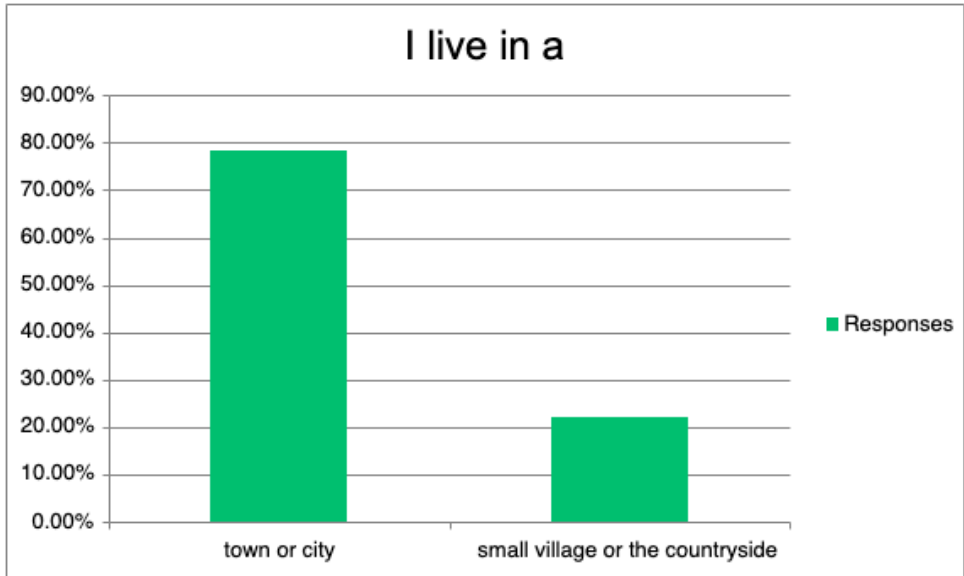
Name three vegetables that grow underground

Answer Choices	Responses	
1.	100.00%	645
2.	93.95%	606
3.	82.33%	531
	Answered	**645**
	Skipped	**41**

How often do you eat vegetables?

Name three fruit that grow on trees

Answer Choices	Responses	
1.	100.00%	655
2.	92.67%	607
3.	81.22%	532
Answered	**655**	
Skipped	**31**	

How often do you eat fruit?

Match the taste with the food

What creature is good for the soil?
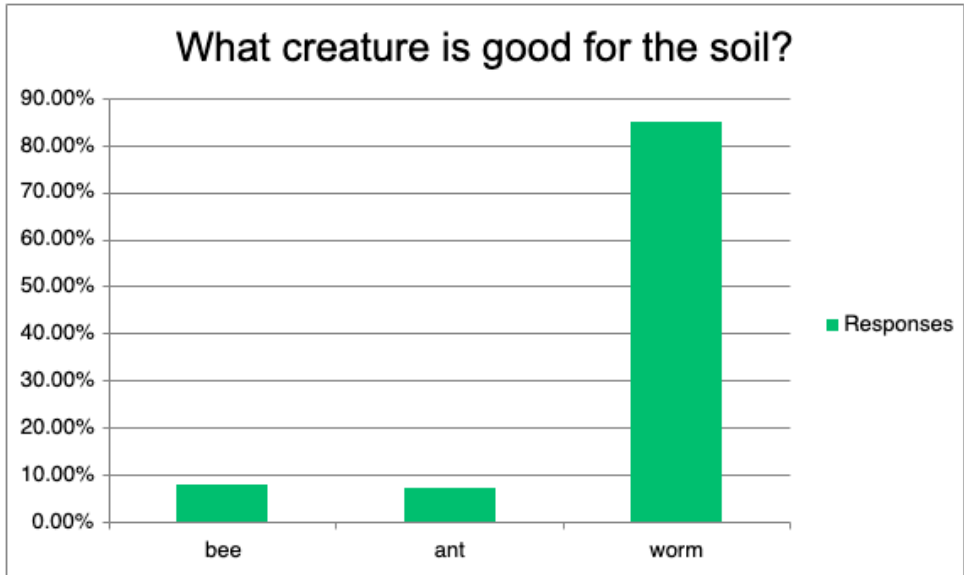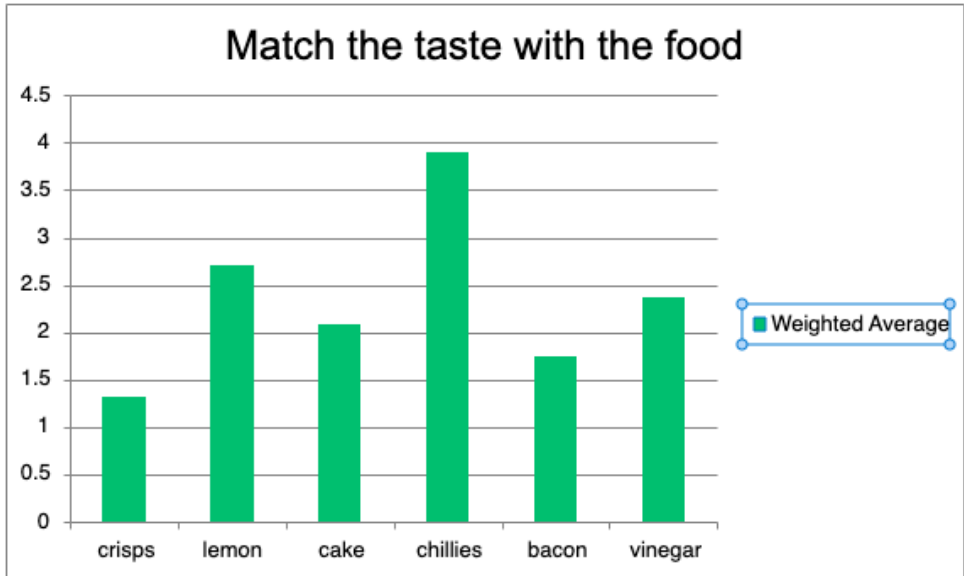
Can you list three foods in soup?

Answer Choices	Responses	
1.	100.00%	647
2.	93.66%	606
3.	82.53%	534
Answered		**647**
Skipped		**39**

Can you list three foods in a smoothie?

Answer Choices	Responses	
1.	100.00%	651

2.	96.62%	629
3.	92.78%	604
Answered	**651**	
Skipped	**35**	

Do you like leafy green vegetables, such as spinach or lettuce?

What I eat helps me stay healthy?

I like wholegrain foods such as brown bread, brown rice

Taking care of the world is important to me

Have you grown fruit or vegetables at home in the last year?

Have you grown fruit or vegetables in school in the last year?

How much of the food that you eat do you grow yourself?

If you grew food did you eat any of it?

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Have you helped on a farm in the last year?

Have you helped to cook vegetables at home in the past few weeks?

I helped made lunch or dinner a few times in the last few weeks?

I like to try a new food if I cook it myself

How often do you eat fast food, such as chips from the chipper or from places like McDonalds?

How often do you eat dinner sitting at a table?

How often do you drink fizzy drinks such as coke or Fanta?

I like working together with my classmates

I like to try new foods I have never tasted before

I look forward to playing outdoors
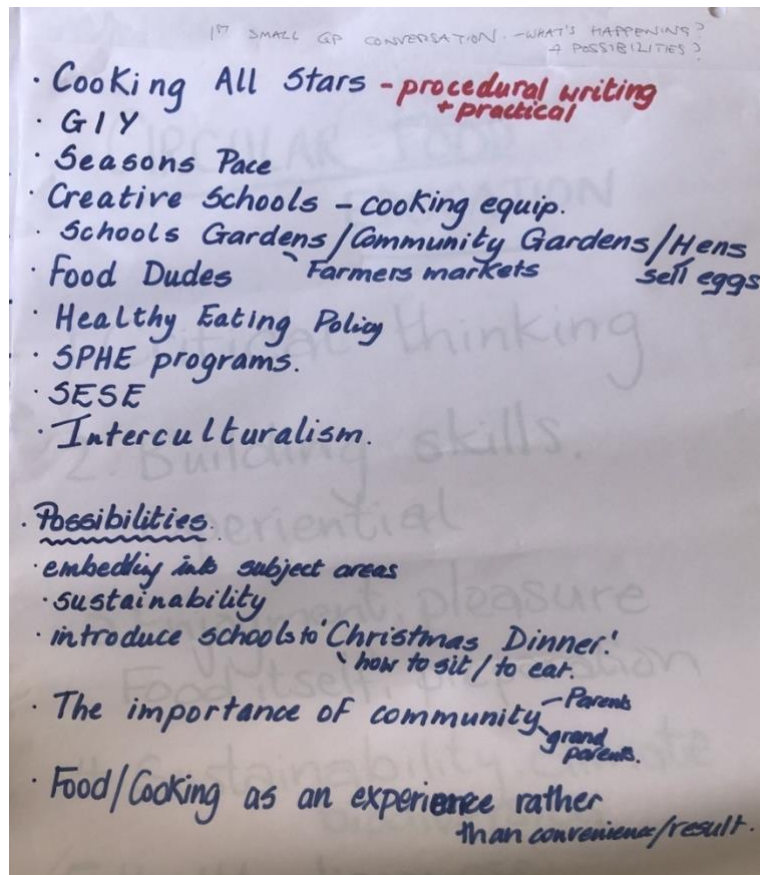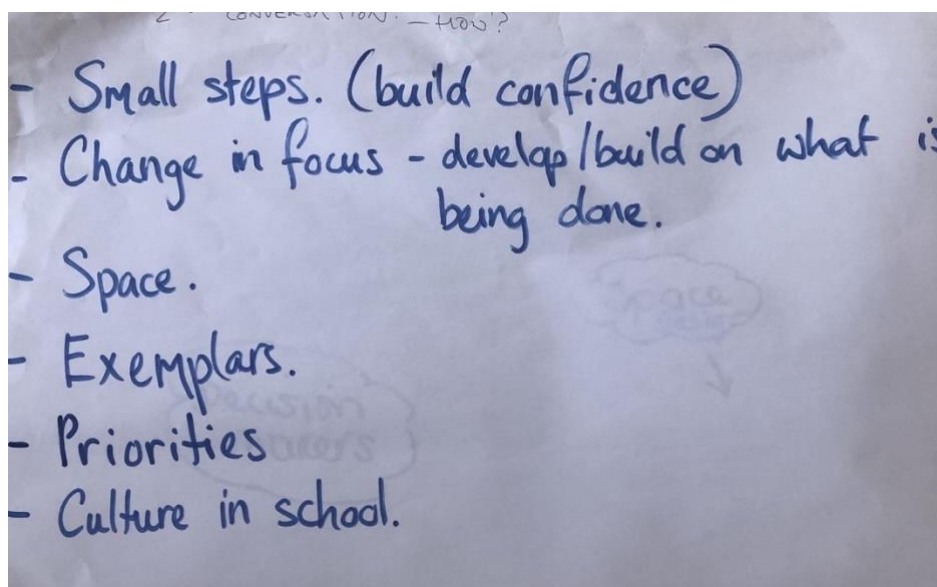
Appendix J Examples of Worksheets from the RFFW

Session 1

Session 2

Language

Practicality
 – what can do in classroom?
   what can do at home?
Children are hugely interested
  in food.
Opportunities for children
  to make decisions
Connect c̄ families, community
Get support of B.O.M – school
                          Plan
Place to eat, enjoy food
Inclusion of children c̄ disabilities
 – bring together – incl. mixed age
  groups eating together
Need for a kitchen in schools
            How equip schools

Group discussion

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Darmody, M. (2022). 'Widening capabilities through a food and sustainability education initiative', *Educational Action Research,* 30(4), pp. 585-603. Doi:https://doi.org/10.1080/09650792.2022.2058042

Darmody, M. (2021). 'A kitchen at the heart of a school - an investigation into school meals in the Republic of Ireland'. *Irish Educational Studies*, 42(2), pp. 165-181. Doi:https://doi.org/10.1080/03323315.2021.1929393

Darmody, M. (2020). 'Why do we not teach children how to cook and feed themselves in school?'. *Image Magazine,* Autumn. Available at: https://www.image.ie/self/why-do-we-not-teach-children-how-to-cook-in-school-156421

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